NORTHAMPTON GATEWAY
STRATEGIC RAIL FREIGHT INTERCHANGE

WATER FRAMEWORK DIRECTIVE AND DCO DRAFTING STATEMENT OF COMMON GROUND BETWEEN THE APPLICANT AND THE ENVIRONMENT AGENCY

DOCUMENT 7.12

The Northampton Gateway Rail Freight Interchange Order 201X

Regulation No: 5 (2) (q)

WFD AND DCO DRAFTING STATEMENT OF COMMON GROUND BETWEEN THE APPLICANT AND THE ENVIRONMENT AGENCY | 6 NOVEMBER 2018

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ROXHILL

NORTHAMPTON GATEWAY STRATEGIC RAIL FREIGHT INTERCHANGE

Statement of Common Ground between Roxhill (Junction 15) Ltd and the Environment Agency

1 Introduction

1.1 This Statement summarises the agreement reached between Roxhill (Junction 15) Ltd and the Environment Agency (EA) in relation to the proposed development known as Northampton Gateway (the SRFI).

1.2 The Examining Authority (ExA) have requested that a Statement of Common Ground (this document) is prepared and agreed between the parties to cover the following ;

- Air quality
- Drainage and Water Framework Directive
- Noise
- Waste (ExQ 1.12.9)
- Article 21 – Discharge of Water (ISH1:28)

1.3 This Statement is in addition to a statement of common ground in relation to Geology, Soils and Groundwater to which the EA were a party which was submitted with the application (Document 7.3 APP-384)

2 Basis of Agreement

2.1 The EA have reviewed the information submitted for the Development Consent Order (DCO) application and have registered as an Interested Party.

2.2 The following information has been specifically provided to the EA for review (both forming appendices to Chapter 7 of the Environmental Statement) in light of the request of the ExA for the parties to agree a SoCG;

- Flood Risk Assessment (FRA) (Document reference NGW-BWB-EWE-XX-RP-YE-0005)
- Water Framework Directive Compliance Assessment (Document reference NGW-BWB-EWE-XX-RP-YE-0004)

3 Agreement

3.1 The following points are agreed;

3.2 The Flood Risk Assessment has been prepared in accordance with the National Policy Statement for National Networks (NPSNN).

3.3 The proposals detailed within the FRA to demonstrate fluvial flood risk within the Courteenhall Brook and further downstream within the Wootton Brook show a reduction in fluvial flood risk as a result of the proposed development.

3.4 Air quality, noise and waste are matters to be addressed by the relevant local authority.

3.5 Surface water drainage is a matter to be addressed by the Lead Local Flood Authority and the EA are content that the Roxhill (Junction 15) Ltd and the LLFA have applied their local advice.

3.6 Foul water drainage is a matter to be addressed by Anglian Water (AW) and it has been demonstrated that a suitable mitigation scheme to avoid offsite detriment has been agreed between the Roxhill (Junction 15) Ltd and AW, and that sufficient capacity is available at the Water Recycling Centre to accommodate flows from the development.

3.7 The Water Framework Directive Compliance Assessment, having been amended to account for comments from the EA, is acceptable. For clarity, the revised document reference is NGW-BWB-EWE-XX-RP-YE-0004_S2_P2, dated October 2018. This revised document is appended to this Statement of Common Ground.

3.8 The wording of Article 21 in the draft DCO, Document 3.1A (August 2018) is acceptable to the EA.

3.9 Requirement 20 in the draft DCO will be amended to include the following wording: "Works no. 10 must be completed prior to first occupation".

Dated 02 November 2018

Signed [redacted] Digitally signed by Simon Hilditch Date: 2018.11.02 13:42:02 Z

.....

On behalf of Roxhill (Junction 15) Ltd

Name...Simon Hilditch..... Position...Associate Director.....

Signed

[redacted]

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For & On behalf of the Environment Agency

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DOCUMENT ISSUE RECORD

Document Number	NGW-BWB-EWE-XX-RP-YE-0004_WFDCA
BWB Reference	NTH-2315-WFDCA

Status	Revision	Date of Issue	Author	Checked	Approved
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1.0 INTRODUCTION

Summary Information

1.1 This Water Framework Directive Compliance Assessment (WFDCA) has been produced on behalf of Roxhill (Junction 15) Limited in respect of a development of a Strategic Rail Freight Interchange (SRFI) together with associated landscaping, access and other infrastructure works on land adjacent to and in the vicinity of J15 of the M1 known as Northampton Gateway. The development includes a bypass around the village of Roade and additional off site junction improvements. This development consists of an intermodal rail freight terminal, rail served warehousing, new road infrastructure and works to the existing road infrastructure (approx. NGR: SP 73033, 56912).

1.2 As this project will include development within the floodplain, consideration of the influence on the water environment is considered necessary.

Site Details

1.3 The site comprises two elements, known as Site 1 (Main Site) and Site 2 (Roade Bypass Corridor). The location of these is shown in **Figure 1.1**; Site 1 is the large parcel of land in the north, with Site 2 being the corridor to the west of Roade. Key site details are presented in **Table 1.1**.

Site 1

1.4 Site 1 is primarily greenfield in nature, consisting of large-scale arable farmland, subject to a natural regime of pluvial runoff, infiltration and drainage.

1.5 An Unnamed Ordinary Watercourse (UOW) flows through Site 1, in an easterly direction. For the purposes of this report, this will be referred to as the Courteenhall Brook. The Courteenhall Brook can be sub-divided into two main sub-catchments, as defined for the hydraulic modelling.

(i) The 'western sub-catchment' rises to the south-west of the study site, on the far side of a railway line embankment. The watercourse flows in a north-easterly direction through the southern proportion of the study site. It is culverted under the A508 (Northampton Road) on the site's eastern boundary. Downstream of the A508 it is joined by a small tributary which drains land south-east of the study site. The channel is joined by a second tributary just upstream of the M1 embankment, this drains land falling mainly within the study site. The watercourse is then culverted under the M1.

(ii) The 'southern sub-catchment' rises to the south east of the study catchment, and flows in a north-westerly direction. This is also culverted under the M1.

1.6 Additionally, there is a series of low ecological value seasonally wet drainage ditches across the site, running from west to east and discharging into a ditch along the eastern site boundary. This discharges into the Courteenhall Brook downstream of the site. These ditches are observed to run dry for most of the year.

Site 2

1.7 Site 2 is primarily greenfield in nature, cutting across arable fields, plus some existing infrastructure including the road network and a railway line.

1.8 An Unnamed Ordinary Watercourse (UOW) flows under the route of Site 2, the proposed Roade bypass. For the purposes of this report, this will be referred to as the Roade Brook.

