Version A.1, dated 12th June 2024
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Flood Risk Summary Statement

2023-24 flooding to Attleboro Lane & Plank Lane

1. A number of flood incident reports have been submitted to Warwickshire County Council Flood Risk Management during the winter of 2023-24 in the vicinity of Attleboro Lane and Plank Lane. This summary statement is intended to summarise those reports and investigations undertaken.

1. Location & Flood Risk Context

2. The watercourses in the vicinity of Attleboro Lane and Plank Lane are illustrated below in Figure 1; these generally fall in a northerly direction. There are three watercourses as labelled (named by ourselves for ease of reference within this document) on the figure as follows:

    - The 'West Watercourse' is located west of Plank Lane and drains in an easterly direction, combining with the 'Central Watercourse'
    - The 'Central Watercourse' drains in an easterly direction through HS2 land and then bends 90° and flows northwards towards Plank Lane.
        - At Plank Lane it combines with the 'West Watercourse' and flows easterly for a short section.
        - The watercourse passes under Plank Lane in a shallow, historic culvert (the 'West System Plank Lane Culvert') and continues eastwards before combining with the 'East Watercourse' to become the 'Mainline Watercourse'
    - The 'East Watercourse' is a very shallow drainage ditch, falling in a northerly direction on the west side of Attleboro Lane (between the highway and HS2's construction works site).
        - The 'East Watercourse' is joined by a short section of ditch, the 'Attleboro Lane Drainage Ditch' which falls in a westerly direction
        - Both combine and pass through the 'East Watercourse Field Access Culvert' (discussed later).
        - The 'East Watercourse' continues northwards and passes under Plank Lane through the 'Plank Lane East Culvert.' The 'East Watercourse' combines with the 'Central Watercourse' to become the 'Mainline Watercourse' and flows northly past the new Water Orton Primary School and onwards towards Birmingham Road.

3. The Flood Risk from Surface Water map (which is available publicly online) reproduced in Figure 2 shows a number of areas at high risk of surface water flooding including Attleboro Lane and Plank Lane, in line with the topography and watercourses in the area.

4. It should also be noted that this mapping was produced in 2013, prior to the commencement of HS2 construction meaning that such associated flood risk existed before the HS2 Bromford Tunnel portal and Attleboro Lane diversion worksite was established.

