

London Borough of Enfield

Portfolio Report

Report of: Doug Wilkinson, Director of Environment and Operational Services

Subject: Constructed Wetlands Programme

Cabinet Members: Cllr Rick Jewell

Executive Director: Sarah Cary

Ward: Enfield Highway, Ponders End, Southgate, Upper Edmonton

Key Decision: KD5401

Purpose of Report

1. To approve the works to construct wetlands and related sustainable drainage measures at several sites across the borough including Oakwood Park, Durants Park, Wilbury Way Open Space and Oakthorpe Primary School.
2. To accept up to £690k of external funding from project partners and spend up to £165k from Enfield's Borough Capital funding for Watercourses and Flood Alleviation projects.
3. To delegate authority to the Head of Highway Services to authorise the placing of orders through any of the Council's existing relevant term contracts or to invite and evaluate tenders/quotations and, where suitable tenders/quotations are received, to authorise the award of contracts for the works as appropriate.

Proposals

4. It is proposed to create constructed wetlands and sustainable drainage systems (SuDS) at several sites across Enfield as part of a borough-wide strategy to reduce flood risk, improve the health of local rivers and create wildlife rich spaces that provide opportunities for people to engage with nature. This approach is supported by Enfield Council's [Climate Action Plan](#), [Local Flood Risk Management Strategy](#) and [Blue and Green Strategy](#).
5. The proposed locations have been selected primarily based on their geographical suitability, such as sites that are close to rivers or are known to flood. The opportunity to work with local partners such as Friends of Parks groups or schools is also a factor. The map below shows the location of the

four sites where works are proposed, it also shows locations where wetlands have been constructed across the borough in recent years.

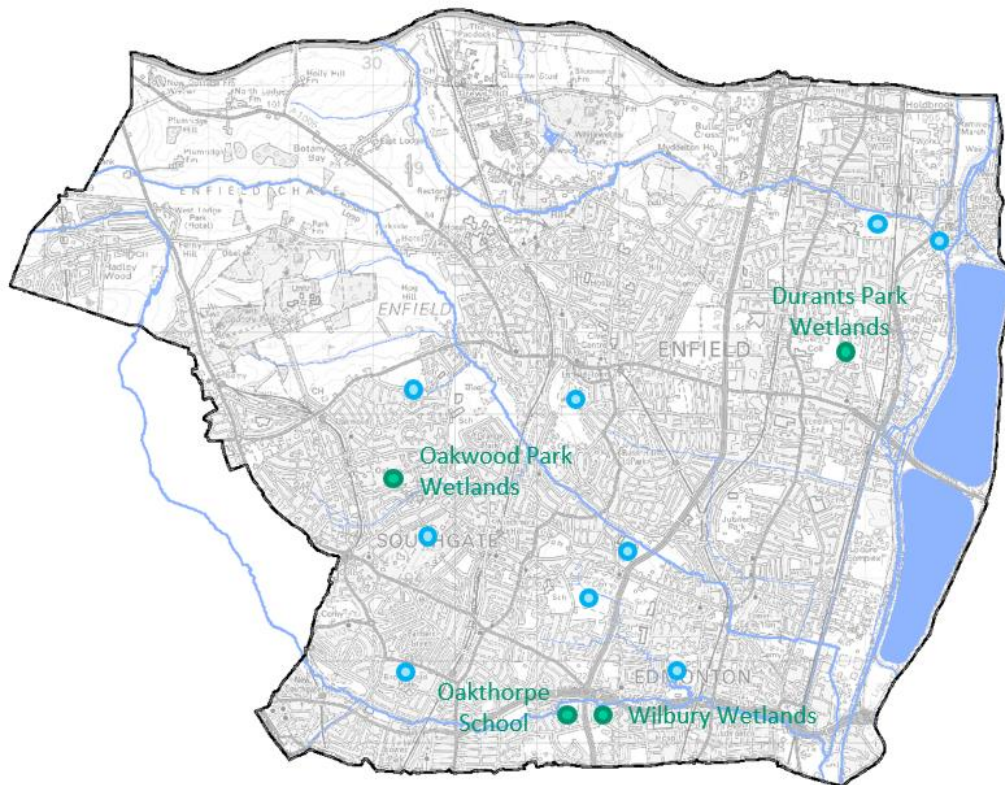


Figure 1 Locations of proposed wetlands (green dots) and existing wetlands (blue dots)

