

TECHNICAL NOTE:

FP McCann - Cadeby: Addendum to Condition 14 & 15 Report (Planning Ref. 22/00420/FUL)

Prepared for:	FP McCann
Date issued	09/11/2023
Reference:	3490645 Heatons Cadeby Dis Con \ TN - Addendum to Condition 14 and 15 Report
Revision:	REV01
Contents	4 pages and 3 appendices

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1 INTRODUCTION

Full planning permission has been granted by Hinckley & Bosworth Borough Council (LPA) (Ref. 22/00420/FUL) for the erection of a roof tile manufacturing facility at FP McCann, Brascote Lane, Cadeby, Nuneaton, Leicestershire CV13 OBB ('the Site').

Envireau Water prepared a report for the discharge of Conditions 14 and 15 (Ref: 3490645 Heatons Cadeby Dis Con \ RPT Cadeby Cond 14 & 15) (the Report), relating to drainage and water management.

Following submission of the Report, queries have been raised by the Lead Local Flood Authority (Leicestershire County Council) (LLFA). The LLFA advised the LPA that the Report as submitted was sufficient for the LLFA to support the discharge of Condition 15. However, the documents as submitted were insufficient for the LLFA to provide a substantive response in relation to Condition 14. To provide a substantive response, the following information was requested:

Condition 14

- *Clarification that the north pond is existing, drawing FPM-001-C.D.004 – Proposed Site Layout Plan indicates the northern pond is proposed, however drawing Drainage Overview indicates the northern basin is existing.*
- *Updated engineering layout incorporating the basins that form part of the surface water drainage network, including level details.*
- *SuDS flow control details (orifice plate and weir control) and section detail of the channel connection between the two basins.*
- *Details of the surface water Maintenance Plan have been provided; however, this should include details of routine maintenance, remedial actions and monitoring of the of the two basins as they from part of the surface water drainage system.*

This Technical Note provides the above information.

2 REQUESTED INFORMATION

2.1 Clarification that the north pond is existing, drawing FPM-001-C.D.004 – Proposed Site Layout Plan indicates the northern pond is proposed, however drawing Drainage Overview indicates the northern basin is existing.

Envireau Water can clarify that the north pond (herein referred to as the northern basin) is already in existence. Drawing number FPM-001-C.D.004 accompanied the original planning application and was provided for reference within the discharge of conditions report. For the original planning application, the existing basin was to be deepened to provide additional storage.

During detailed design, it was determined that the sum of the storage within the northern and southern basins was adequate, provided that the existing pipe connection between the basins was removed and a connecting channel installed. On this basis, it was considered that there was no need to deepen the existing northern basin other than to provide a small scrape (approx. 0.25 m deep x 7.5 m wide) in the northern section of the basin to facilitate flow through the basin.

The details of the northern basin are presented in Drawing 1 – Drainage Overview (see Appendix A). A further drawing (Drawing 2 – Basin Sections) is provided in Appendix A showing the existing northern basin cross section and how this relates to the southern basin.

2.2 Updated engineering layout incorporating the basins that form part of the surface water drainage network, including level details.

Drawings showing the basins including level details are presented in Appendix A. These include:

- Drawing 1 – Drainage Overview
 - Detailing the location of cross-sections across the basins
- Drawing 2 - Basin Sections
 - Detailing cross-sections running north-south and west-east across the northern and southern basins.
 - Detailing the existing elevations at the basins and those proposed.
 - Detailing the eastern bund of the southern basin where the existing basin overspill is located.
 - Details of the outfall invert level, 1 in 100 year +40% critical storm level, freeboard, and overspill level.

2.3 SuDS flow control details (orifice plate and weir control) and section detail of the channel connection between the two basins.

Details of the flow control and channel connection between the north and south basin are shown on Drawing 3 – Basin Connection and Outfall Restrictor in Appendix B. This provides details of:

- 1) the proposed installation of the 102 mm orifice plate on the existing 300 mm diameter pipe outfall from the southern basin, and;
- 2) the connecting channel between the northern and southern basin including the required erosion control measures for the channel and outfall.

Flow restriction is provided between the northern and southern basin by the dimensions of the interconnecting channel. A further restriction is applied to the final outfall from the southern basin by the installation of the orifice plate.

No further flow control structures are required.

The modelling results provided in the discharge of conditions report show weir controls at drainage model nodes SW10 (input swale into northern basin) and BS_2 (basins interconnecting channel). Inherent in the Causeway Flow modelling software is, on occasion, the occurrence of numerically induced mass balance instabilities in the model equations at individual model nodes brought due to how swales feed into flow through ponds (in our case the basins) and how flow through ponds are connected. We have consulted Causeway Technologies Ltd (the software designers) on this issue. A simple fix is to place a weir control on the model node causing the instability at the swale or channel bed invert level.

