

# Land Adjacent to the Westgate Entrance, Port of Immingham

Drainage Strategy Report

Associated British Ports

Project number: 60666960

June 2022

## Quality information

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# 1. Introduction

## 1.1 Background on the Development

Associated British Ports (ABP) proposes to develop a vacant plot of land ('the Site') adjacent to the Port of Immingham in North Lincolnshire for port use. The Site comprises a triangular parcel of land of approximately 9.2 ha adjoining the northern boundary of the Port of Immingham, within the administrative boundary of North Lincolnshire Council. The Site is located outside of, but adjacent to, the boundary of the operational port, close to the West Gate entrance.

The Site is bound to the north by a Local Wildlife Site (LWS), to the east by existing operational port land and to the west and south by an existing drainage channel, which separates the Site from Humber Road. Access to the Site for maintenance purposes is currently provided from Humber Road via a bridge over the drainage ditch on the south-western boundary.

The Site is allocated in the North Lincolnshire Housing and Employment Land Allocations Development Plan Document (North Lincolnshire Council, 2016) for development as part of Employment Site SHBE-1. Planning consent was previously granted in 2011 for the development of a 290 megawatt renewable energy plant on the Site, but this development has not progressed.

The Port of Immingham operates close to capacity, with operations expected to be further maximised as a result of pending development proposals. ABP have terms agreed to acquire the Site to enable the expansion of the Port.

This report accompanies a hybrid planning application to North Lincolnshire Council – a full application for port-related open storage uses on the Site (which is the proposed use in the short to medium term) and an outline application for buildings (the long term objective for the Site).

## 1.2 The Site

The Proposed Development will replace land that is currently undeveloped, and will therefore increase surface water runoff through an increase in impermeable area. The Site is situated on land boarded on all sides by drainage ditches, with the ditch to the south managed by the North East Lindsey Internal Drainage Board (IDB). The Site is bounded by a small lake to the north (Rosper Road Pools LWS), industrial infrastructure to the west and access road to the south.

The Site is located approximately 1.3km to the north of the town of Immingham, and approximately 1km west of the Humber estuary. The site is centred on Ordnance Survey (OS) National Grid Reference (NGR) SD 53.634592, -0.223232.

## 2. Proposed Development

The Site is currently undeveloped and can be accessed from an entrance road off Humber Road to the South-East of the Site.

The application forms a hybrid planning application for the Proposed Development at the Site, comprising two phases. Phase 1 relates to an application for full planning permission for the construction of an area of hardstanding at the Site to be used for external surface level storage in the short to medium term. Phase 2 relates to an application for outline planning permission, for the potential long term use of the Site for port related employment floorspace accommodated in two warehouse type units. This report is based on Phase 1 of the Proposed Development with Phase 2 being considered in Section 6. Both phases sit within the Site boundary which occupies a footprint of approximately 9.2 ha. Two land drains currently exist along the North and South-West boundaries of the Site, with another smaller land drain along the South-East boundary.

The report is based on the indicative Masterplan Layout plans, provided at time of writing; 1850-110D (Phase 1) & 18150-113 (Phase 2). It has been assumed that these plans are representative of the final development of the Site. The conceptual surface water drainage strategy should be reviewed when further design details are available. The two proposed indicative site layouts are included as Figure 2-1 and Figure 2-2.

Accordingly, this planning application is accompanied by relevant technical and environmental assessments that address noise, ecology, and flood risk and drainage (this document).