6. The proposed works at each site are summarised as follows
 - **Oakwood Park Wetlands** – a series of wetland and bio-retention basins will treat surface water runoff from a 35-hectare catchment, provide flood storage during extreme rainfall events and create 3,500m² of valuable wetland habitat; amenity features including footpaths, seating and interpretation features will also be provided
 - **Durants Park Wetlands** – runoff from a 29-hectare catchment will be diverted into three wetland basins providing 1,000m² of wetland habitat and 3,000m³ of flood storage
 - **Wilbury Way Wetlands** – the Pymmes Brook river runs alongside the northern boundary of this open space, in addition to creating a series of wetland features the river will be opened up by re-profiling the existing steep banks and removing fences, making the river part of the park; a new nature trail will be created to enhance access
 - **Oakthorpe School Wetlands and SuDS** – SuDS features, including rain gardens and swales, will be provided within the school playground to increase green cover and reduce flood risk; additional wetlands and swales in the adjacent playing fields provide further enhancements
7. The final approval for each individual wetlands project will be subject to authorisation by the Director for Environment and Operational Services and recorded using a Record of Decision (ROD) notice.

8. Further information regarding the proposals is provided in the Background section. Plans showing the layout of the proposed works at each site are included in the background papers at the back of this report.

Reason for Proposals

9. Reduced flood risk, through the provision of wetlands and SuDS measures, such as rain gardens and swales, as highlighted in Enfield's Local Flood Risk Management Strategy (2016).
10. Improved water quality in Enfield's rivers by removing harmful pollutants from the drainage system prior to entering rivers.
11. Enhanced biodiversity by creating valuable wetland habitat and planting a wide variety of species including wildflowers, trees and shrubs in the areas surrounding the new wetlands.
12. Creation of a varied landscape with diverse natural features providing enhanced interest for park users, thereby encouraging more people to visit these sites and spend more time when there.
13. Improved public understanding and perception of urban drainage issues through community engagement and provision of interpretation features.
14. Inspiring more Blue-Green Infrastructure (BGI) development and collaborative approaches to public realm projects across the borough.

Relevance to the Council's Plan

15. The project is closely aligned to Priority 2 of the Council's Plan, which aims to promote safe, healthy and confident communities. In particular, the creation of enhanced blue-green spaces, in the form of wetlands and SuDS, improving the quality and usability of existing green space, and creating better access to blue-green spaces. The wetlands and associated planting capture and treat runoff from the adjacent roofs and roads thereby addressing flood risk and water quality issues in the catchment and providing habitat for wildlife.

Background

16. Across Enfield there are several thousand properties at risk of flooding from rivers during extreme rainfall events (events with an annual probability in the order of 0.1-1%), most of these are located in the Edmonton area near to where the Salmons Brook and Pymmes Brook rivers meet. There are also several thousand properties at risk of flooding from surface water – this is flooding that occurs when intense rainfall overwhelms the drainage system. This type of flood risk is fairly evenly distributed across the borough.
17. Surface water flooding is very common in highly urbanised areas such as Enfield as urban drainage systems are not designed to cope with extreme rainfall. In addition, the protection offered by conventional drainage systems, (hard features such as drains, gullies and pipes) is under increasing pressure due to urban creep (the increased extent of hard surfaces caused by actions

such as paving over green spaces) and climate change which is expected to lead to increased frequency of intense rainfall. Conventional drainage systems also increase the risk of river flooding by quickly conveying water to rivers downstream, causing higher peak flows that can spill out of bank and quickly inundate low-lying areas.