Figure 1 - Watercourses in the vicinity of Attleboro Lane & Plank Lane

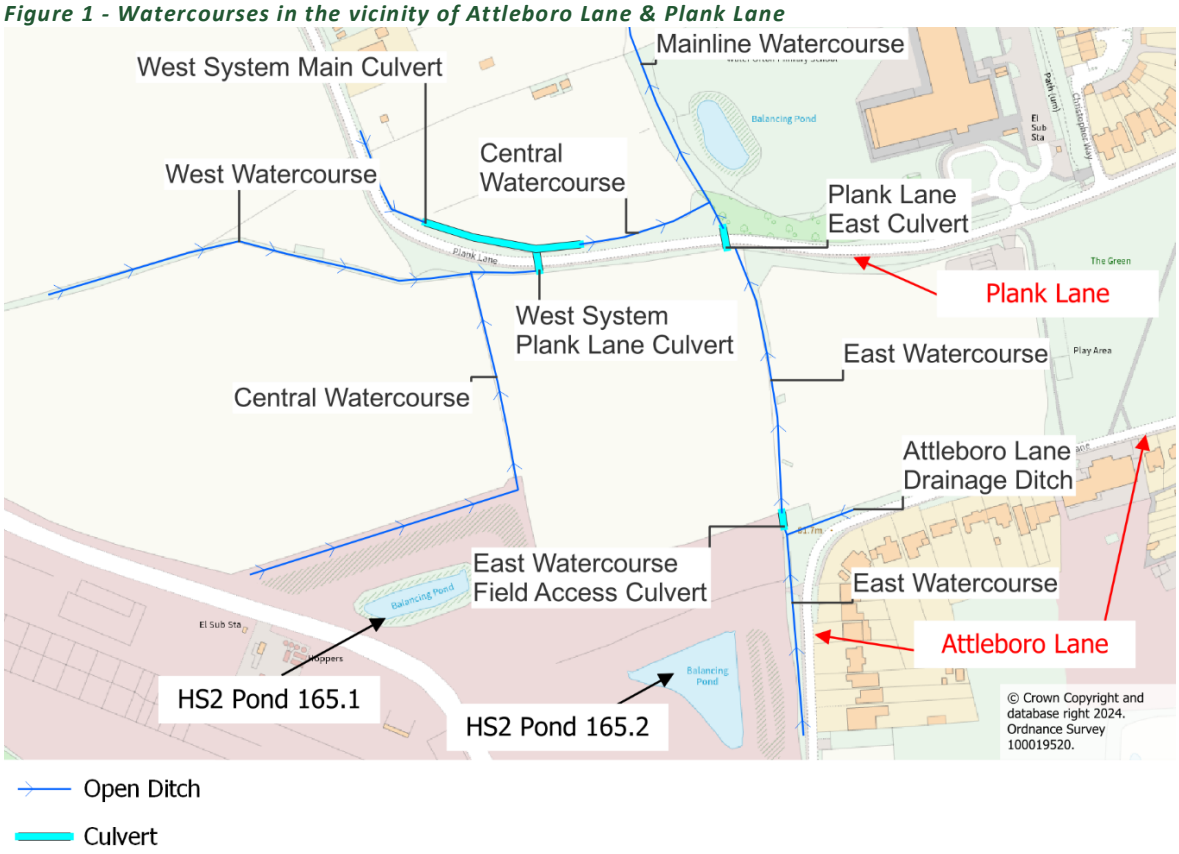
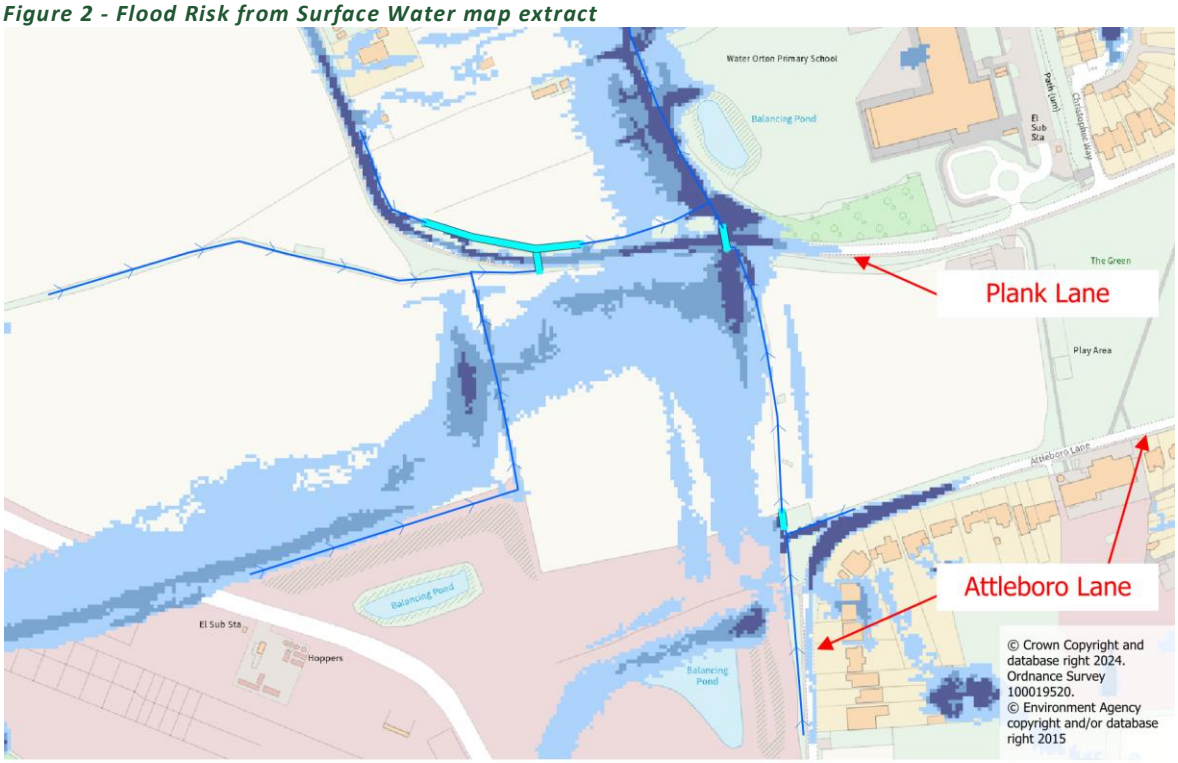