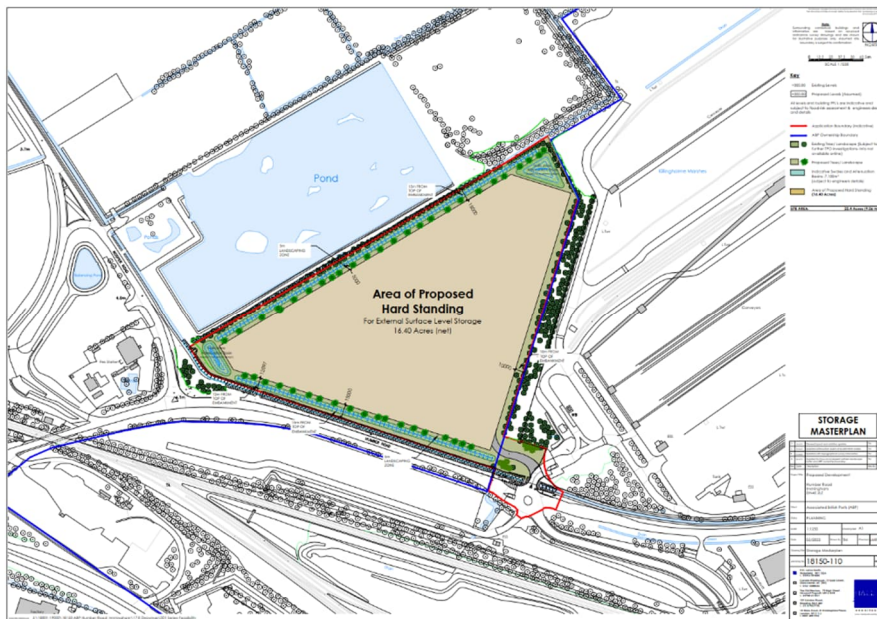


Figure 2-1: Indicative Proposed Development 1

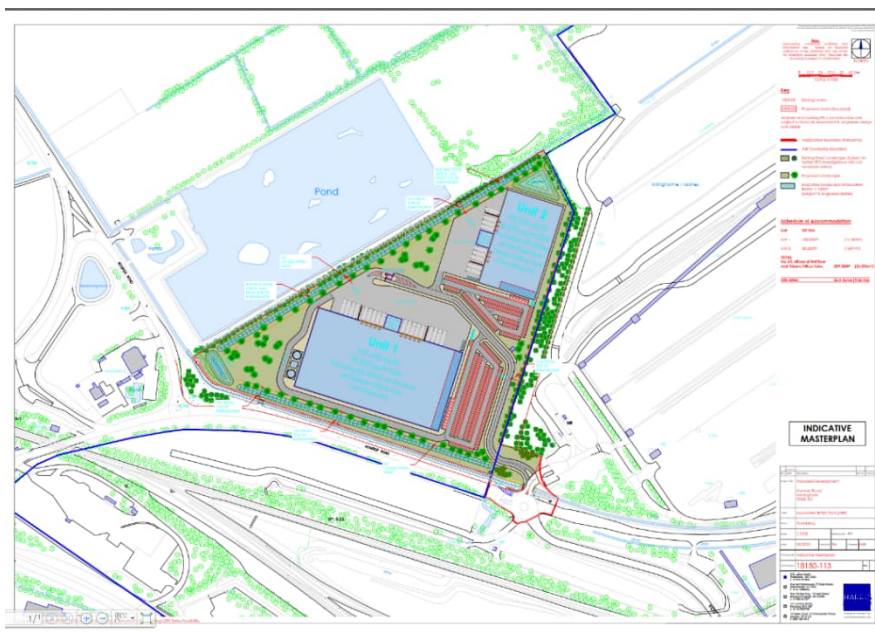


Figure 2-2: Indicative Proposed Development 2

### 3. Policy and Legislation

The following planning policies and guidance are relevant to the Proposed Development with regards to flood risk and surface water management.

#### 3.1 National Planning Policy Framework

National Planning Policy Framework<sup>2</sup> (NPPF) requires that new developments should not increase flood risk both on the Site and in the area surrounding it, meaning that surface water runoff should not exceed the peak volumes already generated on the Site and that betterment should be provided, where possible.

#### 3.2 North and North-East Lincolnshire Strategic Flood Risk Assessment

Clause 9.7 in *Appendix D* of the North and North-East Lincolnshire Strategic Flood Risk Assessment<sup>3</sup> (SFRA) document states that, surface water runoff from new development sites must be managed sustainably such that flood risk is not increased on site or elsewhere and that major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate.

*Section 8* of the SFRA stipulates the expectations of the council for designers and developers regarding the use of Sustainable Drainage Systems (SuDS). It summaries various types of SuDS and appropriate considerations when incorporating them into a drainage strategy.

The National Planning Practice Guidance and Clause 2.4 in Section 2 of the North and North-East Lincolnshire SFRA both require the use of the sequential approach where the discharge of surface water into the ground (infiltration) should be the disposal method unless it can be demonstrated why this is not possible.

<sup>2</sup> Revised National Planning Policy Framework, Published 24<sup>th</sup> July 2018. Available at: <https://www.gov.uk/government/collections/revised-national-planning-policy-framework>

<sup>3</sup> North Lincolnshire Council, North-East Lincolnshire Council (2021) Strategic Flood Risk Assessment Rev 2 November 2021

### 3.3 North Lincolnshire SuDS and Flood Risk Guidance Document

North Lincolnshire Council (NLC) are the Lead Local Flood Authority (LLFA). Their Local Flood Risk Management Strategy is a high level document that does not provide specific guidance on the management of surface water. The SuDS and Flood Risk Guidance Document does provide further guidance. It states that; no water should be stored above ground up to and including the 1in100 year event unless stored in a SuDS component, and surface water runoff should be limited for all new developments to greenfield runoff rate.

### 3.4 Consultation with the Internal Drainage Board

Communication with the Head of Technical & Engineering Services from the North-East Lindsey Drainage Board (IDB) is included in Appendix C.

### 3.5 Other Relevant Policy, Standards and Guidance

#### 3.5.1 Non-Statutory Technical Standards for Sustainable Drainage Systems (2015)

The Non-Statutory Technical Standards for Sustainable Drainage Systems produced by Department for Environment, Food & Rural Affairs (DEFRA)<sup>4</sup> represent the current guidance for the design, maintenance and operation of SuDS. The standards set out that peak runoff rates from development sites should be as close as is reasonably practicable to the greenfield rate but should never exceed the pre-development runoff rate.

The standards also set out that drainage systems should be designed so that flooding does not occur on any part of a site for a 1 in 30-year rainfall event, and that no flooding of a building (including basement) would occur during a 1 in 100-year rainfall event.

It is also noted within the standards that pumping should only be used when it is not reasonably practicable to discharge by gravity.

#### 3.5.2 Building Standards Regulations 2000 Part H

The Building Standards Regulations 2000 Part H<sup>5</sup> requires that surface water runoff be preferentially discharged first to soakaway, then to surface watercourse and finally to sewer.