18. The construction of wetlands at strategic locations across the borough addresses this by providing pockets of flood storage – slowing the flow of water and relieving pressure on the drainage system. Individually these wetland flood storage areas help to reduce the risk of localised surface water flooding. In combination they act cumulatively to reduce flows in rivers and the associated flood risk in areas such as Edmonton and Ponders End. An ongoing study being carried out to investigate the catchment-wide benefits of multiple wetlands has concluded that creating 10-12 constructed wetlands on or near the Pymmes Brook would reduce peak flows by approximately 10%. This would reduce the number of properties flooded for a given event by several hundred. This is considered to be a very encouraging result given that most of the wetlands constructed to date in Enfield have focussed on addressing localised surface water flood risk, their wider impact across the catchment has not previously been quantified in this way. It is important to note that it is not possible to eliminate flood risk entirely; however, measures such as wetlands and other types of sustainable drainage reduce the likelihood and severity of flooding, significantly reducing the impacts on people and infrastructure for a given flood event.
19. Another issue faced by the rivers of Enfield is pollution caused by urban sources such as road runoff and misconnected sewers. Wetlands are highly effective at treating or removing these pollutants – wetland plants filter out pollutants while also providing an environment where bacteria that breakdown pollutants such as oil can thrive. Monitoring of existing wetlands in Enfield has demonstrated that they are highly effective at reducing pollution, making Enfield's rivers healthier environments by improving the quality of the rainfall runoff that flows into them.
20. As well as improving rivers, wetlands are valuable habitat in their own right. The combination of open water and dense vegetation surrounded by areas of shrubs, trees and wildflowers create a rich environment for a wide range of wildlife including water birds, such as herons and moorhens, amphibians and invertebrates such as dragonflies. This enhanced environment also creates interesting features for people to visit and enjoy these locations, as well as providing many opportunities for increased community involvement through volunteering and other social activities
21. As part of an ongoing programme of wetland creation it is proposed to create wetlands and related SuDS features at four locations over the next 12 months.
22. Oakwood Park is a large site covering an area of 26 hectares that slopes down towards the south-east corner. This topography creates an overland flow route for surface water during extreme rainfall events that has caused flooding in the past. The proposals have been developed in consultation with the Friends of Oakwood Park who are very supportive of the project.

23. The proposed site for the wetlands at Durants Park is less than 1 hectare, the location and available space is determined by the proximity to an existing surface water drain and the residential re-development at Exeter Road which is being undertaken by Enfield's Estate Regeneration team. The proposed wetlands provide a key component of the SuDS feature that is required for the development and consequently the developer is providing a significant proportion of the funding (see Table 2 below). The wetlands here are linked to a proposed woodland creation project at the adjacent Alma Recreation Ground. It is proposed to use excavated spoil from the wetlands to create landscape features prior to planting trees. As the landscape and woodland proposals have not yet been finalised, it is planned that the Durants Park Wetlands will be carried out in two phases. The first in Spring 2022 and the second in Summer 2022 when the woodland proposals have been finalised and approved.
24. Wilbury Way Open Space is a relatively under-used area that suffers from poor connections and low habitat and amenity value. The proposed wetlands seek to address this by opening up access and views of the Pymmes Brook river, creating new interesting natural features and improving pedestrian links. A new nature trail will be created around the wetlands. Opportunities to extend this to a currently inaccessible woodland on the north side of the river will be explored as part of the project.
25. Oakthorpe Primary School sits adjacent to the Pymmes Brook on Tile Kiln Lane. It is proposed to create new green SuDS features within the school playground that will manage rainfall better, reducing nuisance flooding incidents, as well as providing shelter and interesting learning opportunities for pupils. In addition, it is proposed to create a nature trail with small wetland features and improved planting at the adjacent Tile Kiln Lane Open Space. This Enfield Council owned site provides the school with playing fields for sports activities, it is also shared with Edmonton Rangers Football Club who use it outside school hours – it is not accessible to the general public. Around the edges of the football pitches there is substantial space for nature improvements (typically 20-30m). The school initially identified this as an opportunity to create nature-based learning facilities within their ground benefitting both pupils and wildlife.
26. Stakeholder engagement has been carried out for all four sites with relevant partner organisations, including the Environment Agency, Transport for London, Thames21 and Thames Water. Public consultation has been carried out for the three sites that are accessible to the public. The results of this consultation are summarised in Table 1 below, at all three locations support for the proposals was found to be very high. A public consultation has not been carried out for the Oakthorpe School project as it is not a public site. The school are very supportive of the proposals (see letter of support in Appendix 1). Table 1 also summarises the planning status for the proposed works and identifies the current Council Wards that the sites are located within (both currently and after proposed ward boundary changes in May 2022).

