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**BOW FARM SUSTAINABLE DRAINAGE SYSTEMS (SUDS)  
MANAGEMENT PLAN**  
For  
**MORETON C CULLIMORE (GRAVELS) LIMITED**

**November 2024**

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# **BOW FARM SUSTAINABLE DRAINAGE SYSTEMS (SUDS) MANAGEMENT PLAN**

## **1. INTRODUCTION**

GWP Consultants LLP (GWP) have been instructed by Moreton C Cullimore Group (MCCG) to prepare a Sustainable Drainage Systems (SuDS) Management Plan for the development at Bow Farm, operated by MCCG, as required under Planning Pre-Commencement Condition 21 of Planning Permission Number 19/000048/CM (Worcestershire County Council).

In addition, Pre-Commencement Condition 27 of Planning Permission Number 19/0081/TWMAJM (Gloucestershire County Council) requires the submission of a SuDS Management Plan. The wording of Pre-Commencement Condition 27 in Planning Permission Number 19/0081/TWMAJM is almost identical to that of Pre-Commencement Condition 21 of Planning Permission Number 19/000048/CM (Worcestershire County Council). Planning Permission 19/0081/TWMAJM was approved by Gloucestershire County Council through the successful appeal (Appeal Ref. APP/T1600/W/23/3324695) by the applicant following initial refusal of Planning Permission 19/0081/TWMAJM.

Both Planning Permissions provide for the development of the Bow Farm site as the site straddles the Worcestershire/Gloucestershire county boundaries.

### **1.1 Pre-Commencement Condition Wording**

The wording of Pre-Commencement Condition 21 of Planning Permission Number 19/000048/CM is provided below:

*"No works in connection with site drainage shall commence until a Sustainable Drainage Systems (SuDS) Management Plan which shall include details on future management responsibilities, along with maintenance schedules for all SuDS features and associated pipework has been submitted to and approved in writing by the Mineral Planning Authority. The Management Plan shall also detail the strategy that will be followed to facilitate the optimal functionality and performance of the SuDS scheme throughout its lifetime. The approved SuDS Management Plan shall be implemented in full in accordance with the agreed terms and conditions and shall be managed and maintained in accordance with the approved maintenance plan and thereafter."*

### **1.2 Previous Reporting**

A Hydrogeological and Hydrological Impact Assessment (HIA) and Flood Risk Assessment (FRA) report (Report No. 190714 v.02) was prepared by GWP Consultants LLP (GWP) in August 2019 and submitted in support of the approved Planning Application.

A Report Letter (Report No. 200714 v.02) was then submitted by GWP in August 2020 which included technical responses to water-related matters raised in comments made by the two local planning authorities (LPAs) – Gloucestershire County Council (letter ref: 19/0081/TWMAJM) and Worcestershire County Council (letter ref: 19/000048/CM) – in their separate but identical letters dated 7<sup>th</sup> May 2020.

A further Report Letter (Report No. 220420 v.01) was prepared by GWP in April 2022 providing a technical review of the Environmental Statement submitted by CEMEX as part of their planning application for sand and gravel extraction and low-level restoration at Ripple East with respect to water-related impacts and mitigation, and the assessment of the potential for cumulative impacts of the CEMEX and Bow Farm developments to occur simultaneously. The CEMEX site is located immediately north of the M50 motorway, whereas the Bow Farm site is situated immediately south of the M50 motorway and immediately south of the CEMEX site. The Report Letter summarised that there will be no increased cumulative impact with respect to water related matters from the simultaneous developments.

This report and SuDS Management Plan refer to the original Planning Application.

### **1.3 Site Development**

The site will extract approximately 1.5 million tonnes of sand and gravel over an 8 to 9 year period, at approximately 200,000 to 250,000 tonnes per annum. The part of the proposed excavation area currently lying above the flood plain will be worked in 9 phases (Excavation Phases 1 to 9) and

restored to existing ground level with a combination of site derived material and imported inert fill. To extract the sand and gravel resource within Phases 1 to 9, the Applicant has previously advised the site will use a clay cut-off around its perimeter, keyed into the underlying clay to hydraulically separate the site from the surrounding aquifer. Therefore, no groundwater dewatering will be required.

Two excavation areas (Flexible Working Areas A and B) located on the flood plain, will be restored to open water and wetlands using only site derived mineral waste (silts and clays) and will have a final landform below pre-extraction ground levels. Sand and gravel within Flexible Working Areas A and B will be worked wet, as no clay cut-off will be installed around these areas.