Figure 2 - Flood Risk from Surface Water map extract



5. From the information provided to the LLFA, typically via email through members of the public, highways colleagues and HS2, the LLFA understands flooding to have occurred on the following dates. However, this list is not exhaustive and given the catchment characteristics, it is quite possible flooding has occurred at Attleboro Lane and Plank Lane simultaneously.

    - 1st December 2023 – Attleboro Lane
    - 1st January 2024 – Attleboro Lane
    - 6-8th January 2024 -Attleboro Lane (exact date unknown)
    - 9th February 2024 – Plank Lane
    - 27th March 2024 – Attleboro Lane

6. As noted by correspondence provided to the LLFA, flooding has occurred regularly and the LLFA has a record of highway flooding from November 2019, an event which caused widespread flooding across the county. Similarly, WCC Highways colleagues have records of flooding to Plank Lane and Attleboro Lane stretching back to circa 2008.

7. As such, the reports of highway flooding corroborate with the Flood Risk from Surface Water mapping and also pre-date the establishment of the HS2 worksite.

2. Policy Context

8. National planning policy requires all new development to not exacerbate flood risk downstream and one of the primary mechanisms for this is limiting discharge rates to the greenfield runoff rate. This greenfield runoff rate is the theoretical flow rate of runoff from an undeveloped piece of land i.e. a green field.

9. This limiting of discharge rates should be undertaken by all new development and is scrutinised by LLFAs through our statutory remit to review planning application on surface water drainage grounds.

10. However, this oversight of development through the planning processes was put in place after the HS2 legislation was deposited in parliament. Therefore, the role of LLFAs in relation to HS2 is limited.

High Speed Rail (London to West Midlands) Act 2017

11. The High Speed Rail (London to West Midlands) Act 2017 is the legislation that authorises Phase 1 of HS2 between London and the West Midlands, in effect granting planning permission.

Schedule 17

12. Some matters relating to this planning permission are conditioned under Schedule 17 with further approval required from the Local Planning Authority, in this case North Warwickshire Borough Council.

13. It should however be recognised that under Schedule 17, there are no conditions relating to flood risk or surface water drainage. Further, the role of the LLFA is highly limited and in relation to consultation, Paragraph 18 of Schedule 17 states (shortened for brevity):

(1) This paragraph applies where a planning authority considers that a request for approval under Part 1 of this Schedule relates to matters which may affect any of the following—

(c) the conservation of the natural beauty or amenity of inland or coastal waters or land associated with them,

(d) the conservation of flora or fauna which are dependent on an aquatic environment,

(e) the use of inland or coastal waters, or land associated with them, for recreational purposes,

(3) The appropriate body is—

(b) for the matters in sub-paragraph (1)(c) to (e), the Environment Agency,

14. The LLFA has been consulted on a pre-application and formal basis for the following Schedule 17 applications.

Application No.	Location/Application	LLFA Response Date
HS2/2023/0009	Attleboro Farm Embankment And Flyover	14th Dec 2023
PRE/2023/0041	Attleboro Farm Embankment, Flyover and Ancillary works	21st Mar 2023
PRE/2023/0131	Bromford Tunnel Portal and building	15th Nov 2023
HS2/2024/0003	Marsh Lane Embankment	7th Mar 2024