Project	Planning Status	Consultation	Wards
Oakwood Park Wetlands	Planning consent obtained	95% positive (Sep 2020)	Southgate (May 2022 Oakwood, next to Southgate)
Durants Park Wetlands	Planning consent obtained	82% positive (Mar 2021)	Ponders End, Enfield Highway (May 2022 Brimsdown)
Wilbury Wetlands	Planning application submitted October 2021	95% positive (Sep 2020)	Upper Edmonton (May 2022 no change)
Oakthorpe School	N/A	N/A	Upper Edmonton, next to Bowes (May 2022 Bowes)

Table 1 Planning status and public consultation summary

27. The planning application for Wilbury Way Wetlands is expected to be determined by Spring 2022. The works at Oakthorpe School are relatively minor and relate to improvements to land drainage rather than largescale wetland construction, it is proposed to carry these works out under permitted development rather than apply for planning permission. This approach will be confirmed with officers in the planning department prior to commencement.

28. Funding for the proposals is derived from a variety of sources. The London Borough of Enfield (LBE) capital funding supports contributions from external organisations including the Environment Agency, Thames Water, Greater London Authority (GLA) and Coca-Cola. Funding is also drawn from Section 106 payments and the Enfield Neighbourhood Fund, which is funded by the Community Infrastructure Levy (CIL), both of which are funded by development taking place across the borough. It should be noted that external funding is subject to finalisation of funding agreements and LBE funding is subject to Council's 2022/23 Capital Programme and Highways Capital Programme (HCP) allocation approval.

Project	Cost Estimate including fees/contingency	LBE Capital Contribution	Non-capital Funding Secured	Funding Gap/External Funding Sought
Oakwood Park Wetlands	£290k	£50k (£10k 2021/22, £40k 2022/23)	£195k total (£120k S106, £75k Coca-Cola)	£45k (underwritten by HCP)
Durants Park Wetlands	£115k	£15k 2021/22	£100k total (£65k Developer, £35k Thames Water)	N/A
Wilbury Wetlands	£325k	£50k 2022/23	£235k total (£100k S106, £60k NCIL, £75k Coca-Cola)	£40k (underwritten by HCP)
Oakthorpe School	£125k	£50k 2022/23	£75k (GLA)	N/A

Table 2 Funding summary

29. Coca-Cola have awarded a total of £150k funding to the Oakwood Park and Wilbury Wetlands projects as part of a Rivers Trust Restoration Grant. The fund is titled “Replenishing water use in the London Lea, through improving water quality in the Pymmes and Salmons Brook”, it aims to compensate or offset water used in the manufacturing of Coca-Cola products in the Thames river basin districts by improving water quality in rivers near to the manufacturing sites. The funding is supplied by the Coca-Cola Foundation, through the Rivers Trust and Thames21 as a strategic element working towards delivering a healthy River Lea, Pymmes Brook and Salmons Brook in their areas of operations as part of contributions to delivering healthy rivers in the UK and contributions to global freshwater sustainability.
30. The GLA have awarded the Oakthorpe School project £75k from the Grow Back Greener fund that aims to create and enhance green spaces and increase climate resilience. Thames Water’s funding for the Durants Park Wetlands is part of their Surface Water Management Programme that funds projects that disconnect or attenuate surface water flows from their sewers.
31. Further external funding is currently being sought from the Environment Agency, it is expected that up to £40k per project will be available depending on the scale. If there is any shortfall in funding availability, either due to lack of further external funding or unexpected cost overruns, funding will be re-allocated from within the overall Highways Capital Budget.

Main Considerations for the Council

27. These proposals represent an opportunity to reduce flood risk to residential properties and infrastructure at both local and catchment scale, in particular helping to reduce the risk and severity of flooding in the areas of Enfield where it is highest in the Edmonton area downstream of these sites. The works will also deliver a number of wider benefits by reducing pollution to rivers and enhancing green spaces, providing opportunities for education and volunteering, and increasing climate resilience.
28. All four projects have attracted significant levels of funding from partner organisations and have demonstrated high levels of public support. The projects are designed to be safe and easy to maintain; however, it should be recognised that altering landscapes requires changes to future management which can sometimes be challenging with limited resources. The Watercourses team are working with Parks Operations to ensure these new spaces are managed appropriately. Where possible volunteers will be encouraged to actively contribute to the management of these wetlands and rivers, for example by working Thames21 as part of the [Restoring Enfield’s Rivers](#) project.