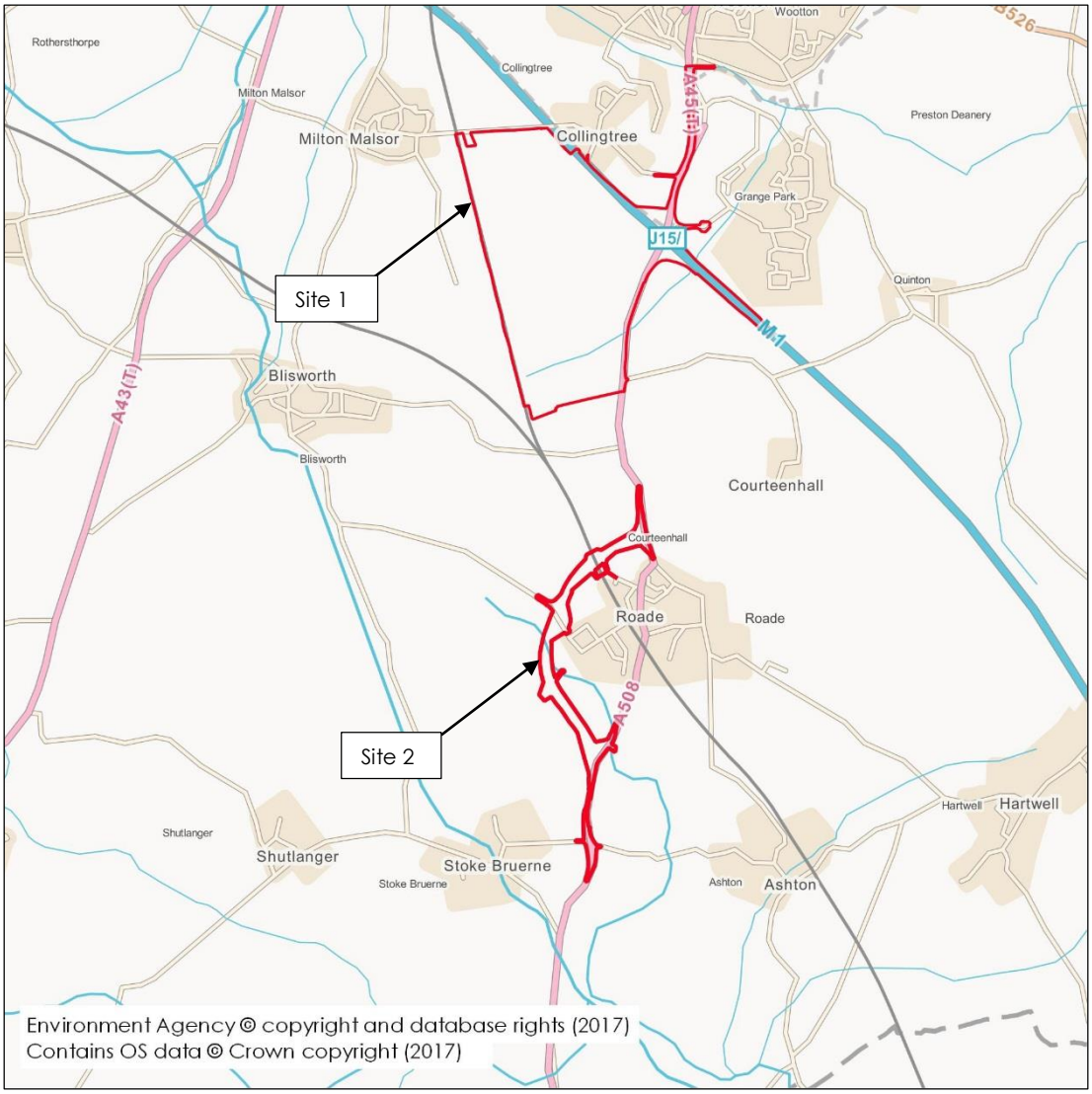

Figure 1.1 - Site Location

Table 1.1 – Site Summary

Site Name	Northampton Gateway
Location	M1, Junction 15, Northamptonshire
NGR (approx.)	SP 72743 57142
Application Site Area (Site 1)	Approx 245 ha
Development Type	Industrial and Highway
EA Office	Lincolnshire and Northamptonshire
Local Planning Authority	South Northamptonshire District
River Basin District	Anglian

Proposed Development

Site 1

1.9 A proposed strategic rail freight interchange comprising:

(i) an intermodal freight terminal including container storage and HGV parking, rail sidings to serve individual warehouses, and with the capability to also provide a 'rapid rail freight' facility as part of the intermodal freight terminal;
(ii) up to 468,000 sq m (approximately 5 million sq ft) (gross internal area) of warehousing and ancillary buildings, with additional floorspace provided in the form of mezzanines;
(iii) new road infrastructure and works to the existing road network, including the provision of a new access and associated works to the A508, a new bypass to the village of Roade, improvements to Junction 15 and to J15A of the M1 motorway, the A45, and other highway improvements at junctions on the local highway network;
(iv) strategic landscaping and tree planting, including diverted public rights of way; and
(v) earthworks and demolition of existing structures on the SRFI site.

1.10 The development proposals are included as **Appendix 1**.

Site 2

1.11 A bypass around the village of Roade.

Purpose of Report

1.12 The development proposals will be supported by works with the potential to affect the water environment, thus an assessment of their compliance with the Water Framework Directive (WFD) legislation is required.

Site 1

1.13 Likely changes to the water environment associated with Site 1 are as outlined below.

(i) The lengthening of an existing culvert under the M1, to support a slip road extension.
(ii) The eastern part of the site is currently at risk of flooding, partly due to a restrictive culvert under the A508. It is proposed that flood storage is provided in order that the required developable footprint at the site can be opened up, to be achieved by excavating the right-hand floodplain, between the Courteenhall Brook and a parallel ditch. (Note that the exact form of this storage area is currently being finalised, thus the highlighted area on **Figure 1.2** is indicative only.)
(iii) The removal of a series of low value seasonally wet land drainage ditches within the site, draining from west to east and connecting into a ditch along the eastern site boundary which discharges into the Courteenhall Brook prior to its culverting under the M1.
(iv) The discharge of surface water runoff from the proposed development into the Courteenhall Brook.