15. It is also understood the Schedule 17 application in relation to the Water Orton Cutting, Bromford Tunnel East Portal and Attleboro Lane overbridge was submitted to North Warwickshire LPA in Sept 2021 under application HS2/2021/0005. This was determined by recovered appeal in May 2024 and Schedule 17 approval granted for Attleboro Lane overbridge. The LLFA has no record of a consultation in relation to this Schedule 17.

Schedule 33 Part 5

16. The LLFA's main remit with regards to this Act is Schedule 33 (Protective Provisions) Part 5 (Land drainage, flood defence, water resources and fisheries).

17. From this, the Environment Agency are responsible for "Category 1 specified work" defined as follows. Importantly as emphasised, the Environment Agency (and not the LLFA) are responsible for scrutinising discharge rates.

any permanent or temporary work or operation authorised by this Act (which includes, for the avoidance of doubt, any dredging and any geotechnical investigations that may be undertaken) as is likely to—

(a) affect any drainage work which is or includes a main river or the volumetric rate of flow of water in or flowing to or from any main river,

(b) affect the flow, purity or quality of water in any main river or other surface waters or ground water, or

(c) affect the conservation, distribution or use of water resources;

18. Conversely, the LLFA is responsible for "category 2 specified work" which is limited to the following:

(a) erecting any mill dam, weir or other like obstruction to the flow of any ordinary watercourse, or raising or otherwise altering any such obstruction,

(b) erecting a culvert in an ordinary watercourse,

(c) altering a culvert in a manner that would be likely to affect the flow of an ordinary watercourse, or

(d) altering, removing or replacing a structure or feature designated by a local drainage authority under Schedule 1 to the Flood and Water Management Act 2010;

19. As such, the LLFA's remit under the Act is highly limited to where there are proposed obstructions to Ordinary Watercourses[1]. This primarily relates to watercourse diversions and culverts either temporary or permanent in nature.

20. Where approval is sought for discharge into a watercourse, the LLFA's approval is typically concerned with the installation of such features in needing to temporarily dam up watercourses in order to provide a dry working area during construction.

21. The consents approved under Schedule 33 Part 5 in this area are discussed in more detail later.

3. WCC Policy – Local Flood Risk Management Strategy 2015

22. Guiding the Flood Risk Management team's work is the Local Flood Risk Management Strategy, adopted by elected Warwickshire County Council Members in 2016. This Strategy sets out how various flood investigations will be prioritised. This is as follows:

    1. *Flooding that poses a threat to the safety of the public or may directly result in serious injury or death.*
    2. *Five or more residential properties internally flooded.*
    3. *Two or more commercial properties internally flooded.*
    4. *One or more piece of critical infrastructure affected that impact on the wider area.*
    5. *Flooding that places vulnerable individuals or vulnerable communities at risk e.g. hospitals, care and nursing homes, schools, secure units, etc.*
    6. *Additionally, where one or more residential property has flooded internally from the same source on five or more occasions within the last five years*

23. Whilst the flooding has been regular and may be considered a nuisance, the LLFA does not believe it has met the above thresholds for formal investigation and reporting as a Section 19[2] investigation/report.

24. Nonetheless, given the frequency of flooding and multiple parties involved, the LLFA has undertaken a brief informal investigation. This Summary Statement is the output of that investigation.

4. Consents

Schedule 33 Part 5 consents

25. The below provides a summary of the consents approved in this area in date order:

FT115 – Outfalls from various attenuation ponds along the length of BBV's construction works

26. Within this area, this was in relation to the outfall from Pond 165.1 into the 'Central Watercourse;' both of these are illustrated above in Figure 1.