## 4. Desk Study

### 4.1 Topography

Review of OS mapping and topographical survey information indicates that the Site is relatively flat with ground elevations ranging from approximately 2.70m Above Ordnance Datum (AOD) at the northern edge to around 2.50m AOD in the south. The area for the Proposed Development is generally flat with the south-western border falling towards the South Killingholme drain running along the west.

### 4.2 Existing Site Surface Water Conditions

There are no watercourses directly on the Site, but there are ditch drains running along all boundaries. The wider site has a complex network of ditch drains serving a large area to the north of the Site. This combined with the close proximity and similar water levels of the River Humber suggest that infiltration is not possible at the site. This means that the site must discharge to the ditch network.

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<sup>4</sup> Department for Environment, Food and Rural Affairs, (2015). Non-statutory Technical Standards for Sustainable Drainage Systems

<sup>5</sup> Office of the Deputy Prime Minister (2002) The Building Regulations 2000, Drainage and Water Disposal (Approved Document H)

The Rosper Road Pools to the north of the Site is connected to the drain that runs along the south-western perimeter of the Site, approximately 160m north of the Site. It is believed that the pools have a secondary purpose as storm water storage, but this has not been confirmed.

The IDB confirmed that flows leaving the site should be restricted to greenfield rates, in alignment with the North Lincolnshire SUDS and Flood Risk Guidance Document.

### **4.3 Existing Flood Risk**

The flood risk assessment accompanying this planning application describes the flood risk for the Site. To summarise, there is a risk of flooding from the River Humber, but little to no risk of flooding identified from surface water (rainfall on the site). The proposals here are concerned with changes to the surface water behaviour and this suggests there are no existing issues to manage.

### **4.4 Ground Conditions**

Borehole logs show the bedrock geology beneath the Site is Burnham Chalk Formation (Chalk), classified as Principal Bedrock Aquifer. The superficial deposits beneath the majority of the Site are Clay and Silt (Tidal Flat Deposits), classified as Unproductive Aquifer. No recent ground investigations have been undertaken. As stated above, it is assumed that infiltration is not possible at the site.

## 5. Surface Water Management Strategy

The following Drainage Strategy considers each part of the Proposed Development in turn and outlines the likely impact on surface water flows across the Site.

### 5.1 Proposed Surface Water Run-Off Rates

The Proposed Development takes up an area of 9.2 ha, with 6.64ha of hardstanding area, which is assumed to be impermeable. The hardstanding area will be served by the drainage system and attenuated to the greenfield rate.

Table 5.1 below shows the unrestricted surface water runoff rate post-development based on the Rational Method. This method estimates runoff based on the nature of the ground surface (hard standing, vegetation etc.) and rainfall depth, duration and frequency information for the immediate area, as follows:

Rational Method:  $Q=2.78CiA$

- C (Coefficient of impermeability) = 1.0;
- A (area) = 6.64 ha; and
- i (Rainfall intensity based on FEH data).

**Table 5.1 Post-Development Surface Water Runoff Rates**

Rainfall Event Frequency	Post-Development Runoff (l/s)								
	15 mins	30 mins	1 hr	2 hr	3hr	5 hr	12 hr	24 hr	48 hr
1 in 2 year (50% AEP)	531.62	343.34	212.28	147.95	115.99	83.25	45.09	27.20	16.36
1 in 5 year (20% AEP)	931.08	598.82	369.74	234.25	175.85	120.54	61.56	35.87	20.89
1 in 10 year (10% AEP)	1217.57	783.78	486.03	295.62	218.00	146.82	73.21	42.01	24.13
1 in 30 year (3.33% AEP)	1668.71	1083.92	673.58	395.03	285.93	189.13	92.14	52.08	29.53
1 in 50 year (2% AEP)	1880.62	1227.91	765.13	442.93	318.91	209.55	101.51	57.19	32.33
1 in 100 year (1% AEP)	2170.06	1429.11	893.79	1020.42	365.43	239.01	115.26	64.95	32.33
1 in 100 (1% AEP) + 20% CC	2604.08	1714.93	1072.55	612.25	438.52	286.81	138.31	77.93	38.80
1 in 100 (1% AEP) + 40% CC	3038.09	2000.76	1251.31	714.30	511.60	334.61	161.37	90.92	45.26

### 5.2 Greenfield Runoff Rates

The greenfield runoff rate for the Proposed Development has been calculated using FEH catchment data for catchment 517592 416830 and ReFH2 software. Based on Equation 8 in The Revitalised Flood

Hydrograph Model: ReFH2.2 Technical Guidance<sup>6</sup>, the peak greenfield runoff rate for various return periods has been calculated as shown in Table 5.2 below.

**Table 5.2: Greenfield Peak Runoff Rate for whole Site**

Rainfall Event Frequency	Runoff (l/s/ha)	Site Area (9.2ha) Runoff (l/s)
1 in 1 year (approx. 99% AEP)	1.29	11.83
1 in 2 year (50% AEP)	1.48	13.63
1 in 30 year (3.33% AEP)	3.52	32.39
1 in 100 year (1% AEP)	4.60	42.28

As shown in the initial runoff estimates (Table 5.1), the proposed surface water runoff rates from the site exceed the greenfield runoff rates. This indicates attenuation is required to limit discharge from the site to the greenfield runoff rate.