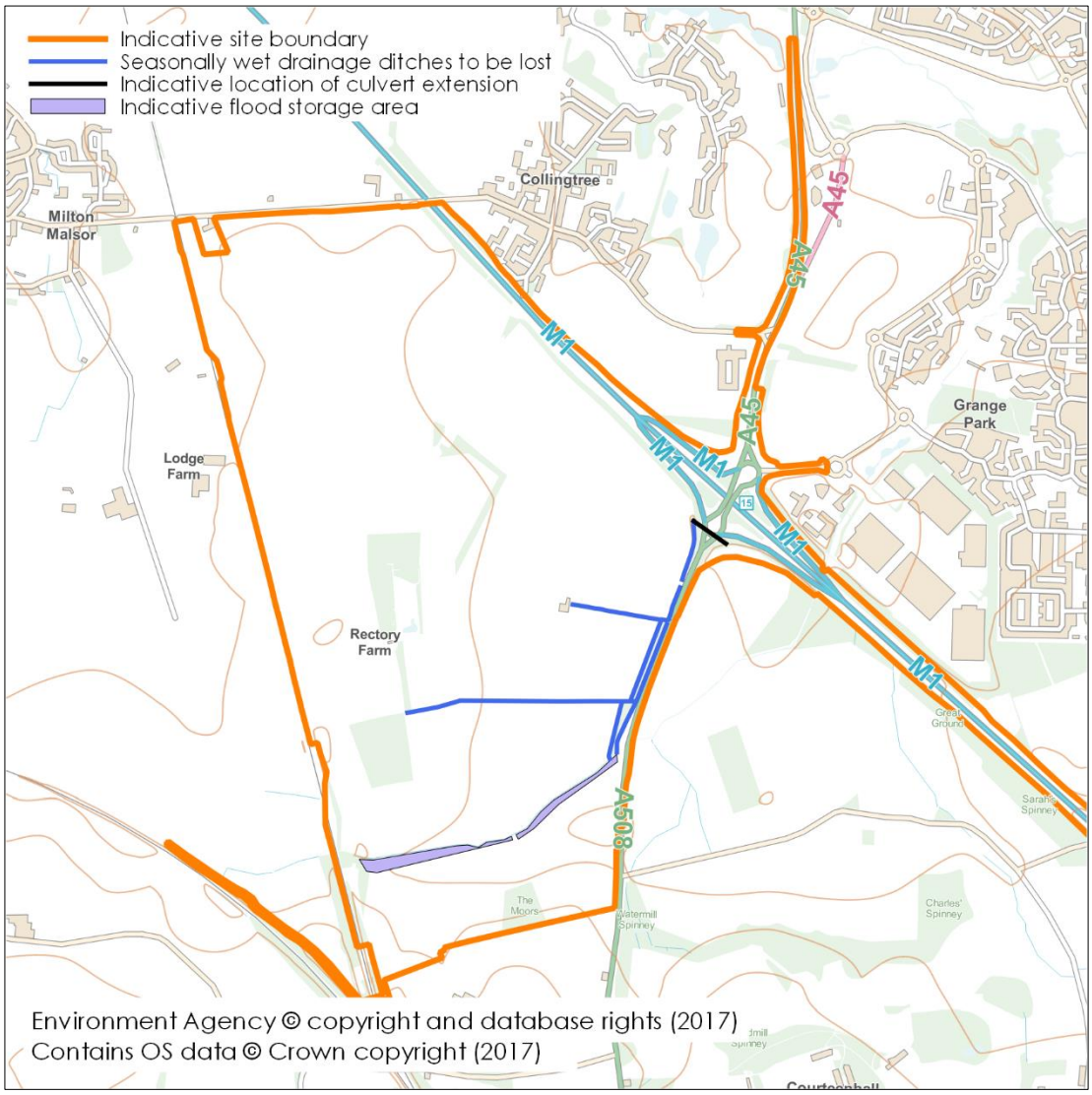

Figure 1.2 – Likely changes to the water environment at Site 1

Site 2

1.14 A short section of culverted reach will be introduced into the Roade Brook to accommodate the proposed bypass. The works required to support the enabling infrastructure will ensure that the length of culvert introduced is kept to a minimum, and all surface water runoff directed to the Roade Brook will be adequately treated prior to discharge. Moreover, the nearest classified waterbody is approximately 5km downstream of the site, thus likely to support different characteristics. The likely implications on the water environment are deemed negligible and will not be assessed further.

1.15 As such, Site 1 (hereafter referred to as the site) will be the primary focus of this WFDCA. This document includes an evidence base for the assessment of the potential implications on the water environment and provides recommendations based on the outcomes.

2.0 LEGISLATIVE BACKGROUND

2.1 The Water Framework Directive (WFD) (2000/60/EC) encompasses all surface waters and groundwater in England and Wales. The EU WFD was transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

2.2 A water body is a manageable unit of surface water, being the whole (or part) of a stream, river or canal, lake or reservoir, transitional water (estuary) or stretch of coastal water. A 'body of groundwater' is a distinct volume of groundwater within an aquifer or aquifers.

2.3 The water body encompasses the entire stream network draining the river catchment, as classified for the purposes of the WFD. Waterbodies designated as highly modified aim to achieve good ecological potential; while water bodies without this designation aim to achieve good ecological status.

2.4 The Directive requires that Environmental Objectives be set for all surface and ground waters in England and Wales to enable them to achieve Good Status (or Good Ecological Potential for Heavily Modified and Artificial Water Bodies) by a defined date.

2.5 This WFD Compliance Assessment aims to determine the effects of the proposal on ecological/biological quality and geomorphology, identifying any potential impacts that could cause deterioration in the status of a water body or could hinder the water body from meeting its WFD objectives.

2.6 The WFD sets a number of Environmental Objectives for all surface water and groundwater bodies that must be met in order for the proposed scheme to be compliant with the WFD. Article 4.1 of the WFD outlines the Environmental Objectives as follows:

i. Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water (Article 4.1(a)(i)).

ii. Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status by 2015 (Article 4.1(a)(ii)).

iii. Member States shall protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status by 2015 (Article 4.1(a)(iii)).

iv. Progressively reduce pollution from priority substances and cease or phase out emissions, discharges and losses of priority hazard substances (Article 4.1(a)(iv)).

v. Prevent Deterioration in Status and prevent or limit input of pollutants to groundwater (Article 4.1(b)(i).

2.7 These Environmental Objectives are detailed in the list below:

i. Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters;

ii. Aim to achieve at least "good status" for all water bodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027;

iii. Meet the requirements of Water Framework Directive Protected Areas;

iv. Promote sustainable use of water as a natural resource;

v. Conserve habitats and species that depend directly on water;

vi. Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;

vii. Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and

viii. Contribute to mitigating the effects of floods and droughts.

Preventing Deterioration in Status

2.8 Any activity which has the potential to have an impact on the ecology of a water body will need consideration in terms of whether it could cause deterioration in its Ecological Status or Potential.

2.9 For each water body, three different status objectives are identified. These are the overall status objective, the ecological status or potential objective and the chemical status objective. A default objective for all waterbodies is to prevent the deterioration in the Ecological Status (or Ecological Potential for Heavily Modified and Artificial Water Bodies).

2.10 The Ecological Status of a water body is determined through analysis of its constituent biological Quality Elements (listed below).

Biological Quality Elements

(i) Fish;
(ii) Invertebrates;
(iii) Macrophytes; and
(iv) Phytobenthos.

2.11 These elements are in turn supported by a series of physico-chemical and hydromorphological Quality Elements. These Quality Elements are taken from Annex V of the Directive. The overall Ecological Status is determined by the lowest element status.

2.12 Any activity that has the potential to have an impact upon any of the Quality Elements will need consideration in terms of whether it could cause deterioration in the status of a water body. The activity will also need to be considered in terms of whether it will compromise the ability of the water body to reach Good Ecological Status or Good Ecological Potential by the date specified in the applicable Environment Agency River Basin Management Plan (RBMP).

3.0 WATERBODY INFORMATION

River Basin Management Plan

Surface Water Bodies

3.1 River Basin Management Plan (RBMP) Mapping was used to determine the WFD status of the applicable watercourse. The information contained in the RBMP is summarised as a series of maps available on the Environment Agency's Catchment Data Explorer website outlining the Ecological and Chemical Quality of surface water bodies currently (based on 2016 baseline data), and their objectives.

3.2 The Courteenhall Brook falls within the Anglian River Basin District. However, this stretch of watercourse within the site is not specifically classified as a waterbody. In line with the definitions in the WFD, it therefore forms part of the catchment of the nearest classified waterbody. The Courteenhall Brook flows into the Wootton Brook approximately 1.5km downstream of the site.

3.3 The Wootton Brook is included within the Anglian RBMP and so will be used as an indicator of the quality of receiving surface water bodies.

3.4 Highlighted details from the RBMP for the water body are listed in **Table 3.1**. A map of the applicable catchment area is included as **Figure 3.1**.

Table 3.1 – Summary of Wootton Brook

Water body ID	GB105032045550
Water body Name	Wootton Brook
NGR (Approx.)	SP7427857001
Current Overall Status	Moderate
Status Objective (Overall)	Moderate by 2015
Current Ecological Status	Moderate
Predicted Ecological Status	Moderate by 2015
Current Chemical Status	Good
Predicted Chemical Status	Good by 2015
Hydro morphological Designation	Not designated Artificial or Heavily Modified