The excavated sand and gravel mineral will be moved from the Excavation Phases to a processing plant area in the southeast of the application area *via* a radial conveyor to Phase 9, before transportation by dump truck. The processing plant area of the site will be located within Gloucestershire, whereas Excavation Phases 1 to 9 are situated within Worcestershire.

The processing plant area will be restored back to agriculture with any ponds used for silt settlement, surface water runoff attenuation, or to supply the processing plant remaining post-completion of the site to allow for additional storage of surface water runoff.

## **2. SUDS BACKGROUND AND GUIDANCE**

SuDS features are drainage features which attempt to replicate natural drainage patterns, through capturing rainwater at source, and releasing it slowly into the ground or a water body. They can help to manage flooding through controlling the quantity of surface water generated by a development and improve water quality by treating urban runoff. SuDS can also deliver multiple benefits, through creating habitats for wildlife and green spaces for the community.

The Ministry of Housing, Communities & Local Government (MHCLG) National Planning Policy Framework (NPPF) has been consulted with regards to the inclusion of SuDS within developments.

Paragraph 167 of the NPPF encourages the inclusion of sustainable drainage systems for proposed developments, unless there is clear evidence that this would be inappropriate.

Paragraph 169 of the NPPF states:

*'Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:*

- a) take account of advice from the lead local flood authority;*
- b) have appropriate proposed minimum operational standards;*
- c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and*
- d) where possible, provide multifunctional benefits.'*

The winning and working of minerals or the use of land for mineral-working deposits and waste developments are classified as major developments under Part 1 Article 2 of The Town and Country Planning (Development Management Procedure) (England) Order 2015 (Town and Country Planning Order, 2015).

Paragraph 168 of the NPPF does not apply to this development as this paragraph is concerned with minor developments and changes of use.

The effectiveness of SuDS within a site is defined by site characteristics, however the destination of surface water that is not collected for use on site should be prioritised according to the following discharge hierarchy:

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer or highway drain;
- to a combined sewer.

The Department for Environment, Food and Rural Affairs (Defra) Non-Statutory Technical Standards for Sustainable Drainage (Defra, 2015) provides guidance relating to the design, construction,

operation and maintenance of SuDS. The standards for drainage systems set out relevant peak flow control standards (S2 and S3), volume control standards (S4, S5 and S6), flood risk standards (S7, S8 and S9), structural integrity matters (S10 and S11), designing for maintenance considerations (S12) and items concerning construction (S13 and S14).

SuDS also allow the management of diffuse pollution through the sequential treatment of surface water reducing the pollutants entering external rivers and lakes. Managing pollution close to its source through a SuDS Management Train can help keep pollutant levels and accumulation rates low, allowing natural processes to be more effective.

The drainage strategy for the development applies SuDS concepts where possible, and are incorporated in line with the NPPF, Flood Risk and Coastal Change planning practice guidance and comply with the relevant standards of Defra's Non-Statutory Technical Standards for Sustainable Drainage.

### **3. SUDS FEATURES**

The site and its hydrogeological and hydrological setting is described in detail within the HIA and FRA report (Report No. 190714 v.02), which was submitted as part of the original Planning Application. The HIA and FRA report also outlined the potential impacts of the approved development on groundwater and surface water during the operational and restoration phases, with mitigation measures given as necessary.

A separate Surface Water Drainage Scheme report (GWP Report No. 240707 v.01), including detailed design drawings, is provided in order to satisfy Pre-Commencement Condition 20 of Planning Application Number 19/000048/CM. The Surface Water Drainage Scheme report details the proposed management of surface water at the site during the operational and restoration periods. The surface water drainage drawings included in the Surface Water Drainage Scheme report show the locations of the SuDS features which will be used at the site.

#### **3.1 Operational Phases**

The Surface Water Drainage Scheme report (GWP Report No. 240707 v.01) provides specific details regarding the management of surface water within Excavation Phases 1 to 9 and the separate processing plant area during the operation of the site. The proposals include using SuDS features during site workings.

##### **3.1.1 Excavation Phases 1 to 9**

During the progressive excavation of mineral from Phases 1 to 9 surface water runoff will be captured within a quarry sump in the excavation void. This water will then be pumped out of the pit at a controlled rate into an open ditch which conveys the water to a temporary silt pond for settlement of fines. This clean water is then discharged to a temporary infiltration pond, or a restoration infiltration basin during the excavation of the Phase 8 and 9 areas, where it infiltrates into the underlying *in situ* sand and gravel aquifer.