Safeguarding Implications

29. These schemes will be designed in accordance with the Construction Design and Management Regulations 2015, and industry good-practice standards, to be safe for members of the public. The proposals do not discriminate between

vulnerable adults and children, and therefore do not have significant Safeguarding implications

Public Health Implications

30. The proposed measures will improve pedestrian and cycle access at Oakwood Park and Wilbury Way Open Space, create a nature trail at Oakthorpe School and enhance green spaces at all four sites.
31. This is likely to help create places where people are more likely to choose to walk, cycle and spend more time in a natural environment, which can have a significant impact on public health and has the potential to reduce health inequalities. The improvements to the green spaces in the area are likely to have positive public health implications, because greater access to green and blue spaces is associated with improved physical and mental wellbeing.

Equalities Impact of the Proposal

35. An Equality Impact Assessment has been completed for these projects. The proposals aim to improve access for all members of the community and supports the council to meet the Public-Sector Duty of the Equality Act 2010. The final designs will be reviewed by Parks teams and Landscape Architects in terms of access and safety and overall will reduce inequalities surrounding access to green spaces.
36. It should also be noted that the any contracts awarded should include a duty on the successful applicant to assist us with meeting our obligations under the Equality Act 2010.

Environmental and Climate Change Considerations

37. The proposed schemes align with Enfield's Climate Action Plan (2020), specifically the action to "Increase blue green infrastructure across the borough" by creating wetlands and other sustainable drainage features.
38. Wetland schemes improve resilience to climate change, which is important because significant areas of Enfield are at high risk, as shown by the GLA's [climate risk map](#). They also have benefits in terms of carbon emissions (trees and grasses absorb carbon dioxide) and air quality (filtering atmospheric pollutants).

Risks that may arise if the proposed decision and related work is not taken

39. The proposals aim to reduce flood risk and pollution as well as improving the environment for people and wildlife. To do nothing would lose the opportunity to create a more resilient drainage system, make Enfield safer and cleaner, with healthier rivers, connect communities, improve the public realm and restore habitats. This would also mean the loss of opportunity to access external funding, and collaboratively work with external companies, thus losing investment in Enfield's infrastructure.

Risks that may arise if the proposed decision is taken and actions that will be taken to manage these risks

40. The main risks to the project include:

- A lack of public support for the designs – this is mitigated by ensuring the designs are progressed from the feedback of the consultation, and other stakeholders are informed as part of the decision-making process
- Consents are not obtained – key stakeholders have already been engaged and consents have either been obtained or have been progressed to an advanced stage
- Funding is not secured, which means that the full scheme cannot be implemented – this is mitigated by the creation of a detailed programme with resources and costs with allowance of a suitable contingency sum. Where required, materials and scope of works can be revised to reflect secured funding
- Delays in the implementation of the scheme – the programme of works includes a contingency allowance of 20%.

Financial Implications

41. The overall estimated expenditure for the four projects is £855k. The expected capital contribution to support this programme is £165k with the rest of the funding coming from partner organisations or developer contributions, refer to the summary in Table 2 above for further details. Table 3 below describes the expected delivery programme which stretches over two financial years, 2021/22 and 2022/23.

42. It should be noted that external funding is subject to finalisation of funding agreements and LBE funding is subject to approvals set out in this report. The final approval for the wetlands schemes will be subject to authorisation by the Director for Environment and Operational Services and recorded using a Record of Decision (ROD) notice once the grant funding has been confirmed and agreed with the respective external funding contributors.

43. Below is an estimate of the anticipated expenditure per quarter of the overall Budget of £855k (£690k external and £165k LBE Capital)

Project	2021/22	2022/23			TOTAL
	Q4	Q1	Q2	Q3	
Oakwood Park Wetlands	£20k	£150k	£120k	£0	£290k
Durants Park Wetlands	£50k	£35k	£30k	£0	£115k
Wilbury Wetlands	£0	£100k	£145k	£80k	£325k
Oakthorpe School	£0	£25k	£100k	£0	£125k

Table 3 Indicative programme

44. Future maintenance costs will be contained within existing Parks and/or Education budgets, this is feasible as the cost of maintaining these natural features is not significantly different to current maintenance costs.