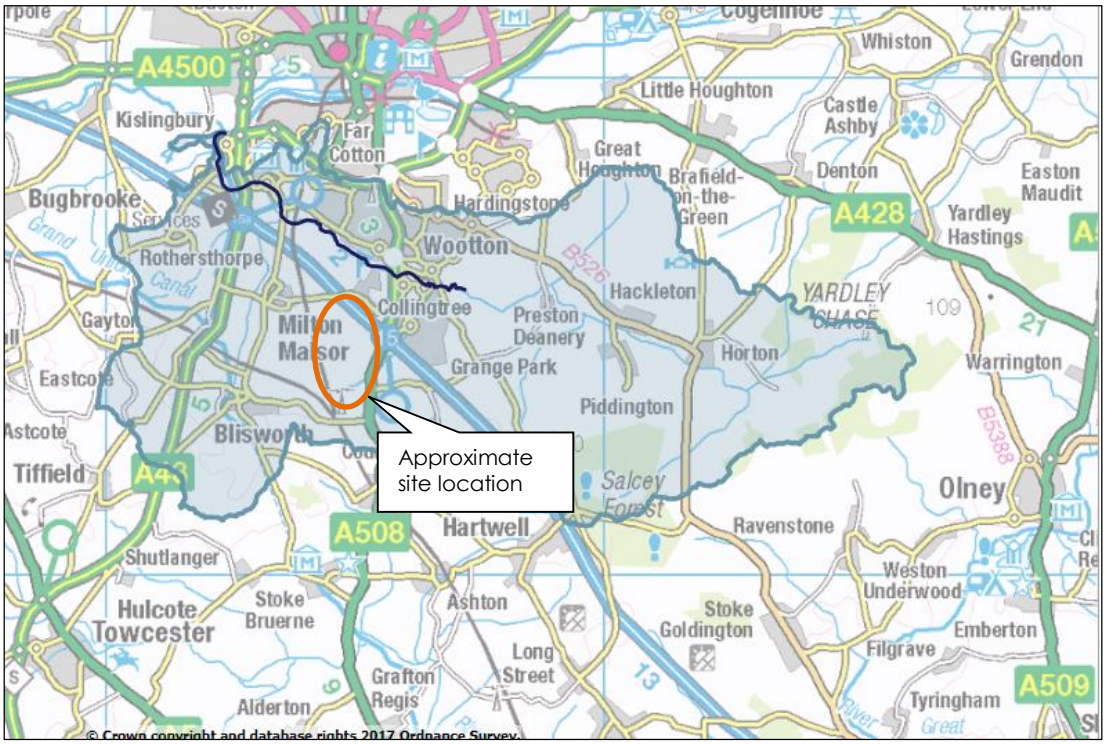

Figure 3.1 – Wootton Brook Water Body Designation

Ground Water Bodies

3.5 The Environment Agency Catchment Data Explorer website also includes details of groundwater management catchments across their jurisdiction area. The shows the Main Site to be located within the Nene Mid Lower Jurassic Unit.

3.6 Highlighted details for the ground water body are listed in **Table 3.2**. An extract of the mapping is included below as **Figure 3.2**.

Table 3.2 – Summary of Wootton Brook

Water body ID	GB40502G402400
NGR (Approx.)	SP7733568437
Groundwater area	99590.18 ha
Surface area	995.902 km^2
Overall Water Body	Good

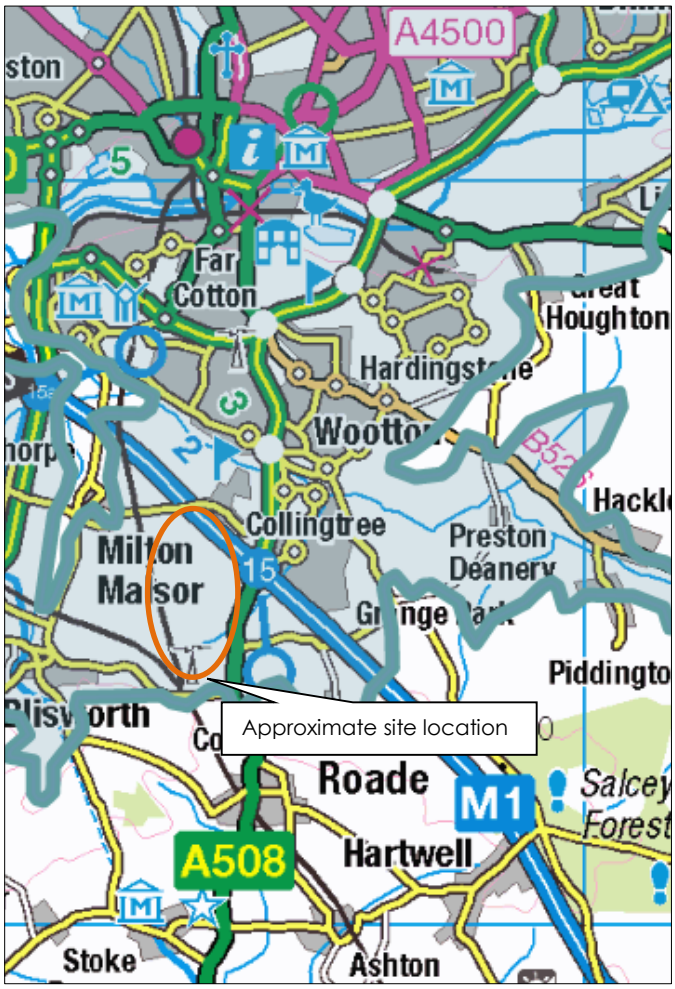

Figure 3.2 - Nene Mid Lower Jurassic Unit

4.0 ASSESSMENT SCREENING

Overarching WFD Environmental Objectives

4.1 The following points have been identified to determine whether the proposals comply with the overarching objectives of the WFD. These have been derived from the Environmental Objectives of the WFD:

i. Objective 1: The proposed scheme does not cause deterioration in the Status of the Biological Elements of the water body;

ii. Objective 2: The proposed scheme does not compromise the ability of the water body to achieve its WFD status objectives;

iii. Objective 3: The proposed scheme does not cause a permanent exclusion or compromised achievement of the WFD objectives in other bodies of water within the same River Basin District; and

iv. Objective 4: The proposed scheme contributes to the delivery of the WFD objectives.

4.2 If it is predicted that the proposal will cause deterioration in water body status or prevent a water body from meeting its ecological objectives, then an assessment can be made against the conditions listed in Article 4.7 of the WFD.

4.3 Article 4.7 of the WFD defends deterioration in status or failure to meet WFD objectives resulting from new modifications or sustainable human development activities, if all conditions set out under this Article are met. Member States will not be in breach of this if all the conditions are met.

Surface Water Bodies

4.4 Based on the Anglian RBMP guidance, the objective of this WFDCA is to ensure that there will be no deterioration, and where possible, improvement in the ecological conditions of Wootton Brook as part of the proposal and the overall RBMP catchment objectives.

4.5 In addition to the overarching aims, a more specific screening process can be undertaken, focusing on objectives applicable to this watercourse and catchment.

4.6 The Ecological, Hydromorphological and Chemical Status objectives of waterbodies potentially affected by the scheme are first screened to understand how they may be affected by the development proposals. In the event that no potential adverse effects are identified, no further assessment is deemed necessary.

4.7 As the development proposals concern the lengthening of an existing culvert, creation of a flood storage area, removal of seasonally wet land drainage ditches and discharge of surface water into the Courteenhall Brook, there is scope for the Ecological, Hydromorphological and Chemical Status objectives of waterbodies to be affected, thus it will be necessary to consider all aspects in the assessment.

4.8 According to the Anglian RBMP the Wootton Brook supports a good hydrological regime and morphology. As the proposed works include changes to the river corridor

and therefore morphology of the river, this Quality Element is considered further in the assessment.

4.9 The nearest Ecological and Chemical Status objectives are available from the Environment Agency Catchment Data Explorer website for the 'Wootton Brook'. The Ecological and Chemical Status objectives are further split into Quality Elements, as presented in **Table 4.1**. As the purpose of the WFD is to ensure the proposed development has no detriment on the water environment, it is proposed that these form the basis of the assessment screening process, and subsequent objectives.

Table 4.1 – Waterbody Classification (Wootton Brook)

		2009 Cycle 1	2016 Cycle 2	Objectives
Overall Water Body Status		Good	Moderate	Moderate by 2015
Ecological		Good	Moderate	Moderate by 2015
	Biological quality elements	Good	Moderate	Moderate by 2015
	Hydromorphological supporting elements	Supports Good	Supports Good	Supports Good by 2015
	Physico-chemical quality elements	Good	Moderate	Moderate by 2015
	Specific pollutants	High	High	High by 2015
	Supporting elements (surface water)	-	-	Not assessed
Chemical		Does not require assessment	Good	Good by 2015
	Other Pollutants	Does not require assessment	Good	Good by 2015
	Priority hazardous substances	Does not require assessment	Good	Good by 2015
	Priority substances	Does not require assessment	Good	Good by 2015

4.10 The hydromorphological elements of the water body take into account the quantity and dynamics of river flow; continuity of the river; variation in the depth and width of the river; structure and substrate of the river bed; and structure of the riparian zone.