The temporary infiltration pond represents a SuDS feature which has been appropriately sized within the Surface Water Drainage Scheme report and will require management and maintenance. The incorporation of an infiltration pond to discharge surface water from within this part of the site during the extraction and subsequent backfilling phases to the ground follows the prioritisation of the SuDS discharge hierarchy, as outlined in Section 2.

The progressive mineral extraction and restoration of Excavation Phases 1 to 9 will mean low-permeability (inert) fill will be used to restore this part of the site. Therefore, the runoff generation within the Application Site will increase.

A surface water runoff attenuation and infiltration scheme is proposed as part of the restored site layout. This scheme will gradually be built and become operational, as the area comprising Excavation Phases 1 to 9 is progressively worked and restored. Restored phases will be drained into the completed sections of the restoration infiltration basin along the western boundary of Excavation Phase 1 to 9 areas. No uncontrolled runoff will be allowed to leave the site.

##### **3.1.2 Processing Plant Area**

Within the processing plant area in the east of the site application area, surface water from any roofs, parking areas, stockpiles and hardstanding will be collected *via* internal drains and routed to an

attenuation pond to the southwest of the main processing plant area. The surface water within the attenuation pond will be discharged at rates below the corresponding greenfield runoff rates for the attenuation pond catchment to the tributary of Mythe Brook through a pipe with an orifice plate attached to the inlet.

The attenuation pond will only receive surface water runoff collected from the processing plant area *via* the internal drains. A nearby processing/washing plant – silt pond – clean water pond system is kept as a closed system and is therefore kept separate to the runoff attenuation system of the processing plant area.

The sizing calculations for the attenuation pond SuDS feature are provided within the Surface Water Drainage Scheme report. The attenuation pond will require management and maintenance during the operational phase of the processing plant area.

It is necessary to discharge the water from the attenuation pond to a waterbody (tributary of Mythe Brook), the second row on the SuDS discharge hierarchy after infiltration, as maximum groundwater levels in this area make infiltration unfeasible.

## **3.2 Restoration and Post-Development Phase**

The Surface Water Drainage Scheme report (GWP Report No. 240707 v.01) provides specific details regarding the management of surface water within the Excavation Phases 1 to 9 areas following restoration of the site. The proposals include using a SuDS feature.

### **3.2.1 Excavation Phases 1 to 9 Area**

The surface water runoff scheme will capture, attenuate and infiltrate rainfall runoff from the restored areas in Excavation Phases 1 to 9 areas.

The rest of the Application Site will either be excavated and subsequently restored using site-derived materials (Flexible Working Areas A and B in the west of the site), or not be excavated at all. Therefore, the drainage regime of these areas will not change as a result of the restoration layout, and no mitigation measures are required.

The surface water runoff management scheme of the restored Excavation Phases 1 to 9 areas consists of a single elongated restoration infiltration basin along the western boundary of Excavation Phases 1 to 9. Although the longitudinal and cross-sectional profiles of the proposed attenuation feature resemble those of a ditch or a swale, it is described as an infiltration basin as its purpose is not to convey flow but to store it and allow runoff infiltration. Excess runoff will be discharged from the infiltration basin (*via* an outflow orifice) into a proposed wet woodland area that sits within the Application Site to the west. It has been assumed no infiltration will occur through the base or the eastern side slope of the restoration infiltration basin; instead, infiltration will only occur through the exposed sand and gravel area along the basin's western side slope.

The SuDS hierarchy outlined in Section 2 advises that site surface water runoff should be discharged to ground *via* infiltration, where possible. The provision of the infiltration basin therefore follows this advice and allows for discharge of site surface water runoff to ground. Exceedance flows through the outflow orifice will only be required as a contingency.

In accordance with Defra guidance (Defra, 2015), the restoration infiltration basin is designed to accommodate the 1 in 30-year rainfall event without any surface water flooding and is capable of retaining the 1 in 100-year (plus 40% climate change allowance) design rainfall event onsite without flooding any buildings.

The design ensures the overall post-development discharge rates are below the corresponding greenfield runoff rates and therefore provide a betterment with regards to off-site flood risk.

The design of the site ensures that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100-year rainfall event are managed *via* the exceedance route (outflow orifice) from the infiltration basin into a wet woodland area located within the northwest of the Excavation Phases 1 to 9 area of the site.