Legal Implications

45. The Council has a general power of competence under section 1(1) of the Localism Act 2011 to do anything that individuals may do, provided it is not prohibited by legislation and subject to Public Law principles. This power encompasses the power to enter into contracts. In addition, section 111 of the Local Government Act 1972 permits local authorities to do anything which is calculated to facilitate, or is conducive or incidental to, the discharge of their functions.
46. The proposals set out in this report represents a key decision and so all procedures for the taking of key decisions must be observed in accordance with Enfield Council's Constitution.
47. There are a number of external funders that are contributing to this project, such as the Environment Agency, Thames Water, Greater London Authority (GLA) and Coca-Cola. Care needs to be taken to ensure that all grant conditions that come with the grant of monies from these external funders can be complied with by the council. Legal advice should be sought on this if and when required.
48. In awarding any contracts for this scheme the council's constitution, and in particular the Council's Contract Procedure Rules (CPRs) must be followed. Where the value of the procurement is above the relevant procurement threshold then the Public Contracts Regulations 2015 (PCR 2015) will apply and legal and procurement advice must be sought to ensure compliance with PCR 2015.
49. There must be adequate budgetary provision to fund the schemes that are the subject of this report and in particular that there must be sufficient financial support to service any contracts to be entered into to make this project a success. Contracts proposed to be entered into must be in a form approved by the Director of Law and Governance and the council needs to be mindful of any grant conditions that are associated with external funders and whether contracts need to incorporate any provisions that are required by the grant funding. The grants conditions may also have certain procurement requirements that may need to be observed so these need to be scrutinised at an early stage.

Workforce Implications

50. No workforce implications

Property Implications

51. The proposals in this report do not involve a material change of use for the parts of the wider spaces that are intended to become wetlands:
 - For Oakwood Park and Durants Park, the areas to become wetlands do not comprise heavily managed areas i.e. they are not mown open recreational grounds or delineated sports pitches

- For Wilbury Way Open Space, 2x informal football goal posts are being relocated to different part of the open space where they will become a delineated football pitch i.e. an improvement
- For Oakthorpe Primary School, the new wetlands will not impact existing sports pitches. Additionally, the school is highly supportive and consent from DfES is not required as the works do not involve a disposal or any loss of play space

52. For the reasons given above, there are no property implications to this report.

Other Implications

53. The proposals have been discussed with the Parks Operations team. It has been agreed that although the proposals will require a change in the pattern of maintenance activities, the overall cost of future maintenance will not be significantly increased.

54. The Director of Education has approved the principle of the proposed works at Oakthorpe School. Final sign-off will be obtained when the designs have been finalised, prior to commencement of construction works.

Options Considered

55. N/A.

Conclusions

56. This report recommends the approval of the proposed wetlands projects at Oakwood Park, Durants Park, Wilbury Way Open Space and Oakthorpe School, subject to funding confirmation.

57. The final approval for each individual wetlands project will be subject to authorisation by the Director for Environment and Operational Services and recorded using a Record of Decision (ROD) notice

Report Author: Ian Russell
Principal Engineer, Watercourses
Ian.Russell@Enfield.gov.uk
020 8132 0964

Date of report: 11/02/2022

Appendices

Appendix 1 – Letter of Support from Oakthorpe Primary School

Appendix 2 – Equality Impact Assessment Constructed Wetlands Programme

Background Papers

The plans overleaf indicate the layout of the proposed works.