4.11 Based on the above water body classification, it is proposed that the following assessment approach is adopted for the ecological and chemical quality elements of the assessment (see **Table 4.2**). The above water body classification objectives relate to the Wootton Brook downstream of the site, not the Courteenhall Brook itself. However, as outlined above, Courteenhall Brook does not feature specifically on the Catchment Data Explorer website, these are the nearest available objectives, thus considered to be the most appropriate basis for assessment works.

Table 4.2 – Surface Waterbody Screening

		2016 Cycle 2	Objectives	Screen in/out	Justification
Ecological		Good	Moderate by 2015	Screened in	The overall ecological objective of waterbody classification will be scoped in, with specific aspects considered as per the below. According to the Catchment Data Explorer website, achieving Good status is "technically infeasible" as no technical solution is available.
	Biological quality elements	Moderate	Moderate by 2015	Screened in	The purpose of this assessment is to ensure the development does not hamper efforts to reach a 'moderate' status. As the proposed works include the creation of a flood storage area, which may impact on the riparian zone, there is scope for the biological quality elements to be affected.
	Hydromorphological supporting elements	Supports Good	Supports Good by 2015	Screened in	This element of the waterbody classification has been achieved previously, thus the purpose of the assessment is to ensure there will not result in the deterioration of this element. As the proposals include the loss of ditches, extension of a culvert and creation of a flood storage area, there is potential for hydromorphological elements of the watercourse to be affected.
	Physico-chemical quality elements	Moderate	Moderate by 2015	Screened in	The purpose of this assessment is to ensure the development does not hamper efforts to reach a 'moderate' status. The construction phase and discharge of surface water runoff into the Courteenhall Brook has the potential to impact on this element.
	Specific pollutants	High	High by 2015	Screened in	This element of the waterbody classification has been achieved previously, thus the purpose is to ensure the development will not result in deterioration. The construction phase and discharge of surface water runoff into the Courteenhall Brook has the potential to impact on this element.
	Supporting elements (surface water)	High	Not assessed	Screened out	No consideration required as element not assessed.
Chemical		Good	Good by 2015	Screened in	This element has not been previously assessed, thus the purpose is to ensure that the development will not hamper efforts to achieve 'good' status. The construction phase and discharge of surface water runoff into the Courteenhall Brook has the potential to impact on this element.
	Other Pollutants	Good	Good by 2015	Screened in	This element has not been previously assessed, thus the purpose is to ensure that the development will not hamper efforts to achieve 'good'

					status. The construction phase and discharge of surface water runoff into the Courteenhall Brook has the potential to impact on 'other pollutants'.
	Priority hazardous substances	Good	Good by 2015	Screened in	This element has not been previously assessed, thus the purpose is to ensure that the development will not hamper efforts to achieve 'good' status. The construction phase and discharge of surface water runoff into the Courteenhall Brook has the potential to impact on 'priority hazardous substances'.
	Priority substances	Good	Good by 2015	Screened in	This element has not been previously assessed, thus the purpose is to ensure that the development will not hamper efforts to achieve 'good' status. The construction phase and discharge of surface water runoff into the Courteenhall Brook has the potential to impact on 'priority substances'.

Waterbody Mitigation Measures

4.12 Annex B of the 2009 Anglian RBMP details appropriate mitigation measures for the Wootton Brook, in order that it can achieve its defined ecological potential. These mitigation measures are outlined in **Table 4.3**. Where appropriate, any site-specific mitigation required should seek to incorporate such measures to help the Wootton Brook water body enact the mitigation on a catchment-wide scale.

Table 4.3 – Mitigation measures for the Wootton Brook

Mitigation Measure	Status
Ecological Potential	
Appropriate channel maintenance strategies and techniques – minimise disturbance to channel bed and margins	In place
Retain marginal aquatic and riparian habitats (channel alteration)	In place
Appropriate techniques (invasive species)	In place
Appropriate timing (vegetation control)	In place
Appropriate vegetation and control technique	In place
Selective vegetation control regime	In place
Appropriate channel maintenance strategies and techniques – woody debris	Not in place
Sediment management strategies (develop and revise)	Not in place
Operational and structural changes to locks, sluices, weirs, beach control, etc.	Not in place
Structures or other mechanisms in place and managed to enable fish to access waters upstream and downstream of the impounding works.	Not in place
Increase in-channel morphological diversity	Not in place
Chemical Potential	
Does not require assessment	-

Ground Water Bodies

4.13 Online British Geological Survey (BGS) mapping shows the site to be underlain by the Whitby Mudstone Formation (Mudstone) bedrock geology. This is designated by the Environment Agency as an Unproductive Strata, rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

4.14 BGS mapping shows the site to be underlain by the Oadby Member (Diamicton) superficial deposits. This is designated by as a Secondary Undifferentiated aquifer, assigned where it is not possible to attribute either Category A or Category B to a rock type.

4.15 The site is not located within a Source Protection Zone.

4.16 A number of trial pits, window samples and borehole logs have been undertaken across the site, as part of the Ground Investigation works. Many of the logs reported that groundwater was not encountered.

4.17 Where groundwater was encountered, it was generally at samples taken in the eastern portions of the site, at depths of at least 1.5m below ground level (bgl) and in continuity with the Oadby Formation.

4.1 Objectives for the nearest groundwater classification, the Nene Mid Lower Jurassic Unit, are available on the Environment Agency Catchment Data Explorer website. These are split further into sub-categories, as presented in **Table 4.4**.

Table 4.4 – Waterbody Classification (Groundwater)

		2009 Cycle 1	2016 Cycle 2	Objectives
Overall Water Body		Good	Good	Good by 2015
Quantitative		Good	Good	Good by 2015
	Quantitative Status Element	Good	Good	Good by 2015
Chemical (GW)		Good	Good	Good by 2015
	Chemical Status Element	Good	Good	Good by 2015
	Supporting elements (groundwater)	Good	Good	Good by 2015

4.2 There is scope for works to impact on the quantity and quality of groundwater at this location, in view of the increased extent of impermeable areas (and consequently reduced infiltration potential) and heightened level of reduced quality surface water runoff from the site.

4.3 In view of the site's location overlying a Secondary Undifferentiated aquifer, the reduction in the quantity of infiltration into the underlying ground is deemed to have a negligible impact; by definition these aquifers have a low permeability with negligible significance on water supply and river base flow.

4.4 The proposed site usage will result in the generation of lower quality surface water runoff from the site, which will be directed towards nearby receptors. Whilst there may be scope for such runoff to result in groundwater degradation, the implementation of an appropriate surface water drainage strategy at the site, with appropriate levels of surface water treatment, will provide mitigation.

4.5 It is not envisaged that the proposed development will influence the underlying groundwater aquifer, therefore groundwater will not be scoped into this assessment.

5.0 BASELINE ASSESSMENT

5.1 Following the screening of the WFD elements set out in **Section 4.0**, a walkover of the site was carried out by qualified Environmental Consultants from BWB Consulting. Consultation with the Environment Agency confirmed that further baseline surveys were not required in terms of macrophytes and invertebrates and that available information from the Environment Agency can be used (pers. Comm. Ms Kerry Ginn 14.9.2017).

Walkover Survey

5.2 For the purpose of this section of the report, details of the site have been described by an employee of BWB Consulting who is a competent Aquatic Ecologist. These details are based on a site visit carried out in October 2016. The UOW tributary of the Wootton Brook is being referred to as the Courteenhall Brook for ease of reference.