### **3.2.2 Processing Plant Area**

During the final restoration of the site, the silt ponds and clean water ponds near to the decommissioned processing plant area will be converted into attenuation ponds/wetland areas. The

attenuation pond used during the site operational phase will also be left as an attenuation pond following final completion of the site.

The attenuation pond and former silt ponds will be maintained in accordance with the Detailed Restoration Proposals and Landscape and Ecological Management Plan (LEMP) (David Jarvis Associates report reference 2636-4-5-LM-0001 Detailed Restoration Proposals and Landscape Management Plan rev. P4, dated December 2021), approved under Planning Permission 19/000048/CM.

The processing plant area part of the site will be restored back to arable farmland at pre-development ground levels, with the area to the southeast of the approved planning boundary undisturbed. Therefore, surface water runoff in this area will be directed to these ponds, and proposed adjacent wet grassland and scrub, providing a flood risk benefit.

### 3.3 **SuDS Pollution Prevention and Mitigation**

The proposed SuDS scheme provides regulation and filtration of surface water runoff through the use of the temporary infiltration pond (Excavation Phases 1 to 9 – operational phase), restoration infiltration basin (Excavation Phases 1 to 9 – progressive restoration and completed site phases), and the attenuation pond (processing plant area – operational phase) features, which deliver water quality benefits.

With reference to Chapter 26 of the CIRIA SuDS Manual C753 (Woods Ballard, B., *et al.* 2015) and using the simple index approach, to deliver adequate treatment SuDS features should have a total pollution mitigation index for each contaminant type that equals or exceeds the pollution hazard index, as follows:

#### **Total SuDS mitigation index ≥ pollution hazard index**

Table 26.2 in the CIRIA SuDS Manual outlines the pollution hazard indices for different land use classifications for each contaminant type. The restoration of Excavation Phases 1 to 9 at the site will be back to agriculture and Flexible Working Areas A and B will be created into wetland areas with ponds. The processing plant area will be restored back to a combination of agriculture and ponds/wetlands. These environments are not included in the land use classifications of Table 26.2 in the CIRIA SuDS Manual. As the site will be returned to agricultural use, as it was classified prior to development, or areas of diverse habitat creation, the polluting potential will not be increased following restoration.

However, for the purposes of the assessment, the land use comprising 'residential roofs' has been conservatively used. This represents a very low pollution hazard level, which is a suitable comparison for the land use that the site will actually be restored to.

The pollution hazard indices for the selected representative land use for each contaminant type outlined in the CIRIA SuDS Manual are provided in Table 1.

**Table 1 – Pollution hazard indices**

| <b>Selected representative land use</b> | <b>Pollution hazard level</b> | <b>Total Suspended Solids (TSS)</b> | <b>Metals</b> | <b>Hydrocarbons</b> |
|---|-------------------------------|-------------------------------------|---------------|---------------------|
| Residential Roofs                       | Very low                      | 0.2                                 | 0.2           | 0.05                |

#### 3.3.1 **Excavation Phases 1 to 9 Area**

As the principal destination of the surface water runoff from the Excavation Phases 1 to 9 area (both during operation and following restoration) will be to groundwater *via* infiltration, the relevant indicative SuDS mitigation indices for discharge to groundwater from Table 26.4 in the CIRIA SuDS Manual have been used. These are shown in Table 2.

**Table 2 – Indicative SuDS mitigation indices for discharges to groundwater**

| <b>Characteristics of the material overlying the proposed infiltration surface, through which the runoff percolates</b>  | <b>TSS</b> | <b>Metals</b> | <b>Hydrocarbons</b> |
|--|------------|---------------|---------------------|
| Infiltration trench (where a suitable depth of filtration material is included that provides treatment, <i>i.e.</i> graded gravel with sufficient smaller particles but not a single size coarse aggregate such as 20mm gravel) underlain by a soil with good contaminant attenuation potential of at least 300mm in depth | 0.4        | 0.4           | 0.4                 |

Taking the above into account, it can be seen that the total pollution mitigation will equal or exceed the representative pollution hazard index for each contaminant type, as values from Table 2 are greater than the corresponding values from Table 1. Therefore, the surface water drainage scheme will deliver adequate water quality treatment.

### 3.3.2 Processing Plant Area

As the principal destination of the surface water runoff from the processing plant area will be to a surface water body (tributary of the Mythe Brook) water *via* the attenuation pond, the relevant indicative SuDS mitigation indices for discharge to surface water from Table 26.3 in the CIRIA SuDS Manual have been used. These are shown in Table 3.