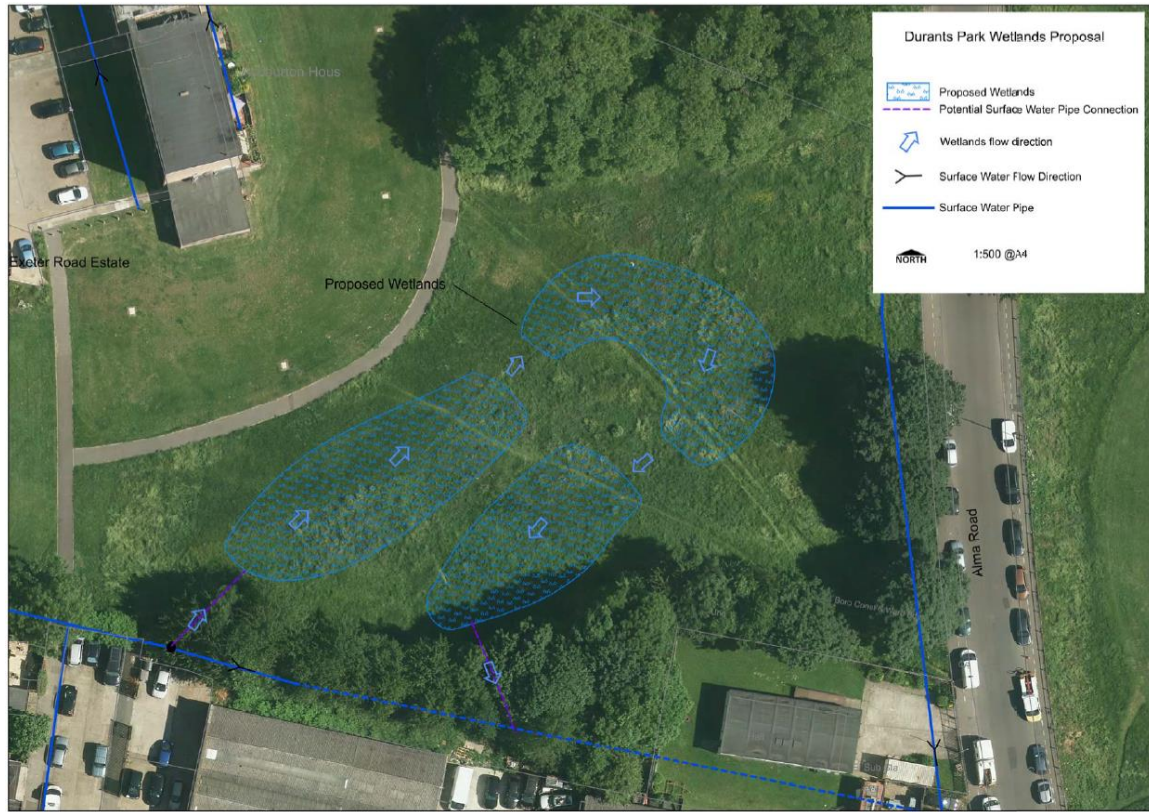
Oakwood Park Wetlands



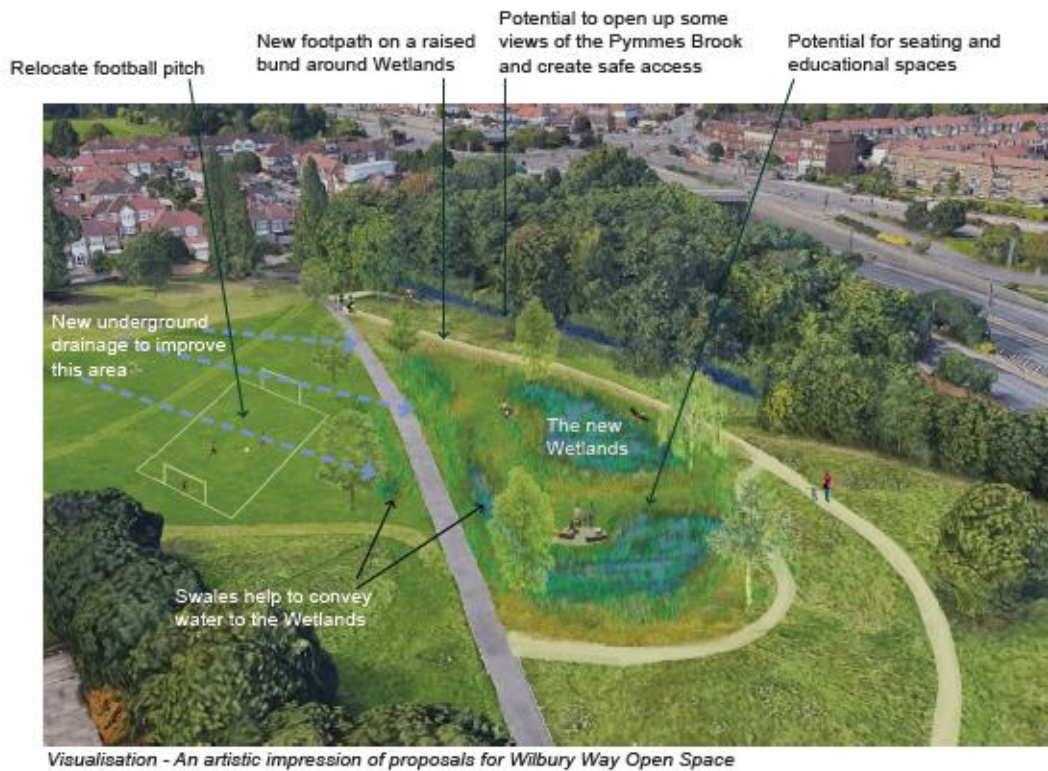
Legend

- Water diverted to wetland in underground pipe
- Accessible footpath to Wetland
- Network of informal routes across grassland
- Swales to convey water between wetland cells
- Simple footbridge or causeway to cross swale safely
- Possible site for social space/seating area/outdoor learning space
- Possible improved entrance
- ① Wetland Cell (regularly wet)
- ② Dry Wetland Cell (designed to be only seasonally wet)
- ③ Enhanced wet woodland
- ④ Seasonally wet meadow

Durants Park Wetlands









Wilbury Wetlands



Oakthorpe School Wetlands





Legend


-  Nature trail around TKOS
-  Outdoor classroom elements, nature themed play on the way, interpretation and informal seating