[1] An Ordinary Watercourse is any watercourse which is not a Main River; Main Rivers are typically larger rivers (e.g. River Tame) and are shown on the Main River Map and the Environment Agency is responsible for managing flood risk related to these.
[2] Section 19 of the Flood & Water Management Act (2010) https://www.legislation.gov.uk/ukpga/2010/29/section/19

27. As the feature is temporary in nature during construction, a 300mm outfall pipe, anchored by sandbags at least 1m away from the top-of-bank of the watercourse was proposed. This was in line with a standard way of working by BBV and accepted by WCC.

28. Given no works were proposed within the channel profile and therefore no obstruction to flows was proposed, consent was not required i.e. the works were exempt and BBV notified as such.

29. As outlined above, it is the Environment Agency's responsibility to scrutinise and approve discharge rates. From the information given to the LLFA it is understood this pond is approved to discharge at up to 118l/s which is stated to be the greenfield runoff rate for the area draining to this pond.

30. From discussion with BBV during the site visit on 17th April 2024, it is understood the penstock controlling discharge from this pond is closed i.e. no discharge occurs. Instead, water is removed from this pond via tanker and disposed of elsewhere through sewage treatment plants.

FT156 – Temporary headwall into watercourse alongside Attleboro Lane

31. As with FT115, this was considered exempt given the proposals for a temporary outfall 1m away from the watercourse i.e. no working within the channel.

32. This was subsequently superseded by consent FT213

FT213 – Installation of a headwall into watercourse alongside Attleboro Lane – approved May 2023

33. The outfall from Pond 165.2 was formalised in 2023 with discharge through a 300mm diameter pipe and pre-cast concrete headwall, angled with the flow direction.

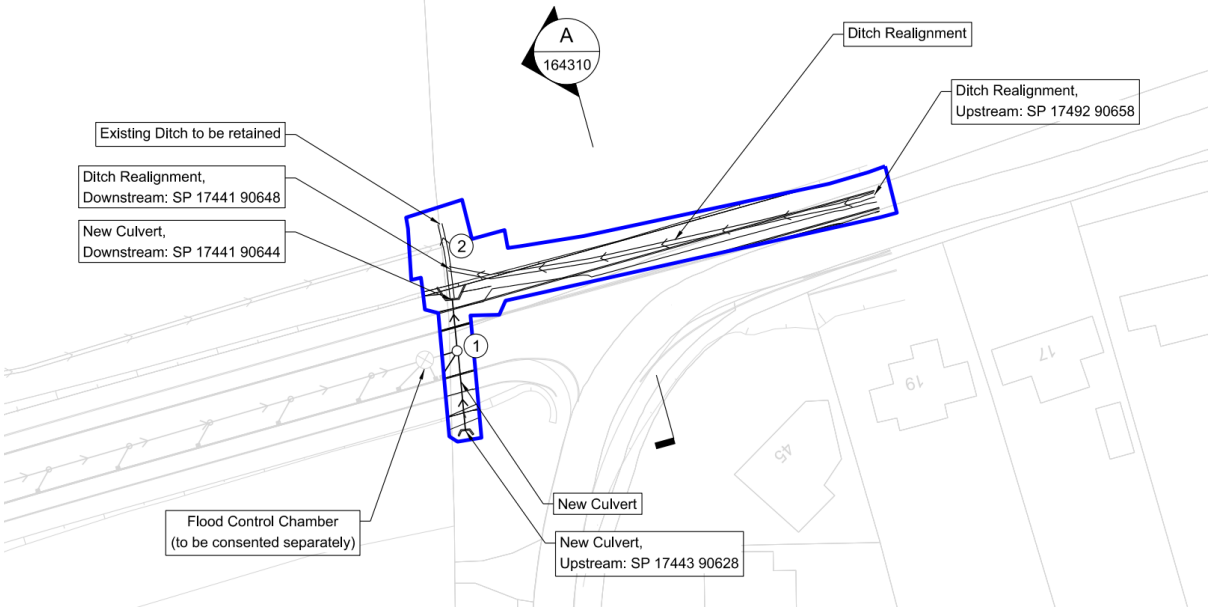
34. The LLFA understand this pond is approved by the Environment Agency for a discharge at 84l/s.