5.3 As the Courteenhall Brook flows from west to the east adjacent to the south of the site, it follows a very narrow and uniform channel (maximum 1m wide) with shallow banks. Water depth at the time of the site visit was very shallow (approximately 5cm max). It was evident that the ditch runs dry at times, as terrestrial ruderal herbs were present across the channel in some places (**Figure 5.1**). The bed substrate mainly consisted of fine mud and gravels. The depth and cover of silt increased further downstream towards the M1 (**Figure 5.2 & 5.3**).

Figure 5.1 – Courteenhall Brook - Tributary of the Wootton Brook (south of the site)

Figure 5.2 – Silt within Courteenhall Brook

Figure 5.3 – Courteenhall Brook flowing into M1 Culvert

5.4 A trapezoidal culvert is present under the A508 roundabout. On the day of the survey flow was minimal through the culvert and mud/silt blocked the passage of water (**Figure 5.4**). Due to the minimal light penetration within the culvert, there were no macrophytes present.

Figure 5.4 – Culvert under A508 Roundabout

5.5 Approximately 700m to the south of the site there is another unnamed tributary of the Wootton Brook that converges with the Courteenhall Brook as it goes under the M1. This watercourse essentially acts as a field ditch with a maximum width of 1m. Flow was minimal at the time of survey, emphasised by the mats of filamentous algae *Cladophora* sp..

5.6 The ditch had 100% macrophyte coverage at the time of the survey, which mainly comprised of filamentous algae with some beds of watercress *Rorippa nasturtium-aquaticum* (**Figure 5.5**).

5.7 The Courteenhall Brook is heavily shaded by a hedgerow on the left hand bank with open field on the right hand bank.

Figure 5.5 – Courteenhall Brook

Ecological Assessment

5.8 The following details are taken from the draft ecological assessment undertaken at the site, with outputs dated October 2017.

Designated Sites

Upper Nene Valley Gavel Pits SPA / Ramsar

5.9 At its closest point, the Upper Nene Valley Gravel Pits SPA / Ramsar lies approximately 5km from the west boundary of the Main Site and approximately 7.5km north-east of the Bypass Corridor. The Upper Nene Valley Gravel Pits SPA / Ramsar is a discontinuous series of water bodies stretching over 35km from Clifford Hill on the edge of Northampton to the north of Thrapston. The habitats support internationally important populations of two Annex I bird species and a high proportion of the total European population of Gadwall *Anas strepera* and a nationally important numbers of breeding bird. Integrity of the site is dependent upon maintenance of the structure and function of wet woodland in the floodplain, the varied wetland habitats, water quality and supply and suitable breeding, foraging and roosting areas for birds. The Habitats Directive and Ramsar Convention provide the legislative framework for SPA and Ramsar designation, respectively. In the UK these statutory instruments are transposed into legislation by the Conservation of Habitats and Species Regulations 2010 (as amended). The Upper Nene Valley Gravel Pits SPA / Ramsar is therefore considered to be of International importance.

Upper Nene Valley Gravel Pits SSSI

5.10 The national importance of the Upper Nene Valley Gravel Pits is recognised by their designation as a SSSI under the Wildlife and Countryside Act 1981 (as amended). The interest features of this SSSI include nationally important breeding and overwintering populations of birds and wet woodland habitat. The Upper Nene Valley Gravel Pits SSSI is therefore considered to be of National importance.

Roade Cutting SSSI

5.11 Roade cutting SSSI, which is a site of geological importance, overlapped with the boundary of the Bypass Corridor. The geological importance of this SSSI is not considered further here.

Local Wildlife Sites

5.12 There are two non-statutorily designated LWSs located within 1km of the Proposed Development (**Table 5.1**). The LWSs are designated because they support ecological features that are considered to be of County importance.

Table 5.1 – Non-Statutory Designated Wildlife Sites within 1km

Name	Location	Description
Collingtree Golf Course LWS	620m north of Main Site	Important freshwater habitats associated with network of ponds and streams
Roade Quarry LWS	Adjacent to south east boundary of Bypass Corridor	An old, shallow limestone quarry supporting a wide range of vegetation in various stages of succession

5.13 The Courteenhall Brook flows through the Collingtree Golf Course, thus is of relevance to the Main Site.

Aquatic Habitat

Main Site

5.14 There were three ponds within the area of the Main Site, referenced as P1, P2 & P3 in the Preliminary Ecological Appraisal. All ponds qualify as Northamptonshire BAP Priority Habitat.

5.15 The marginal vegetation of pond P1 was dominated by stands of reed mace *Typha latifolia* in the areas of open water. Due to the presence of GCN the pond P1 qualifies as Habitat of Principal Importance under Section 41 of the NERC Act 2006. Pond P1 is not of sufficient floral diversity to meet the criteria for selection as a LWS (see **paragraph 5.24**). Based on its size and the maturity of its aquatic and marginal habitats the pond P1 is considered to be of Local importance.

5.16 As a result of their low floral diversity and the lack of any records for notable species, the ponds P2 & P3 are unlikely to meet the criteria for selection as Habitat of Principal Importance or LWS habitat, but as areas of standing water they are also considered to be of Local importance.

Bypass Corridor

5.17 There is a single pond within the Bypass Corridor; P101. This pond is of low floral and structural diversity and therefore unlikely to qualify as Habitat of Principal Importance or as LWSs. Therefore, as areas of standing water these ponds are considered to be of Local importance.

Running Water & Ditches

Main Site

5.18 A flowing watercourse runs along the south boundary of the Main Site; Running Water (RW) 1. The steep sided banks of RW1 are dominated by a mix of grassland, scrub and tall ruderal vegetation. A low diversity of common and widespread aquatic species is associated with the channel. Despite its low overall diversity the ecological interest of RW1 is increased by the fact that it formed a connection with a number of habitats in the wider area, including Collingtree Golf Course LWS. Therefore, although RW1 is unlikely to represent Habitat of Principal Importance, Priority Habitat of the Northamptonshire BAP or LWS habitat, it is considered to be of Local importance.

5.19 A number of dry agricultural ditches are present across the Main Site in association with field boundaries. These are a common and widespread habitat and are not considered to represent an Important Ecological Feature.

Bypass Corridor

5.20 A short stretch of running water is located at the south-east extent of the Bypass Corridor; RW2. The channel of RW2 within the Bypass Corridor comprises stone and shingle, with banks that are either over-shaded by adjacent scrub or dominated by stands of great horsetail *Equisetum telmateia*. RW2 flows through a culvert beneath the A508, and represents a tributary of the River Tove. Although RW2 is unlikely to represent Habitat of Principal Importance, Priority Habitat of the Northamptonshire BAP or LWS habitat, as it provides connectivity to similar habitat in the surrounding landscape it is considered to be of Local importance.

5.21 A section of dry ditch DD1 that is connected to RW1 (via the off-site pond P108) bisects the central areas of the Bypass Corridor. Although it is a feature that has been modified for agricultural purposes, this ditch is fenced off from more intensively managed field compartments and provides some ecological connectivity across the local landscape. The dry ditch is therefore considered to be of Local importance. A small number of dry agricultural ditches are associated with the field boundaries, which are generally over-shaded by adjacent hedgerows and of limited diversity, and are therefore not considered to represent Important Ecological Features.

Water Vole

5.22 Survey and habitat assessment has confirmed the absence of water vole *Arvicola amphibious* from all areas of suitable habitat in the Main Site and Bypass Corridor. The steep-sided banks of RW 1 provided potentially suitable burrowing habitat for water vole, although the availability of suitable foraging habitat was reasonably limited. The watercourse RW2 and all ponds at each Site are over-shaded by the adjacent scrub and woodland vegetation, and therefore considered to represent sub-optimal habitat for water vole. Water vole are considered to be absent and do not represent an Important Ecological Feature.