The weir controls at model nodes BS_2 and SW10 are to rectify numerical mass balance instabilities and are set with an invert level equal to the bed level of the swale or channel. These weir functions are not providing a restriction in the model and there is no proposal to install weir controls as part of the drainage scheme.

2.4 Details of the surface water Maintenance Plan have been provided; however, this should include details of routine maintenance, remedial actions and monitoring of the of the two basins as they from part of the surface water drainage system.

The SuDS Management and Maintenance Plan has been updated to include the two basins. The full plan is provided in Appendix C.

3 CONCLUSIONS

Full planning permission has been granted by Hinckley & Bosworth Borough Council (Ref. 22/00420/FUL) for the erection of a roof tile manufacturing facility at FP McCann, Brascote Lane, Cadeby, Nuneaton, Leicestershire CV13 OBB ('the Site').

Envireau Water prepared a report for the planning permission for the discharge of conditions 14 and 15 (Ref: 3490645 Heatons Cadeby Dis Con \ RPT Cadeby Cond 14 & 15), relating to drainage and water management.

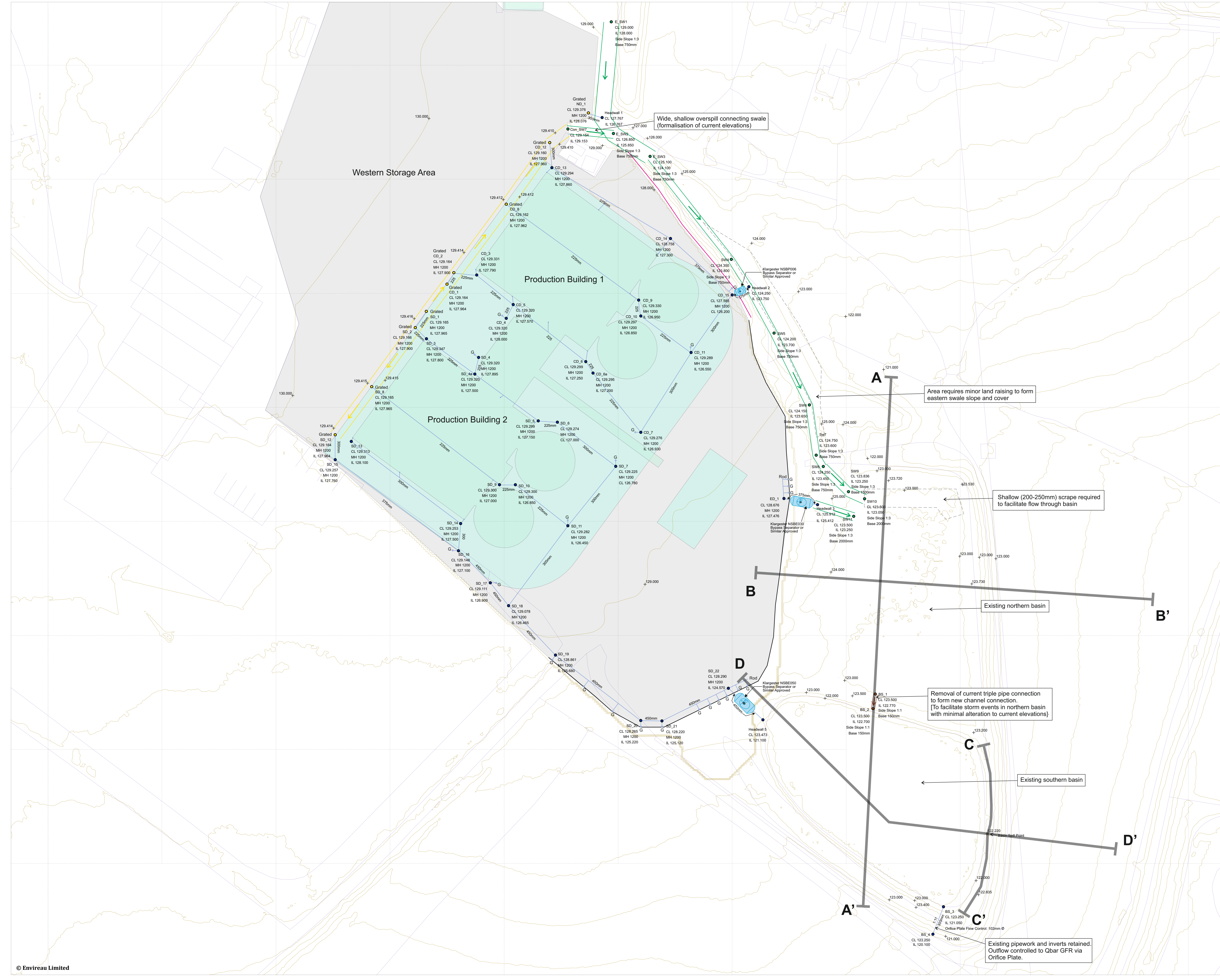
The LLFA advised the LPA that the discharge of Conditions 14 and 15 document as submitted was sufficient for the LLFA to support the discharge of Condition 15. However, the documents as submitted were insufficient for the LLFA to provide a substantive response in relation to Condition 14.