FT236 – Installation of culvert under realigned Attleboro Lane.

35. As part of the HS2 act, Attleboro Lane is to be diverted via a new bridge over the HS2 spur to Birmingham. This will branch off the existing Attleboro Lane at the bend in front of No. 45 Attleboro Lane.

36. A 450mm diameter culvert is approved underneath this highway diversion to maintain connectivity of the watercourse network. The 'Attleboro Lane Drainage Ditch' which runs east to west along the top of Attleboro Lane will be diverted and repositioned slightly to avoid the highway diversion. These works are illustrated in Figure 3.

Figure 3 - 'East Watercourse' culvert under Attleboro Lane realignment[3]



Highways approval

37. Alongside the LLFA, the highways realignment of Attleboro Lane has been scrutinised by highways colleagues before granting approval of proposals under Schedule 4 (of the HS2 Act).

38. From the plans submitted for this approval, a new drainage system is proposed serving the new extent of Attleboro Lane between the proposed bridge over HS2 and down towards the junction with the existing Attleboro Lane.

39. A conventional highway drainage system is proposed with a number of gullies connecting into a surface water sewer beneath the new highway. This sewer is then controlled to a discharge rate of 40l/s, discharging into the new culvert which approved by the LLFA.

5. Investigation

40. The LLFA undertook a couple of site visits, firstly to Plank Lane on the 26th January 2023 and to Attleboro Lane and HS2 on 17th April 2024. The below summarises those site visits and our professional judgement as to causes & issues.

Attleboro Lane

41. During the site visit, much of the southern section of the 'East Watercourse' (opposite 49-57 Attleboro Lane) was observed to be shallow and on the day was dry with little evidence of recent flowing water.

42. In this section of highway, no formal highway drainage, such as gullies, were observed therefore it is may be considered unlikely for water to drain into this ditch. Instead, it is

[3] Extract of drawing "Attleboro Lane Overbridge North - Watercourse Works, Schedule 33(5), General Arrangement", ref: 1MC09-BBV_MSD-PL-DGA-NS04_NL11-164310 version: P01

expected any surface water runoff will flow northwards along Attleboro Lane towards the bend.

43. At the northern bend, both the 'East Watercourse' and the 'Attleboro Lane Drainage Ditch' converge and during the site visit, both were observed to have standing water in them as illustrated in Figure 4 with the cyan arrows indicating the expected flow directions.

44. Flows continue northwards (left-side in Figure 4) through the 'East Watercourse Field Access Culvert,' illustrated in the magenta arrow. During the site visit, no flow was observed and the culvert was rodded. This indicated an obstruction, estimated to be 500-1,000mm into the culvert which is blocking the flow of water.

45. The downstream end of the culvert was also not visible but was felt by hand below the water level. This indicates the 'East Watercourse Field Access Culvert' is small in nature, estimated to be circa 150mm dia.

46. It is this 'East Watercourse Field Access Culvert' which is to be replaced by HS2 and increased in size from a 150mm to 450mm dia. culvert as part of Schedule 33 Part 5 consent FT236 detailed above.

Figure 4 - Standing water in the 'East Watercourse' on the bend of Attleboro Lane

47. WCC LLFA visited the BBV/HS2 worksite adjacent to Attleboro Lane. From discussion with BBV, it is understood Pond 165.2 is responsible for collecting and attenuating surface water runoff from the construction site.

48. As discussed above, this pond has a formal discharge into the 'East Watercourse' approved through FT213. This pre-cast concrete headwall and 300mm dia. outfall pipe was observed and is shown in Figure 5. BBV informed the LLFA that the water quality of the discharge from this pond does not meet the Environment Agency's requirements under their consent therefore a bung is installed in this outfall (at the downstream end), preventing the pond to drain through this mechanism.