### 5.3 Attenuation Storage

In order to prevent increases in flood risk downstream, in accordance with the NPPF, NLC and IDB requirements, surface water discharge from the Proposed Development should be restricted to the greenfield runoff rate. Surface water attenuation will be required, as included in the proposed Site layout (Figures 2-1 and 2-2), to ensure greenfield runoff rates (Table 5.2) are not exceeded.

NLC requires that surface water discharge from proposed developments is limited to the greenfield runoff rate to ensure flood risk is not increased in the surrounding area.

The proposed drainage system is designed to store a 30-year design storm plus a 35 % climate change allowance with no surface water flooding. This corresponds to the “Upper End” climate change allowance for both the 2050s and 2070s.

As shown in Table 5.2, the greenfield runoff rate for a 1 in 1-year (approx. 99% AEP) storm is 11.83 l/s. No flooding is to occur up to a 1 in 30-year event and all flow must be accommodated in a SuDS component for events up to a 1 in 100-year + 40% climate change storm.

Table 5.3 provides an initial estimate of the required storage volume which has been undertaken using InfoDrainage. The analysis used FEH data from catchment 517592 416830 and the greenfield runoff rate for a 1 in 1 year (1% AEP) rainfall event as shown in Table 5.2.

**Table 5.3 Storage Volumes at Greenfield Runoff Rate 1 in 1 year event**

Rainfall Event Frequency	To Achieve Greenfield Runoff		
	Flow (l/s)	11.83	
	Impermeable Area (ha)	Min Storage (m <sup>3</sup> )	Max Storage (m <sup>3</sup> )
1 in 30 year (3.33% AEP)	6.64	4652	4895
1 in 100 year (1% AEP) + 40% CC		6159	6402

CC= Climate Change

To meet the greenfield runoff rate stipulated in NLC SuDS and Flood Risk Guidance an estimated storage volume of up to 6,402 m<sup>3</sup> will be required for a 1 in 100 year (1% AEP) + 40% CC event.

This is a significant volume, but the proposed onsite attenuation basins have sufficient space to take the required storage. The analysis has been further refined with the creation of a drainage model, described in Section 5.6.

<sup>6</sup> Wallingford HydroSolutions Ltd, (2016); The Revitalised Flood Hydrograph Model: ReFH2.2 Technical Guidance

## 5.4 Sustainable Drainage Systems

There are several potential SuDS options that could be utilised to both manage and attenuate runoff. However, consideration of the site characteristics must be given to ensure that the drainage system is compatible. The NPPF and the EA encourage the use of such systems where practicable, to ensure a reduction in flood risk to the Site and elsewhere, and to provide water quality benefits.

The proposed system uses a combination of a swale and attenuation pond to provide attenuation and suitable water quality management.

Table 5.4 below sets out the SuDS opportunities and constraints as appropriate to the Site.

**Table 5.4: Sustainable Drainage Systems**

Technique	Description	Suitability to site
<b>Rainwater Harvesting</b>	Rainwater from roofs and hard surfaces can be stored and used for non-potable purposes. This can provide some source control of surface water runoff as well as reducing demands on water supply.	<b>Not suitable</b> No connection to systems that can use recycled water.
<b>Below Ground Attenuation</b>	Below ground storage tanks will attenuate surface water and convey flows to the combined sewer. A flow control to allow for a steady outfall of surface water in line with the greenfield runoff rate.	<b>Potentially suitable</b> The loading on the site is not well understood and therefore the use of large underground tanks is not recommended without further investigation.
<b>Detention Basins</b>	Landscaped depressions that are normally dry except during and following rainfall events. Designed to attenuate and where vegetated provide treatment.	<b>Suitable</b> Included in the proposed works.
<b>Retention Basin</b>	Ponds and wetland feature with a permanent pool of water that provide attenuation and treatment of surface water runoff.	<b>Suitable</b> Would require a level of permanent storage in the proposed pond.
<b>Permeable / Porous Paving</b>	Pervious paving as part of a closed system allows rainwater to infiltrate through the surface to an underlying storage facility which then outfalls to sewer or watercourse. This system allows use of pervious paving in areas where infiltration is not feasible.	<b>Not suitable</b> Use of site for industrial storage would require frequent maintenance to clean paving.

## 5.5 Water Quality

CIRIA C753 The SuDS Manual outlays a simple index method to account for water quality in the design of SuDS. It indicates the minimum treatment indices appropriate for contributing pollution hazards for different land use classifications. To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index (for each containment) that equals or exceeds the pollution hazard index.

To carry out the simple index approach, suitable pollution hazard indices must be allocated for the proposed land use. SuDS measures with a total pollution mitigation index equalling or exceeding the pollution hazard index should be selected. Where the discharge is to protected surface waters or groundwater, a more precautionary approach should be considered.

**Table 5.5. Pollution Hazard Indices**

Location	Pollution hazard level	Pollution hazard indices		
		Suspended solids	Metals	Hydrocarbons
Commercial yard and delivery areas	Medium	0.7	0.6	0.7

Source: CIRIA C753 The SuDS Manual (Excerpt from Table 26.2)

To provide the correct level of treatment, an assessment needs to be made of the mitigation provided by each SuDS feature. This is shown in Table 5.6.