Otter

5.23 Spraints have been recorded at a point where RW1 is culverted beneath the A508, and this is consistent with the occasional use of this watercourse by otter. RW1 was considered to represent a potentially suitable commuting route for otter between areas of suitable habitat in the surrounding landscape. No other evidence of otter was recorded in the Main Site. The majority of the remaining habitats within the Main Site are open and exposed and therefore provide suboptimal habitat for otter.

Great Crested Newt

5.24 There were three ponds within the application site boundary (P1, P3 & P4) and a further eleven ponds located within 500m (P2 – P12). Dispersal barriers, including unsuitable habitat and the busy road corridors of the M1, A45 and A508, separated ponds P7 – P12 from the site boundary and they have been scoped out of further survey. Aquatic surveys of the remaining ponds confirmed the absence of GCN from the on-site ponds P3 &P4 and also the off-site ponds P2, P3, P5 & P6. A large breeding population (peak count 108 adults) of GCN was identified in the off-site pond P1.

Crayfish

5.25 The watercourse RW1 on the Main Site is silted along the majority of its length with very few refugia, such as stones, cobbles and submerged tree roots that might be considered suitable for white-clawed crayfish (WCCF). Areas of suitable habitat were fragmented and lacked a sufficient range of sizes of refugia to support a viable crayfish population. Therefore, based on the poor quality of available habitat and the lack of local records, it is considered reasonably likely that WCCF are absent from RW1 and this species is not considered further.

Environment Agency Water Quality Data

5.26 The Environment Agency has provided raw survey data for fish, macrophytes and invertebrate data for the Wootton Brook, the nearest classified waterbody.

5.27 The data has been taken at Station ID 55869, approximately 5.5km downstream of the proposed development site. The existing infrastructure between the site and sampling point, including the M1 and railway line, means that the characteristics at this location are unlikely to be representative of those within the Courteenhall Brook.

5.28 As such, it is considered that the primary objective from this data is to ensure there is that water quality is not compromised as a result of the development, thus there is no compromise to downstream conditions.

6.0 WFD COMPLIANCE ASSESSMENT

6.1 **Paragraph 1.7** outlined the potential impacts the proposed development may have on the water environment. **Table 6.1** highlights the potential impacts of these changes unmitigated, but also outlines suggested mitigation measures and the significance once these mitigation measures are in place.

6.2 Where applicable, actions have been split into the construction and operational phases. The impacts associated with the construction phase are considered to be short term in nature, and the operational phase impacts are considered to be long term in length.

6.3 Mitigation measures comprise site specific recommendations based on the conditions seen and data collected, and waterbody mitigation measures as outlined in Annex B of the Anglian River Basin Management Plan (see **Table 3.1**).

6.4 **Table 6.2** then summarises the proposed scheme against the overarching WFD Assessment Objectives detailed in **Paragraph 4.1**.

Figure 6.1: Assessment of potential impacts of proposed scheme

Action	Potential unmitigated impact	Suggested mitigation	Significance if mitigation is in place
Culvert extension			
Construction Phase	Disturbance to existing established habitats Release of sediment into the watercourse Accidental pollutant spillage incidents, such as hydrocarbons	Carry out construction in line with Pollution Prevention Guidelines (PPG) 5 and other best practice guides. Although the PPG have been revoked, these are still followed as best practice. Observation of sediment loading during construction so that any mitigation measures can be implemented should an incident occur. Follow a detailed Construction Environmental Management Plan (to be completed by the contractor).	**Negligible** – some mobilisation of sediment may be unavoidable, but any impacts will be during the construction phase only.
Operational Phase	Loss of established habitats at the culvert outlet Minimal change to flow regime downstream Disrupted connectivity to watercourse downstream of the culvert	The culvert is to be introduced in support of enabling infrastructure at the site, and the extended length will be kept to a minimum as far as possible. The culvert will have minimal impact on flow conditions as the dimensions and material type will match the existing profile, and watercourse connectivity will not be affected as it does not introduce a new structure, simply extends an existing one.	**Minor adverse** – alterations to flow regime and minimal loss of habitat at one end of culvert.

Proposed flood storage area			
Construction Phase	Disturbance to, and loss of, existing established habitats Release of sediment into the watercourse Accidental pollutant spillage incidents, such as hydrocarbons	Carry out construction in line with Pollution Prevention Guidelines (PPG) 5 and other best practice guides. Although the PPG have been revoked, these are still followed as best practice. Observation of sediment loading during construction so that any mitigation measures can be implemented should an incident occur. Follow a detailed Construction Environmental Management Plan (to be completed by the contractor).	**Negligible** – some mobilisation of sediment may be unavoidable, but any impacts will be during the construction phase only.
Operational Phase	Improved flood risk management, thereby reducing risk to the surrounding area and downstream properties Enhanced connectivity of the fluvial floodplain Extension to the marginal aquatic habitat as a result of the regular flow expected to pass through the flood storage area	The introduction of a flood storage area will introduce mitigation by design, as appropriate flood risk management will be introduced as a result of the scheme. The flood storage area is being designed in such a way that existing ditch banks will be left unaffected, but an improvement to the flood mechanism will allow flows to expand across an improved floodplain area connected directly to the watercourse. In the event that farming continues in close proximity to the flood storage area (to the south of the proposed works), appropriate land management techniques should be implemented to manage interactions between neighbouring farmland and the watercourse. Consultation with relevant third parties should be undertaken when the design is fixed to ensure land management techniques tailored to the scheme are implemented. Such measures may include	**Moderate beneficial** – flood risk management and improved riparian zone.

		steps to appropriately control sediment release into the watercourse, for example by ensuring sufficient grass buffer strips or establishing hedgerows.	
Removal of low value seasonally wet drainage ditches			
Construction Phase	Disturbance of existing established habitats along the drainage ditches	Ecologist to provide watching brief and works outside of appropriate breeding seasons.	**Minor adverse –** some loss of existing habitat.
Operational Phase	Long term loss of habitat	Surveys undertaken at the site to date has confirmed that there is very limited habitat currently present at the site.	**Negligible** – some loss of habitat may be unavoidable, but in view of its limited extent at present, the implications are deemed minimal.
Surface Water Outfalls			
Construction Phase	Release of sediment into the watercourse Accidental pollutant spillage incidents, such as hydrocarbons	Carry out construction in line with Pollution Prevention Guidelines (PPG) 5 and other best practice guides. Although the PPG have been revoked, these are still followed as best practice. Observation of sediment loading during construction so that any mitigation measures can be implemented should an incident occur. Follow a detailed Construction Environmental Management Plan (to be completed by the contractor).	**Negligible** – some mobilisation of sediment may be unavoidable, but any impacts will be during the construction phase only.
Operational Phase	Changes in flow regime	The drainage strategy will ensure surface water is passed through on-plot treatment,	**Negligible** – the proposed drainage regime seeks to provide a flood risk management

	Change to water quality	plus a further two levels of treatment to improve water quality prior to discharge. Source control methods will be implemented across the development, and the proposed surface water storage method is above ground detention basins, which will also contribute to water quality benefits. The specific methods of water quality treatment are to be determined when the design of the scheme is fixed, but sufficient treatment should be implemented to comply with policy and SuDS best practice. Additional treatment may be provided in areas of lower quality runoff, such as service yards. The development will remove any current sources of pollution from uncontrolled runoff from agricultural fields. Surface water runoff from the site will be limited to 4l/s/ha, with a view to minimising changes to runoff rates as far as possible compared to the pre-development scenario. Surface water attenuation will be designed to accommodate the 200 year plus climate change return period, minimising impact on the receiving waterbody in all but extreme events. Any change to the flow regime would be limited as the remainder of the catchment will remain unchanged.	function by reducing runoff, minimising the development's impact. Appropriate treatment will be provided to runoff to ensure there is no detrimental impact to water quality.