**Table 3 – Indicative SuDS mitigation indices for discharges to surface water**

| <b>Type of SuDS component</b> | <b>TSS</b> | <b>Metals</b> | <b>Hydrocarbons</b> |
|-------------------------------|------------|---------------|---------------------|
| Pond                          | 0.7        | 0.7           | 0.5                 |

Taking the above into account, it can be seen that the total pollution mitigation will equal or exceed the representative pollution hazard index for each contaminant type, as values from Table 3 are greater than the corresponding values from Table 1. Therefore, the surface water drainage scheme will deliver adequate water quality treatment.

## 4. SUDS MAINTENANCE

Paragraph 169 of the NPPF states that for major developments the SuDS used should have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.

In order to ensure effective operation of SuDS features it is necessary to undertake regular inspection and maintenance.

Regular maintenance will consist of basic tasks including litter and debris removal, vegetation management and inspections and monitoring to identify potential system failures such as blockages, silt and sediment build-up and the conditions of features including eroded or damaged areas.

Occasional maintenance will comprise of tasks required periodically, such as sediment removal and vegetation replacement.

Remedial maintenance will consist of intermittent tasks to rectify faults, such as erosion repairs and dealing with a spillage event.

The applicant will carry out maintenance measures during site operations. Following completion of the site restoration, the landowner will report any issues to the applicant regarding any SuDS features during the year to ensure the drainage scheme will work as designed.

Following final restoration of the site maintenance access should be available to the SuDS features. Any invasive maintenance work such as silt or vegetation removal is only required intermittently but should be planned to be sympathetic to the requirements of each feature. Care should be taken to avoid disturbance to nesting birds during the breeding season and habitats of target species at critical times. Invasive silt or vegetation removal should be staggered to limited areas at a time (25% to

30% of feature area) to minimise the impact on biodiversity. Such works SHOULD be undertaken by an appropriately qualified person or body and be in accordance with the CIRIA SuDS Manual C753 Table 23.1.

#### 4.1 **Infiltration Features**

It is important that the infiltration features are cleaned to prevent clogging of sand and gravels, which could reduce performance. Blockages to any infiltration feature overflow outlet orifices are removed.

The maintenance measures for the temporary infiltration pond and restoration infiltration basin to be adopted during the operational, restoration and post-restoration phases are provided in Table 4.

**Table 4 – Infiltration features maintenance measures**

| <b>Maintenance Schedule</b> | <b>Maintenance Measures/Actions</b>   | <b>Typical Frequency</b>   | <b>Comments</b>  |
|-----------------------------|---|--|--|
| Regular Maintenance         | All features will be visited and checked visually   | Weekly (during operation)  |  |
|                             | Remove litter and debris  | Monthly, or as required (during operation)<br>Annually, or as required (following restoration)   | Prior to any slope maintenance, any litter or debris to be removed to minimise risk of shredding during grass cutting. Inlets, overflow outlet and any on-site drains (if applicable) to be checked to ensure they are free from debris/litter.  |
|                             | Any necessary cutting down or removal of vegetation and/or dredging will be carried out as soon as the features are dry to allow for safe manoeuvring | Monthly (during operation)<br>Annually, or as required (following restoration)   | Grass cutting and cutting back areas of wet woodland (restoration) around features with all arisings removed from site. Inspect for weed growth within infiltration features during growing season and remove by hand or treat as necessary using non-toxic and biodegradable herbicide. |
|                             | Inspection of infiltration feature condition for sediment build-up, erosion and damage  | Monthly (during operation)<br>Annually, or as required (following restoration) (if notified by the landowner of any issues then maintenance measures will be implemented as soon as practicable) | Remove arisings from site.<br>Notify Site Manager (during operation) or management company (post-restoration) if any faults are identified during inspections and if any remediation is necessary.   |