**Table 5.6. SuDS Mitigation Indices**

Types of SuDS component	Pollution mitigation indices		
	Suspended solids	Metals	Hydrocarbons
Swale	0.5	0.6	0.6
Detention basin	0.5	0.5	0.6

Source: CIRIA C753 The SuDS Manual (Excerpt from Table 26.3)

Where more than one mitigation feature is to be used, CIRIA C753 The SuDS Manual states that the total mitigation index will be calculated as follows:

$$\text{Total SuDS mitigation index} = \text{mitigation index}_1 + (0.5 \times \text{mitigation index}_2) + (0.5 \times \text{mitigation index}_3)$$

As a minimum, all runoff will be drained through swales to the detention basin, meaning that the total mitigation indices can be calculated as shown in Table 5.7.

**Table 5.7. Total SuDS Mitigation Indices**

SuDS Components	Pollution mitigation indices		
	Suspended solids	Metals	Suspended solids
Total SuDS train	0.75	0.85	0.9

It is also noted that there may be a risk of significant pollution event occurring due to the use of heavy vehicles on site. These will be unlikely and infrequent events. However, it is recommended that any high risk areas should be fitted with forecourt separators and shut-off valves as an emergency response systems to mitigate this risk. These measures will protect the proposed site wide drainage systems and SuDS being impacted by these events and protect from pollution spreading into downstream waterbodies.

## 5.6 Drainage Model

A hydraulic pipe drainage model has been created using the InfoDrainage software. The available topographic survey data has been processed by AECOM to produce a 3-dimensional surface. This surface has been used as the reference ground level for the InfoDrainage model.

The site is challenging due to its flat topography and the unknown depth of the adjacent ditches. It has been assumed that there is only 1 m of depth between the existing site surface and the surrounding ditches. This means that to meet the required greenfield discharge rate, storm flow will be stored throughout the drainage system.

The proposed system consists of two pond areas that contain the discharge points, and a series of swales. The swales are large and are intended to provide additional storage volume. A series of surface linear drains have been used to collect flow from the proposed hard standing areas. These drains have shallow gradients and move flow to the swales. However, they are also intended to store

flow during large storm events. The layout of the drainage system is shown in the drawings included in Appendix A.

The model is able to store the 1 in 30 year + 35% climate change design event below ground. Larger storms cause the system to back up and ponding will occur on the surface. This ponding will be held on the hardstanding and can also be allowed to flow over land to the swales and ponds. There is sufficient storage within the system to allow this process, which should undergo further design effort to identify if areas of the hardstanding should be separated from this flood risk.

The storage of water occurs throughout the system because the pipe runs are very shallow. This will create a sedimentation risk and will require regular maintenance. The operation of the system can be improved by increasing the difference between the design surface level and the discharge level and therefore the gradient of the whole system. An assumption has been made for the water level in the ditches surrounding the site, confirmation of the levels may allow some minor adjustment in the system. Alternatively, the site could be raised either in strategic (central) areas or everywhere. This would allow the pipes to pass flow more efficiently but may also require greater storage in the ponds and swales. These opportunities can be further investigated in later design stages.

It should be noted that the drainage system currently only uses the swale line to the north of the site. The masterplan shows an additional swale to the south west that could be used for additional storage. This can be considered in detailed design and may allow alternate site layouts to adapt to the planned use of the area.

#### **Assumptions for the system design**

- A pond depth of 1.0 m and 1:4 side slopes is acceptable.
- Ponds and swales will be sufficient pollution mitigation measures for the proposed use
- The 1 in 100 year event must be held within the system but may also back up into the hardstanding storage area where it will be held over the proposed surface drain locations or spill to the swales.
- The existing drainage ditches surrounding the site have a depth sufficient to allow the system depth proposed
- The greenfield discharge rate will be possible at all times.
- The development will generally maintain the existing topography.

## 6. Phase 2 – Drainage Concept

The planning application includes an outline application for Phase 2 of the Proposal for the potential long term use of the Site for port related employment floorspace accommodated in two warehouse type units. As a result, a drainage strategy has been proposed with a high-level estimate of how much storage is required on Site. No modelling of pipe work or movement of flow has been undertaken for this option, instead the indicative flow path of surface water around the site is shown, in a similar concept to the first Proposed Development.

The storage analysis is similar to that described for the principal hardstanding option and would adopt the same greenfield discharge limit. However, the impermeable area for this option is less, at 3.90 ha. The results are presented below:

**Table 6.1 Storage Volumes at Greenfield Runoff Rate 1 in 1 year event**

Rainfall Event Frequency	To Achieve Greenfield Runoff		
	Flow (l/s)	11.83	
	Impermeable Area (ha)	Min Storage (m <sup>3</sup> )	Max Storage (m <sup>3</sup> )
1 in 30 year (3.33% AEP)	3.90	2591	2832
1 in 100 year (1% AEP) + 40% CC		3475	3717

CC= Climate Change

To meet the greenfield runoff rate stipulated in NLC SuDS and Flood Risk Guidance an estimated storage volume of up to 3,717 m<sup>3</sup> will be required for a 1 in 100 year (1% AEP) + 40% CC event. This is significantly less than the hardstanding option and can be achieved on site.

The strategy is presented in the drawing included in Appendix B.