Increase in impermeable areas on the site			
Construction Phase	Release of sediment into the watercourse during construction works Deterioration in water quality Reduction in infiltration and increase in runoff from compacted ground/impermeable surfaces	Carry out construction in line with Pollution Prevention Guidelines (PPG) 5 and other best practice guides. Although the PPG have been revoked, these are still followed as best practice. Observation of sediment loading within the watercourse during construction so that any mitigation measures can be implemented should an incident occur. Follow a detailed Construction Environmental Management Plan (to be completed by the contractor). Existing geology is not conducive to significant amounts of infiltration, therefore impact would be negligible during construction. Interim drainage measures should be put in place to manage runoff from the construction site as part of the phasing plan or Construction Environmental Management Plan.	**Negligible** – some mobilisation of sediment maybe unavoidable, but any impacts will be during the construction phase only.
Operational Phase	Changes in flow regime Change to water quality	The nature of development is such that land-use changes will affect the water environment. With its current agricultural use, there is potential for uncontrolled release of agri-chemicals, fertilisers and pesticides into the watercourse from runoff. Development of the site will remove this source of pollutants, and provide suitable treatment to runoff, removing particulates and generally improving the water quality of runoff leaving the site.	**Minor beneficial** – the change in land use will be positive for the Physico-Chemical elements of the watercourse, due to the reduction in uncontrolled runoff into the nearby watercourses. The proposed drainage regime seeks to provide a flood risk management function by reducing runoff, minimising the development's impact. Appropriate treatment will be provided to runoff to ensure there is no detrimental impact to water quality.

		The on-site drainage regime will capture runoff from the site and limit discharge to 4l/s/ha runoff rate, ensuring minimal changes to runoff rates compared to the pre-development scenario. The implementation of SuDS at the site will ensure suitable treatment to surface water runoff prior to it entering the Courteenhall Brook.	

Figure 6.2: Assessment of the proposed scheme against the WFD assessment objectives

Water Body	Assessment Objectives			
	Objective 1: The proposed scheme does not cause deterioration in the Status of the Biological Elements of the water body	**Objective 2: The proposed scheme does not compromise the ability of the water body to achieve its WFD status objectives**	**Objective 3: The proposed scheme does not cause a permanent exclusion or compromised achievement of the WFD objectives in other bodies of water within the same RBD**	**Objective 4: The proposed scheme contributes to the delivery of the WFD objectives**
Courteenhall Brook	Inclusion of suggested mitigation measures will ensure the water body does not deteriorate or cause deterioration in the status of the Wootton Brook downstream.	The scheme will not prevent the Wootton Brook from achieving its status objectives.	Any changes to flow or water quality will not be significant and therefore not deemed to have an adverse effect. Consequently, the achievement of the WFD objectives will not be compromised.	Mitigation provides the opportunity to improve flood risk mitigation and therefore could be considered to contribute towards the objectives with suitable mitigation measures included.
Wootton Brook	Inclusion of suggested mitigation measures will ensure the water body does not deteriorate or cause deterioration in the status of the Wootton Brook downstream.	The scheme will not prevent the Wootton Brook from achieving its status objectives.	The mitigation measures recommended ensures that the proposed scheme does not cause a permanent exclusion or compromised achievement of the WFD objectives in other bodies of water within the same RBD.	Mitigation provides the opportunity to improve biodiversity and the water quality and therefore could be considered to contribute towards the objectives with suitable mitigation measures included.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 The only water body potentially affected by the Northampton Gateway development is the Wootton Brook (GB105032045550). This water body is currently assigned as 'Moderate' overall and ecological status.

7.2 This Water Framework Directive Compliance Assessment (WFDCA) has been produced on behalf of Roxhill (Junction 15) Limited in respect of a development of a Strategic Rail Freight Interchange (SRFI) together with associated landscaping, access and other infrastructure works on land adjacent to and in the vicinity of J15 of the M1 known as Northampton Gateway. The development includes a bypass around the village of Roade and additional off site junction improvements. This development consists of an intermodal rail freight terminal, rail served warehousing, new road infrastructure and works to the existing road infrastructure (approx. NGR: SP 73033, 56912).

7.3 To ensure the works are compliant with the Water Framework Directive (WFD) consideration must be given to the Environmental Objective of Article 4 of the WFD.

7.4 The necessary Ecologist Mitigation Strategy should be followed to ensure there is no detriment to aquatic species as a result of the development. Furthermore, the implementation of the Construction Environmental Management Plan (CEMP).

7.5 An appropriate Natural England EPS derogation licence should be implemented to ensure that newts are not harmed or disturbed during development. Precautionary surveys should be undertaken, and an appropriate mitigation strategy put in place in the event that this species is identified prior to works at the site.

7.6 A Biodiversity Management Plan (BMP) is a conservation led plan demonstrating the objectives and management prescriptions aimed at benefitting long term biodiversity.

7.7 No works are to start until an Ecological Protection Plan (EPP) has been produced and integrated into the Construction Environmental Management Plan (CEMP).

7.8 These plans will comply with Environment Agency guidance for working in rivers and should be approved by them before works commence.

7.9 The proposed works shall be compliant with Article 4.1(a)(i-iii) as the work seeks to prevent the ecological deterioration of the watercourses' status by providing suitable mitigation measures, and mimicking existing conditions where possible or providing ecological enhancement. Consequently, the proposals are not considered to hamper the waterbody's objective to reach 'good' by 2027 and it is deemed compliant with the Water Framework Directive.

APPENDIX 1

Development Proposals

FOOTPATH KEY

- Footpath existing (public)
- Footpath existing (to be diverted) (public)
- Footpath Proposed (public)
- Footpath & Cycleway Proposed (public)
- Footpath & Cycleway Proposed (private)

LANDSCAPING KEY

- Existing Landscaping
- Proposed New Landscaping

GROSS INTERNAL AREAS

	Square ft	(Square m)
UNIT 1		
Warehouse	500,000 ft²	
Office	30,000 ft²	
TOTAL	530,000 ft²	(49,238 sqm)
UNIT 2		
Warehouse	515,000 ft²	
Office	30,000 ft²	
TOTAL	545,000 ft²	(50,632 sqm)
UNIT 3		
Warehouse	653,000 ft²	
Office	30,000 ft²	
TOTAL	683,000 ft²	(63,452 sqm)
UNIT 4		
Warehouse	790,000 ft²	
Office	40,000 ft²	
TOTAL	830,000 ft²	(77,109 sqm)
UNIT 5		
Warehouse	510,000 ft²	
Office	37,000 ft²	
TOTAL	547,000 ft²	(50,817 sqm)
UNIT 6		
Warehouse	660,000 ft²	
Office	35,000 ft²	
TOTAL	695,000 ft²	(64,567 sqm)
UNIT 7		
Warehouse	1,150,000 ft²	
Office	41,000 ft²	
TOTAL	1,191,000 ft²	(110,648 sqm)
FREIGHT TERMINAL		
Offices	20,000 ft²	(1858 sqm)
GRAND TOTAL	5,041,000 ft²	(468,324 sqm)

Rev	Date	Details of issue / revision	Drw	Rev

ISSUES & REVISIONS

ROXHILL

NORTHAMPTON GATEWAY
STRATEGIC RAIL FREIGHT INTERCHANGE

THE NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE ORDER 201X

Drawing Title

ILLUSTRATIVE MASTERPLAN

Scale	1:2,500	Drawn	RM
Size	A0	Reviewed	SH

Regulation: **Reg 5(2)(o)**

Document: **2.11**

Drawing Status: **PRELIMINARY**

Drawing No.: **4054 - R001**

Revision: **P61**

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