|                        |   |  |  |
|------------------------|---|--|--|
| Occasional Maintenance | Reseed areas of poor vegetation growth  | Annually, or as required (following restoration)         |  |
|                        | Removal of sediment from infiltration features  | Annually, or as required (following restoration)         | Removal of settled sediment from infiltration feature base and sides, especially the western side of the restoration infiltration feature as this is the infiltration route. Removal of any sediment built up in overflow routes (if any).                             |
| Remedial Maintenance   | Repair erosion or other damage to inlets, infiltration features and overflow routes, as necessary | As required (during operation and following restoration) | Replace any elements if cannot be repaired <i>e.g.</i> , overflow orifice.   |
|                        | Replant vegetation, where necessary   | As required (during operation and following restoration) | Replant with same species as per approved LEMP report (2636-4-5-LM-0001)/Landscape Plan.   |
|                        | Reinstate design levels   | As required (during operation and following restoration) | Reinstate approved design levels in the restoration plan (Inert fill material placement in Excavation Phases 1 to 9 should not settle significantly post restoration).   |
|                        | Remediate following a spillage event  | As required (during operation and following restoration) | Manage and clean up following a spillage event in accordance with Bow Farm Pollution Control and Incident Response Plan (GWP Report No. 240526).<br>If pollution impacts infiltration feature, scrape surface of feature and remove potentially contaminated arisings. |

## 4.2 **Attenuation Pond**

It is important that the attenuation pond near the processing plant area is maintained during the operational phase to ensure it is capable of discharging water to reduce the risk of the site flooding. Maintenance of the pond following restoration of the site will be undertaken less frequently, as the processing plant area will have been restored back to the pre-development agricultural use.

The maintenance measures for the pond are provided in Table 5.

**Table 5 – Attenuation pond maintenance measures**

| <b>Maintenance Schedule</b> | <b>Maintenance Measures/Actions</b>  | <b>Typical Frequency</b>   | <b>Comments</b>  |
|-----------------------------|--|--|--|
| Regular Maintenance         | Attenuation pond will be visited and checked visually                                    | Weekly (during operation)  |  |
|                             | Remove litter and debris   | Monthly, or as required (during operation)<br>Annually, or as required (following restoration)   | Inlets, overflow outlet and any on-site internal drains (during operation) to be checked to ensure they are free from debris/litter. Trash screen at pond outlet captures any large debris – to be cleared if any debris present.<br>Prior to any slope maintenance, any litter or debris to be removed to minimise risk of damage to machinery. |
|                             | Any necessary cutting down or removal of vegetation and/or dredging                      | Monthly (during operation)<br>Annually, or as required (following restoration)   | All vegetation arisings removed from site.   |
|                             | Inspection of pond condition for sediment build-up, erosion and damage                   | Monthly (during operation)<br>Annually, or as required (following restoration) (if notified by the landowner of any issues then maintenance measures will be implemented as soon as practicable) | Remove arisings from site.<br>Notify Site Manager (during operation) or management company (post-restoration) if any faults are identified during inspections and if any remediation is necessary.   |
| Occasional Maintenance      | Re-seed areas of poor vegetation growth  | Annually, or as required (following restoration)   |  |
|                             | Removal of sediment from attenuation pond base, inlet and outlet, and overflow structure | 6-Monthly, or as required (during operation)<br>Annually, or as required (following restoration)   | Removal of settled sediment from attenuation pond base.<br>Removal of any sediment built up in pond outlet and overflow route.   |

|                      |  |  |   |
|----------------------|--|--|---|
| Remedial Maintenance | Repair erosion or other damage to pond structure, inlet, orifice plate, outlet pipe, erosion protection features, and overflow route, as necessary | As required (during operation and following restoration) | Repair any defects as soon as possible.<br>Replace any elements as soon as possible if these cannot be repaired <i>e.g.</i> , orifice plate, outlet pipe.   |
|                      | Replant vegetation, where necessary  | As required (during operation and following restoration) | Replant with same species as per approved LEMP report (2636-4-5-LM-0001)/Landscape Plan.  |
|                      | Reinstate design levels  | As required (during operation and following restoration) | Reinstate approved design levels in the restoration plan.   |
|                      | Remediate following a spillage event   | As required (during operation and following restoration) | Manage and clean up following a spillage event in accordance with Bow Farm Pollution Control and Incident Response Plan (GWP Report No. 240526).<br>If pollution impacts attenuation pond, close outlet, contain any affected water from leaving the site. Remove water from pond and scrape surface of feature and remove potentially contaminated arisings. |

If the above outlined responsibilities and recommended schedules of maintenance are applied to the development, then the SuDS features will remain functional throughout the lifetime and aftercare period of the development.

## 5. REFERENCES

Department for Environment, Food and Rural Affairs. 2015. Sustainable Drainage Systems: Non-statutory technical standards for sustainable drainage systems. Licensed under the terms of the Open Government Licence v3.0.

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