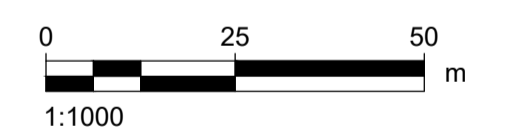
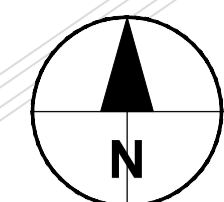
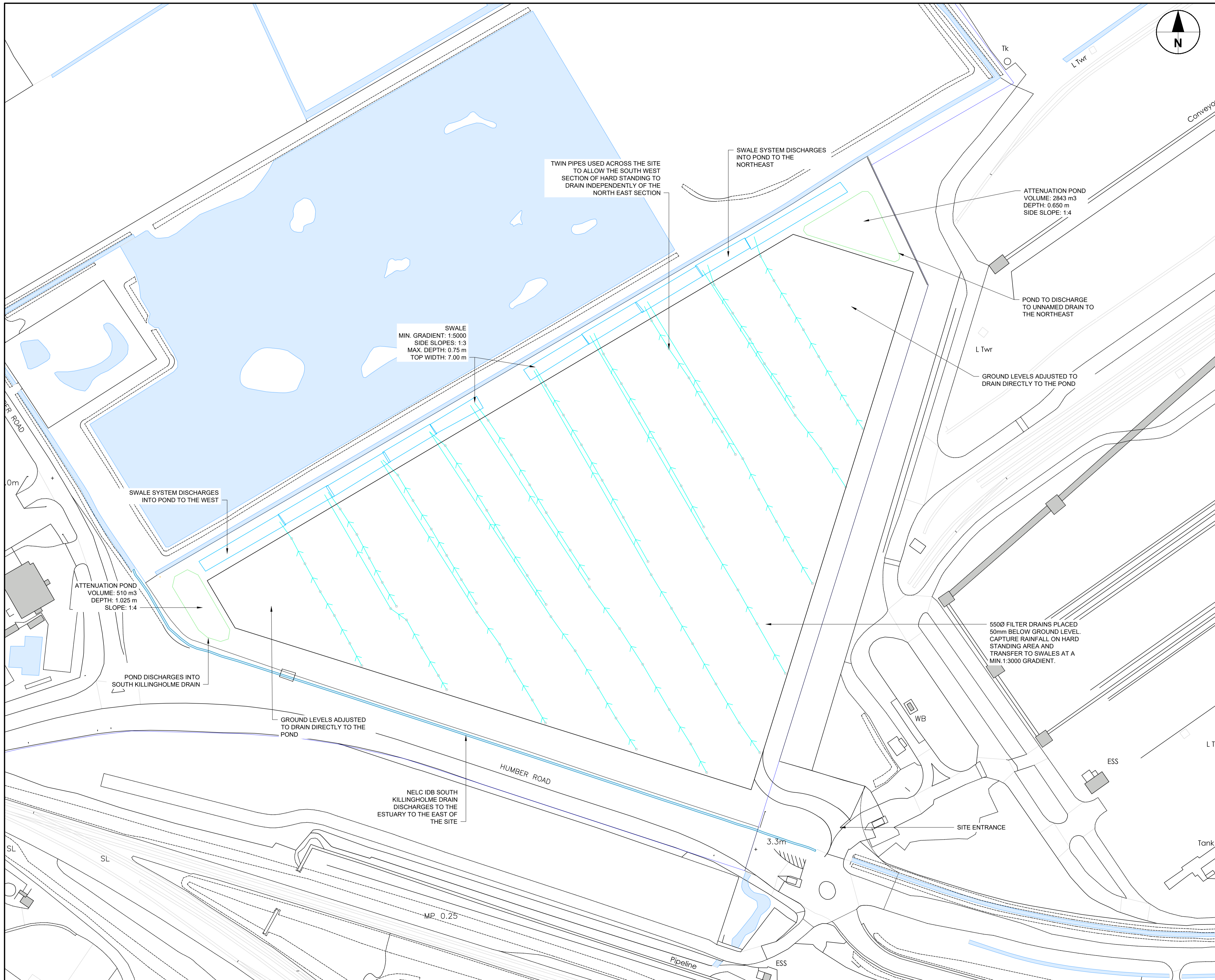
## 7. Conclusion

A drainage strategy for the Proposed Development with a hardstanding area of 6.64 ha (total site 9.2 ha) has been prepared to manage surface water runoff from the Site. The strategy meets the requirements of the NPPF and the North Lincolnshire Council LLFA Policy for the Management of Surface Water. Surface water runoff is preferably required to be limited to 1 in 1 year (approx. 100% AEP) greenfield runoff rate of 11.83 l/s (Table 5.2), resulting in a storage volume of 6,402 m<sup>3</sup> (Table 5.3). This volume can be catered for on-site and, due to the gradient, will be stored throughout the system. The low gradient brings a risk of sedimentation as flows will be slow moving at the peak of the storm. A carefully considered maintenance strategy will be required to maintain the operation of the system.

Flow out of the attenuation basins is controlled to the greenfield runoff rate generated during a 1 in 1-year event by a Hydrobrake. From here it enters the ditches surrounding the site to follow that system to the River Humber under gravity.

There is an opportunity to improve the performance of the system by confirming the levels in the surrounding ditches and/or raising the level of the site. Raising the site would allow larger gradients in the pipe drainage system, improving flow and reducing the risk of sedimentation. This would need to be investigated further in later design stages.