This technical addendum to the discharge of conditions report provides further information requested by the LLFA in relation to Condition 14. This technical addendum should be read in conjunction with the discharge of conditions 14 and 15 report.

Further drawings have been provided showing the details for the northern and southern basins and on the channel connecting the basins. A further drawing has been provided for the southern basin discharge outfall restrictor and the SuDS Management and Maintenance Plan updated to include the basins.

Based on the information submitted in this report, Envireau Water consider that planning Condition 14 can be discharged.

Appendix A Drainage Overview and Basin Cross Sections



Drawing 1 - Drainage Overview
Cadeby, Leicestershire



- New Eastern Kerb Line
- Finished Contour (1m intervals)
- Acoustic Bund
- New Hardstanding
- Platform
- Building Footprint
- Concrete Formed, Low Angle Drainage Channel
[Arrow denotes flow direction]
- Swale
[Arrow denotes flow direction]
- Basin Connection Channel
[Arrow denotes flow direction]
- Pipe Connections

Area requires minor land raising to form eastern swale slope and cover

Shallow (200-250mm) scrape required to facilitate flow through basin

Existing northern basin

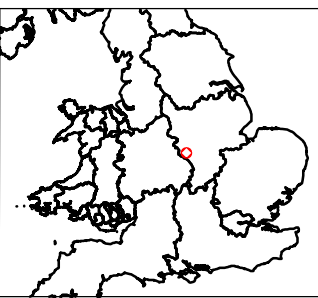
Removal of current triple pipe connection to form new channel connection.
[To facilitate storm events in northern basin with minimal alteration to current elevations]

Existing southern basin

Existing pipework and inverts retained. Outflow controlled to Qbar GFR via Orifice Plate.

Notes:

For planning purposes only

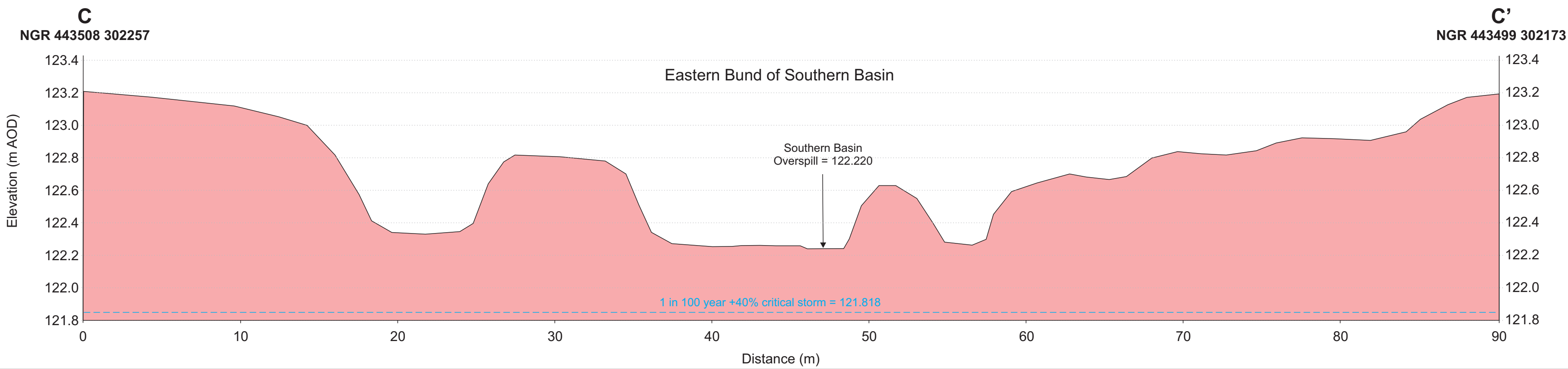
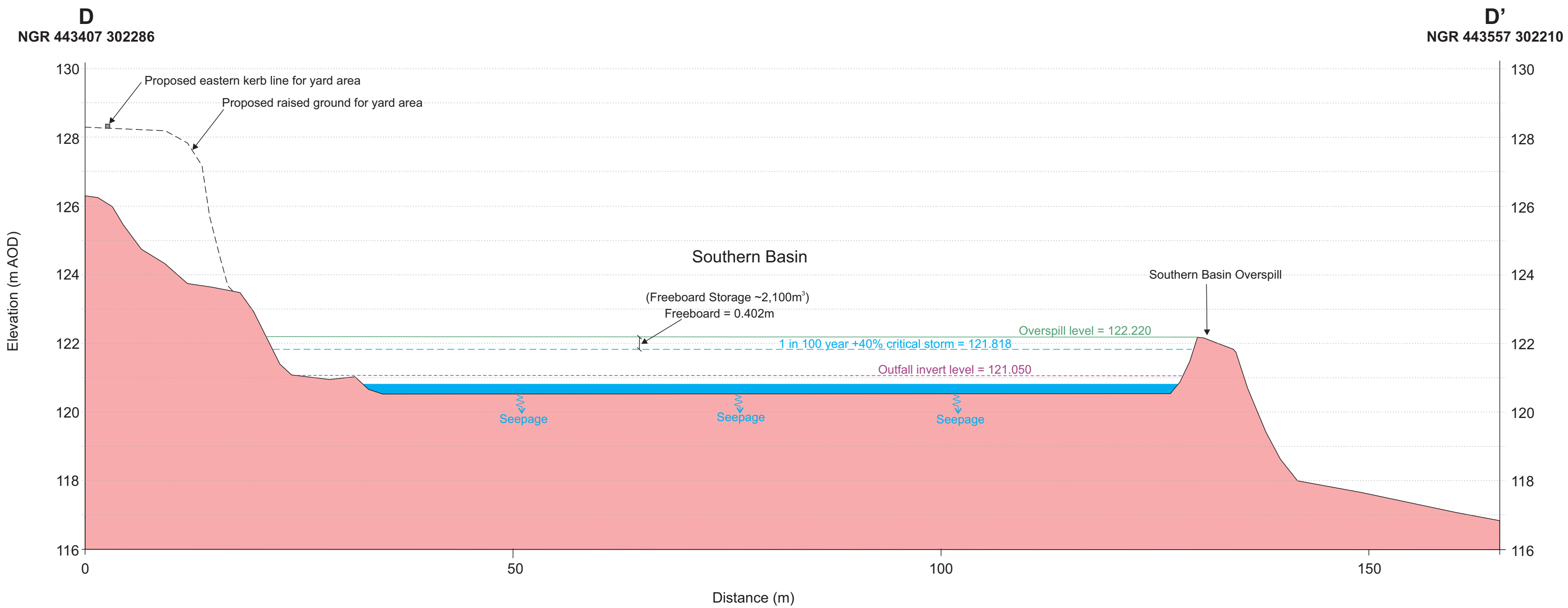
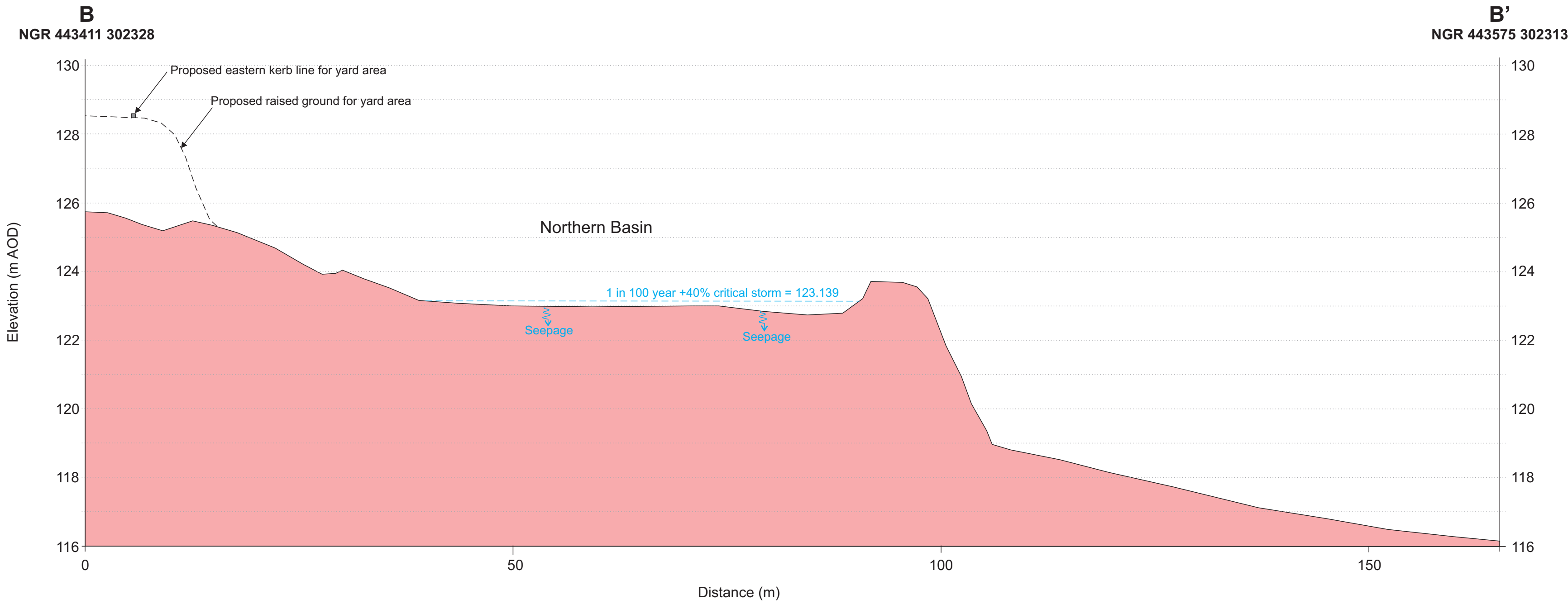
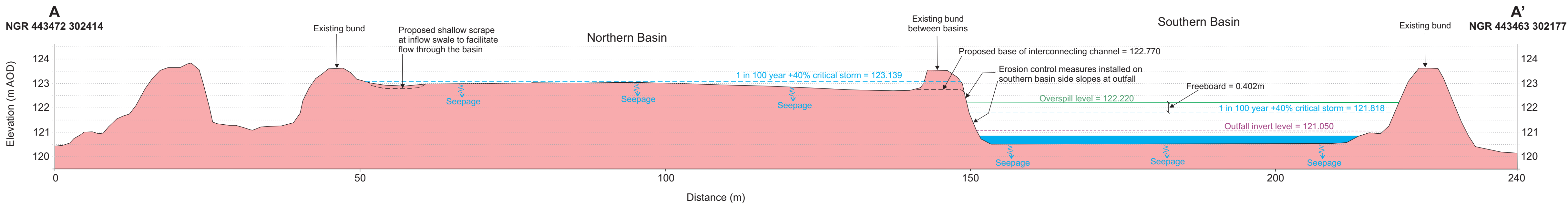