-  Install a new secure gate to allow for a circular nature trail walk which connects to the existing trail along Pymmes Brook
-  Wetland cells - diverted surface water to form wetland areas for new habitat creation
-  Diverted surface water route through wetlands and into Pymmes Brook
-  Existing fencing

Oakthorpe School SuDS


Legend

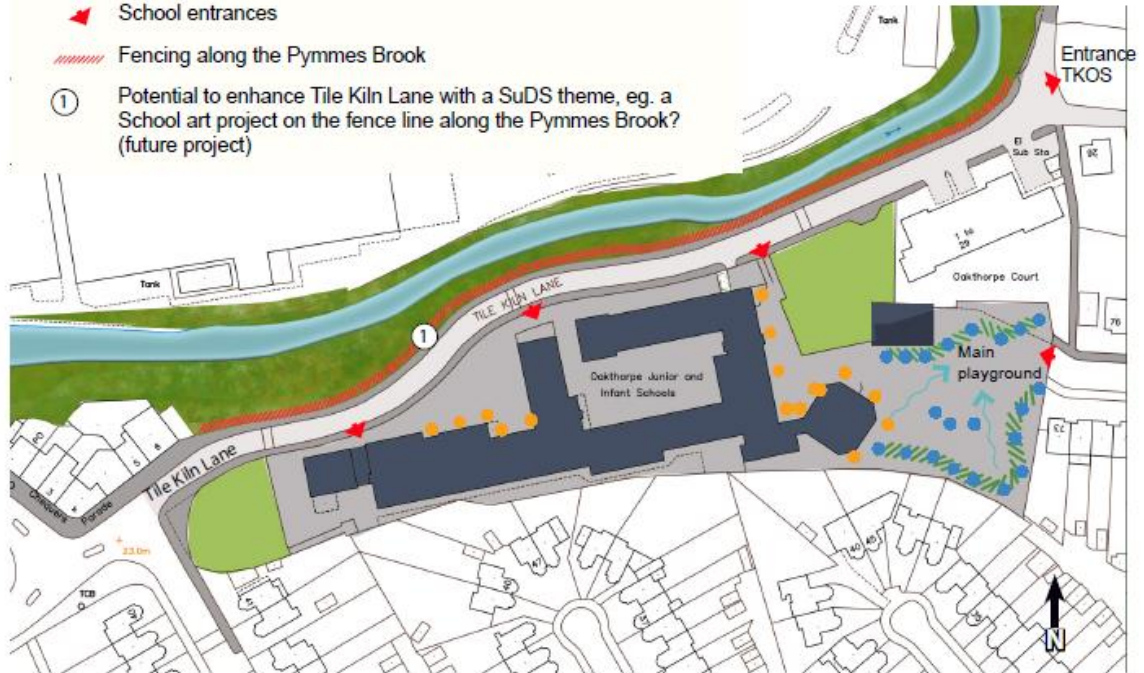
 Grey to Green playground- install rain gardens incorporating playful elements

 Install downpipe diversions to rainwater planters

 School entrances

 Fencing along the Pymmes Brook

 Potential to enhance Tile Kiln Lane with a SuDS theme, eg. a School art project on the fence line along the Pymmes Brook? (future project)



Break up large playground with SuDS features to make a main feature