## Appendix A Phase 1 Proposed Model Schematic



**FOR INFORMATION ONLY**

ISSUE/REVISION		
P01	23/06/2022	INITIAL SUBMISSION
I/R	DATE	DESCRIPTION

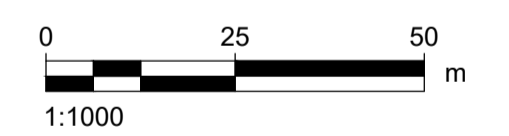
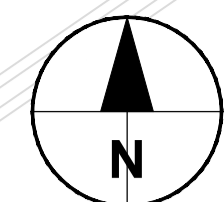
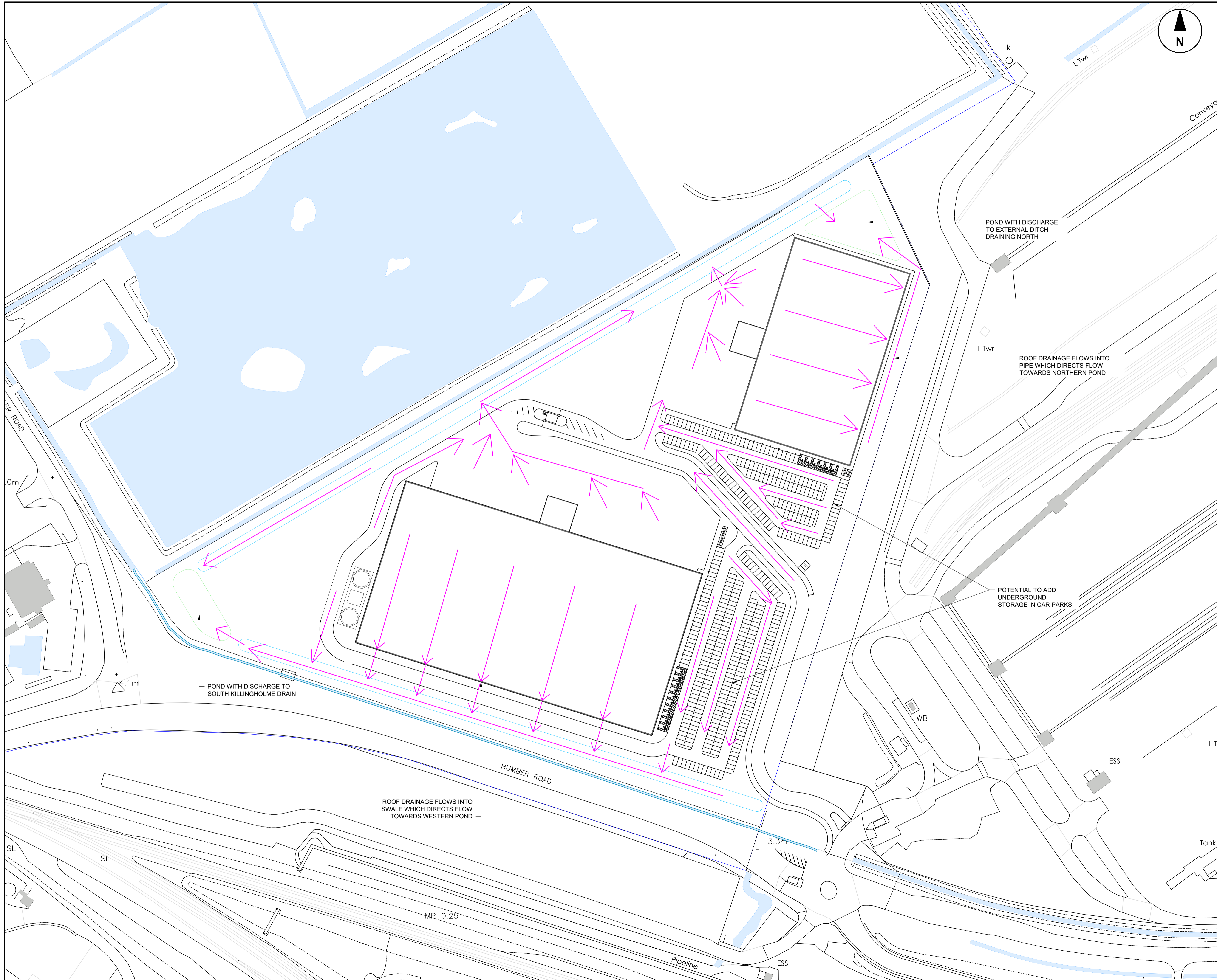
**PROJECT NUMBER**  
60666960

**SHEET TITLE**  
PROPOSED DRAINAGE MODEL SCHEMATIC

**SHEET NUMBER**  
DRAIN01

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## **Appendix B Phase 2 Drainage Strategy**



**FOR INFORMATION ONLY**

ISSUE/REVISION		
NO.	DATE	DESCRIPTION
P01	23/06/2022	INITIAL SUBMISSION
I/R	DATE	DESCRIPTION

**PROJECT NUMBER**  
60666960

**SHEET TITLE**  
ALTERNATE BUILDING OPTION DRAINAGE STRATEGY

**SHEET NUMBER**  
DRAIN02

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## **Appendix C Communication with the IDB**

Maynard, Nick

---

From: Somerton, Jo  
Sent: 24 May 2022 10:49  
To: Maynard, Nick  
Subject: FW: Flood Risk Data Request: Tennants Consolidated: Land off Rosper Road

Morning Nick

Please find the consultation data response from the IDB below for your information, including required surface water discharge rates restricted to greenfield.