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0 7.5 15 22.5 30 Meters
Scale: 1:750 at A1
09 November 2023
NGR: 443,349 E / 302,364 N

Project No. 3490645
Client: FP McCann
Drawn by: LC
Ref: Drawing 1 - Drainage Overview





Scale
Horizontal = 1 : 400
Vertical = 1 : 100

(Vertical Exaggeration x4)

Scale
Horizontal = 1 : 200
Vertical = 1 : 10

(Vertical Exaggeration x20)

FP McCann
Cadeby, Leicestershire

DRAWING 2 - BASIN SECTIONS



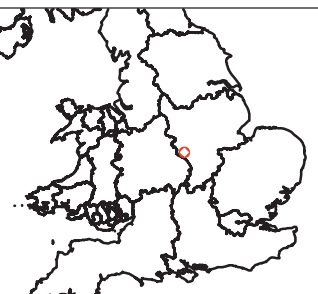
CONTRACTUAL RESIDUAL CDM RISKS

RISK ITEM	MITIGATION MEASURES BY CONTRACTOR
CLOSE PROXIMITY OF TREES.	ALL NECESSARY PRECAUTIONS TO BE TAKEN WHEN CRANING.
EXISTING ON SITE / CROSS SITE SERVICES.	LOCATE, DEMARK AND PROTECT OR MAKE SAFE ALL EXISTING ON SITE / CROSS SITE SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORKS.
LIVE SITE	CONTRACTOR TO PROVIDE PROTECTION TO PREVENT UNAUTHORISED ACCESS TO THE CONSTRUCTION AREA & ANY OPEN EXCAVATIONS.
EXISTING ROAD	CARE TO BE TAKEN NOT TO UNDERMINE EXISTING ROAD AND PAVEMENT GIVEN THE PROXIMITY OF REQUIRED EXCAVATIONS.

- Existing Landform
- Water Body
- Proposed Alterations to Landform
- 1 in 100 Year +40% CC Critical Storm Level
- Southern Basin Outfall Invert level
- Southern Basin Spill Level

C01	01.11.23	FIRST ISSUE	LC	JED	
Rev.	Date	Revision Description	Drawn	Auth'd	

- Notes:
- DO NOT SCALE THIS DRAWING. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS ON SITE PRIOR TO COMMENCING THE WORKS.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
 - ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
 - ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.



09 November 2023 NGR: 443,349 E / 302,364 N	
Project No.	3490645
Client:	FP McCann
Drawn by:	LC
Ref:	Drawing 2 - Basin Sections

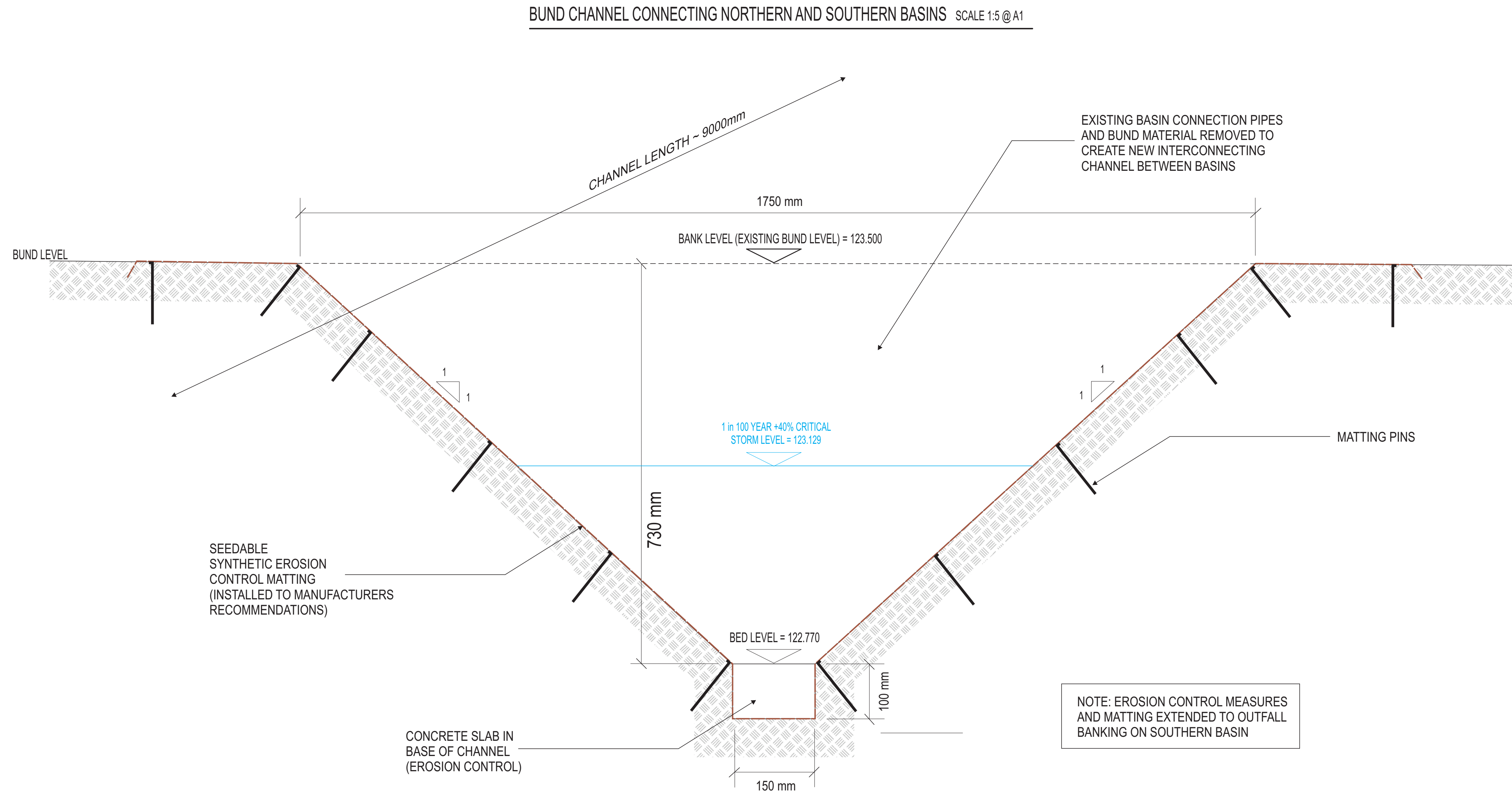


Appendix B Basin Connection and Orifice Plate

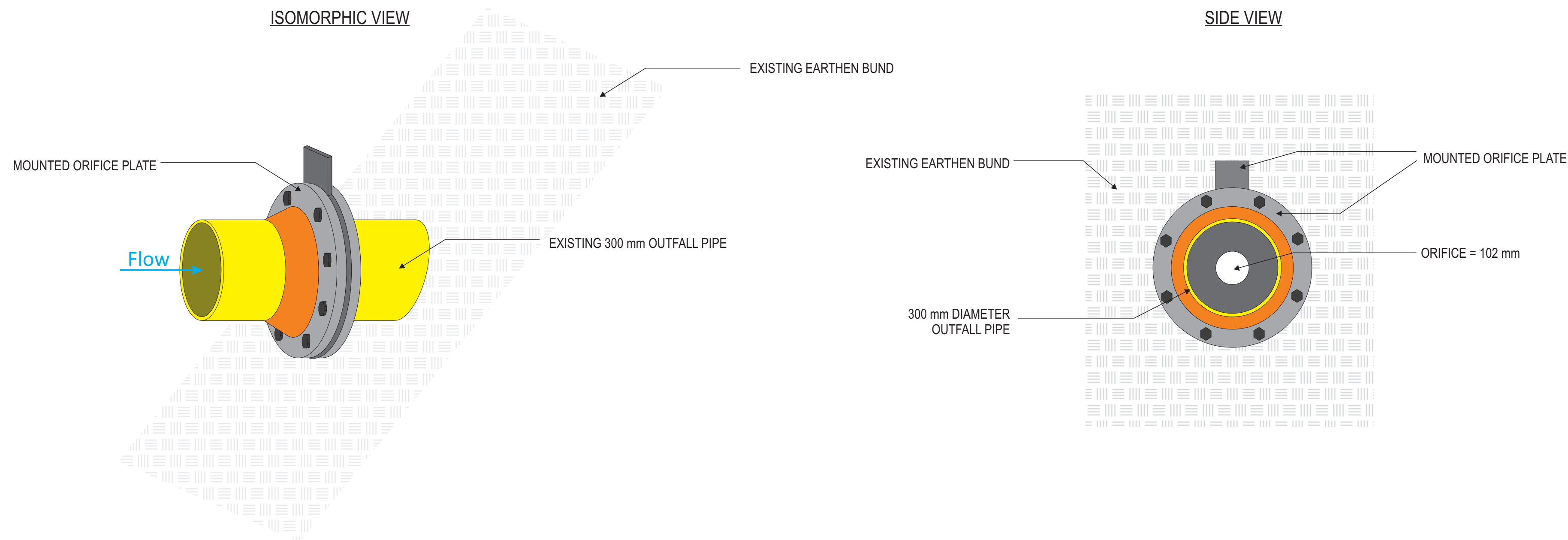
DRAWING 3 -
BASIN CONNECTION
&
OUTFALL RESTRICTOR

 CONTRACTUAL RESIDUAL CDM RISKS

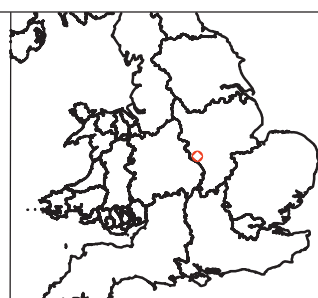
RISK ITEM	MITIGATION MEASURES BY CONTRACTOR
CLOSE PROXIMITY OF TREES.	ALL NECESSARY PRECAUTIONS TO BE TAKEN WHEN GRADING.
EXISTING ON SITE / CROSS SITE SERVICES.	LOCATE DEMARK AND PROTECT OR MAKE SAFE ALL EXISTING ON SITE / CROSS SITE SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORKS.
LIVE SITE	CONTRACTOR TO PROVIDE PROTECTION TO PREVENT UNAUTHORISED ACCESS TO THE CONSTRUCTION AREA ANY OPEN EXCAVATIONS.
EXISTING ROAD	CARE TO BE TAKEN NOT TO UNDERMINE EXISTING ROAD AND PREVENT ANY WHEN THE PROXIMITY OF REQUIRED EXCAVATIONS.



ORIFICE PLATE FLOW RESTRICTOR ON SOUTHERN BASIN OUTFALL SCALE 1:10 @ A



- Notes:
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 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS' ENGINEERS AND SPECIALISTS' DRAWINGS AND SPECIFICATIONS.
 3. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
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09 November 2023
NGR: 443,349 E / 302,364 N

Project No. 3490645
Client: FP McCann
Drawn by: LC
Ref: Drawing 3 - Basin Connector and Outfall Restrictor

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Appendix C Sustainable Drainage Management and Maintenance Plan

FP MCCANN, BRASCOTE LANE, CADEBY, NUNEATON, LEICESTERSHIRE SuDS MANAGEMENT AND MAINTENANCE PLAN

1.1 Introduction

The purpose of this SuDS Management and Maintenance Plan is to set out the principles for the long-term maintenance and management of the drainage system and to provide FP McCann with a robust inspection and maintenance programme. The Plan will ensure the optimum operation of the proposed drainage elements throughout the operational lifetime of the site, preventing an increased risk of flooding both on and off-site.