Thanks

Jo Somerton

Joanne Somerton MSc

Principal Flood Risk Consultant, Water: EUR - UK & Ireland  
M +44 (0)7917 503 650  
[joanne.somerton@aecom.com](mailto:joanne.somerton@aecom.com)

---

From: Guy Hird <guy.hird@witham3idb.gov.uk>  
Sent: 24 May 2022 08:08  
To: Somerton, Jo <joanne.somerton@aecom.com>  
Subject: [EXTERNAL] FW: Flood Risk Data Request: Tennants Consolidated: Land off Rosper Road

ND-6052-2022-PLN

Jo

**Flood Risk Data Request: Tennants Consolidated: Land off Rosper Road**

Further to your enquiry I can confirm the location is with the North East Lindsey Drainage Board area. my comments are in blue below.

1. Identify which drains/ watercourses fall under the jurisdiction of the North East Lindsey IDB; See plan below. The Board maintained South Killingholme Drain (9) is on the south edge of the site.
2. Provision of a catchment map for the North East Lindsey IDB drains/ watercourses; A catchment plan is not available, but currently I understand that the site discharges to South Killingholme Drain this flows east and north discharging into the Humber via a flapped gravity discharge.
3. Confirm drain connectivity; see above
4. Confirm if any of the drains/ watercourses are regulated by pumping; see above
5. Whether any of the drains/ watercourses have defences/ embankments; none, I am sure you are aware that the site is low and subject to flooding from the Humber (over topping or breach)
6. Any known flooding issues (historical flood levels, extents data, flood maps); the area as far as we are aware has not flooded. But potentially it can as the system can be tidal locked. The main risk is over topping or breach of the Humber flood banks.
7. Easements required relating to drains/ watercourses maintained by North East Lindsey IDB; Any works within 9m of the top of the bank require Byelaw consent this area is required to be kept clear of all obstructions to facilitate maintenance/improvement/repair.
8. Indication of acceptable discharge rates of surface water to the drains; Greenfield rate
9. Provide your initial thoughts with regards the proposed culvert and an indication of any requirements in
10. terms of design etc. Any culverting must be kept to a minimum and only to provide access, sizing would have to be at least as large as the adjacent existing culverts, the preferred option would be a clear span to avoid any loss of volume in the system..
11. Any other information that is relevant or should be considered in the FRA (predicted climate change impacts
12. etc.). Marsh Drain Branch 2 shown on the map below currently discharges into the Humber via a separate gravity outfall. However currently a new land drainage pumping station/gravity discharge is under construction as part of the proposed new quay, this will supersede the existing route. I understand as part of the evaluation of the drainage for the new pumping station this plot was considered. I would suggest that you look at the documentation in the Development Consent Order including the Drainage Strategy for further information..
13. Please can you provide your initial thoughts with regards the proposed ditch diversion and an indication of any potential requirements in terms of design of the channel etc. see above



Under the terms of the Board's Byelaws, the prior written consent of the Board is required for any proposed temporary or permanent works or structures in, under, over or within the byelaw 9m distance of the top of the bank of a Board maintained watercourse.

Under the terms of the Land Drainage Act, 1991 the prior written consent of the Board is required for any proposed temporary or permanent works or structures within any watercourse including infilling or a diversion.

Regards

Guy Hird  
Head of Technical & Engineering Services

[enquiries@witham3idb.gov.uk](mailto:enquiries@witham3idb.gov.uk)  
[accounts@witham3idb.gov.uk](mailto:accounts@witham3idb.gov.uk)  
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[consents@witham3idb.gov.uk](mailto:consents@witham3idb.gov.uk)

Witham First District Internal Drainage Board  
Witham Third District Internal Drainage Board  
Upper Witham Internal Drainage Board  
North East Lindsey Drainage Board

Witham House,  
Meadow Lane  
North Hykeham,  
LINCOLN,  
LN6 9QU (for sat nav use LN6 9TP)  
Tel: 01522 697123

Four independent statutory Land Drainage and Flood Risk Management Authorities working in partnership.

[www.witham3idb.gov.uk](http://www.witham3idb.gov.uk)

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From: Somerton, Jo <[joanne.somerton@aecom.com](mailto:joanne.somerton@aecom.com)>  
Sent: 20 May 2022 09:54  
To: Enquiries <[Enquiries@witham3idb.gov.uk](mailto:Enquiries@witham3idb.gov.uk)>  
Subject: Flood Risk Data Request: Tennants Consolidated: Land off Rosper Road  
Importance: High

Dear Sirs  
Please find attached a data request for flood risk data to inform a Flood Risk Assessment for Land off Rosper Road as part of the proposed Tennants Consolidated development for additional port storage.  
We are working to a 4 week turnaround time for the planning application so a prompt response would be extremely appreciated.  
Kind Regards

**Jo Somerton**

**Joanne Somerton MSc**

Principal Flood Risk Consultant, Water: EUR - UK & Ireland  
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