1.2 Adoption and Management

The proposed surface water drainage system will be managed and maintained by FP McCann. As part of the active management of the development surface water drainage system, a maintenance and monitoring schedule is required to ensure that the system remains functional and retains full capacity.

1.3 Maintenance Schedules

1.3.1 Outline

This section outlines the maintenance and management schedules for the proposed stormwater drainage system. The schedules have been formulated in line with guidelines contained within the CIRIA SuDS Manual (C753) (Woods Ballard, et al., 2015).

There are three categories of maintenance activities (including inspections and monitoring) referred to in this Plan:

- **Regular maintenance** – tasks required on a weekly or monthly basis, or frequently as required.
- **Occasional maintenance** – tasks required periodically, typically at intervals of 3 months or more.
- **Remedial maintenance** – tasks not required on a regular basis but are done when necessary.

This section is intended to give an overview of the operation and maintenance for the drainage features included within the surface water drainage strategy.

Maintenance schedules for the proposed SuDS components are provided in Table 1 to Table 5. These schedules are not exhaustive and should be reassessed at regular intervals to determine if any additional maintenance is required to preserve the performance and condition of the drainage system.

1.3.2 Drainage Pipes and Manholes

A maintenance schedule for drainage pipes and manholes is provided in Table 1.

Table 1 Drainage Pipes and Manholes Maintenance Schedule

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove any accumulation of silt, sediment, leaves and debris etc	Monthly, or as required
	Inspect for evidence of poor operation	Monthly (during the first year), then half yearly
Occasional maintenance	High pressure water jet removal of silt build-up and avoid blockages, particularly at bends or changes in direction	Six monthly, or as required
	Remove or control tree roots where they are encroaching pipe runs, using recommended methods	As required
Remedial actions	Clear pipework and gully grates of blockages	As required
	Replace any damaged or failed pipes, gullies or manholes	As required

1.3.3 Concrete Drainage Channels

A maintenance schedule for linear concrete drainage channels is provided in Table 2.

Table 2 Concrete Drainage Channel Maintenance Schedule

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Inspect inlets and outlet for blockages and clear if required	Monthly
Occasional maintenance	Remove sediment from inlets	Every 1 year, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair damaged inlets / pipework	As required

1.3.4 Swale and basins channel connection

A typical schedule of maintenance activities for a swale is included in Table 3. This includes the channel that connects the northern and southern basin.

Table 3 Swale and Channel Connection Maintenance Schedule

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range (75-150mm)	Monthly (during growing season), or as required.
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets and outlet for blockages and clear if required	Monthly
	Inspect base of swale for ponding, compaction, silt accumulation, record areas where water is ponding for >48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect banksides for evidence of physical damage	Monthly
	Inspect inlets, outlets and swale surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year), then half yearly, or as required
	Remove sediment from inlets and outlets base of swale	Annually (or as required)
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale area
	Remove sediment from inlet, outlets and swale surface when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing and re-armouring	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

1.3.5 Attenuation basins

A typical schedule of maintenance activities for the northern and southern basin is included in Table 4. The area upgradient of the material bund will also be maintained in accordance with the schedule set out in Table 4.

Table 4 Attenuation basin maintenance schedule

Maintenance schedule	Required action	Frequency
Regular maintenance	Remove litter and debris	Monthly or as required
	Manage vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets and outlet for blockages and clear if required	Monthly, and following storm events
	Inspect banksides, structures, pipework for evidence of physical damage	Monthly
	Inspect inlets and surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly and following storm events
	Remove any settled silt and sediment from inlets, outlets and basin and reinstate design levels	Every 1-2 months, and all following storm events. The frequency of silt/sediment removal will be informed by regular inspections and adjusted accordingly.
Occasional maintenance	Reseed areas of poor vegetation growth	As required
Remedial actions	Repair erosion or other damage	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Re-level uneven surfaces and reinstate design levels	As required

1.3.6 Flow Controls

A typical schedule of maintenance activities for flow controls is included in 5.

Table 5 Flow Controls Maintenance Schedule

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect/check pipework to ensure that the flow control is in good condition and operating as designed	Monthly
	Inspect for evidence of poor operation	Monthly, or as required
Occasional maintenance	High pressure water jet removal of silt build-up	Six monthly, or as required
Remedial actions	Replace the flow control if it becomes damaged	As required
	Clear pipework of blockages	As required