49. Instead, a package treatment plant has been placed alongside the pond. Water is pumped out of the pond and through treatment devices to correct for pH and reduce suspended solids to a level in line with the consented discharge.

50. This treatment plant is shown in the distance in Figure 6. Water is discharged from this treatment plant at circa 16l/s via a flexible hose, into the watercourse at the location of the headwall (seen in Figure 5). As a final treatment, a 'silt sock' has been placed over this discharge to provide residual benefit.

51. This pond is consented to discharge at 84l/s which is in line with the pre-development greenfield runoff rate. However in reality, the pond discharges at a significantly reduced rate of 16l/s

Figure 5 - Pond 165.2 Outfall with stopper/bung

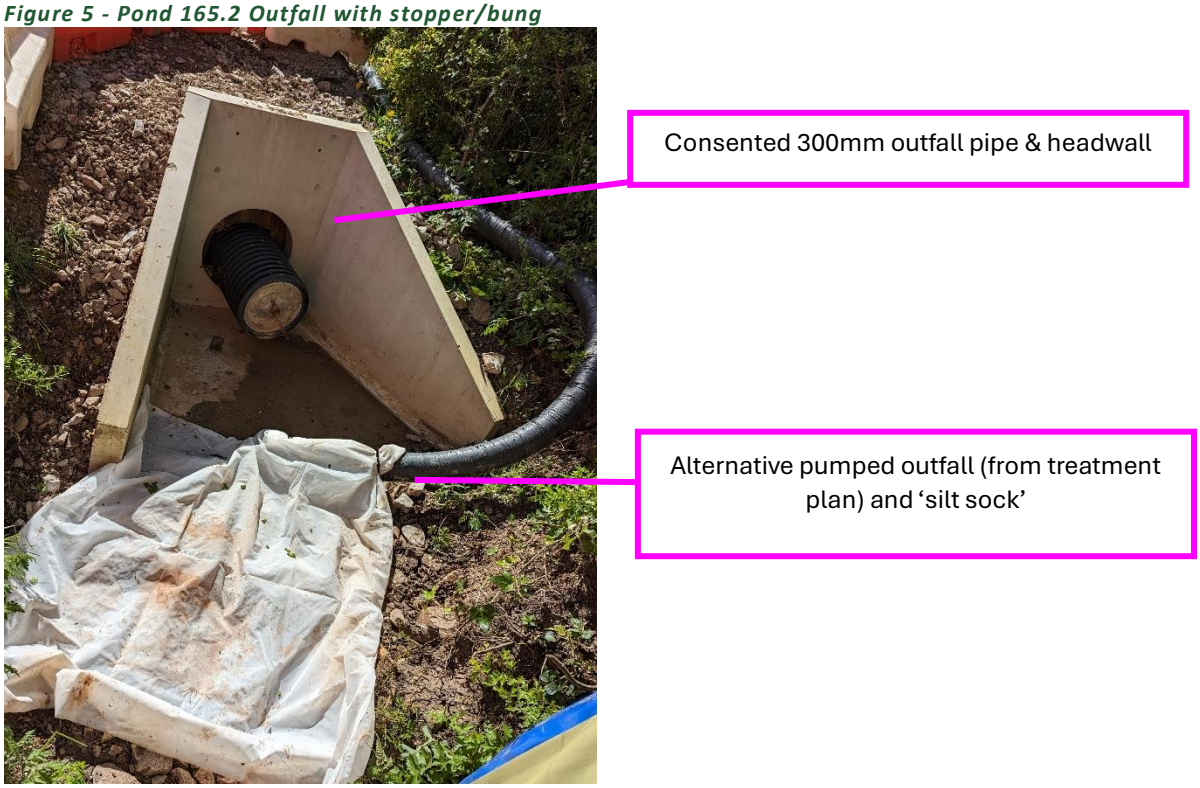
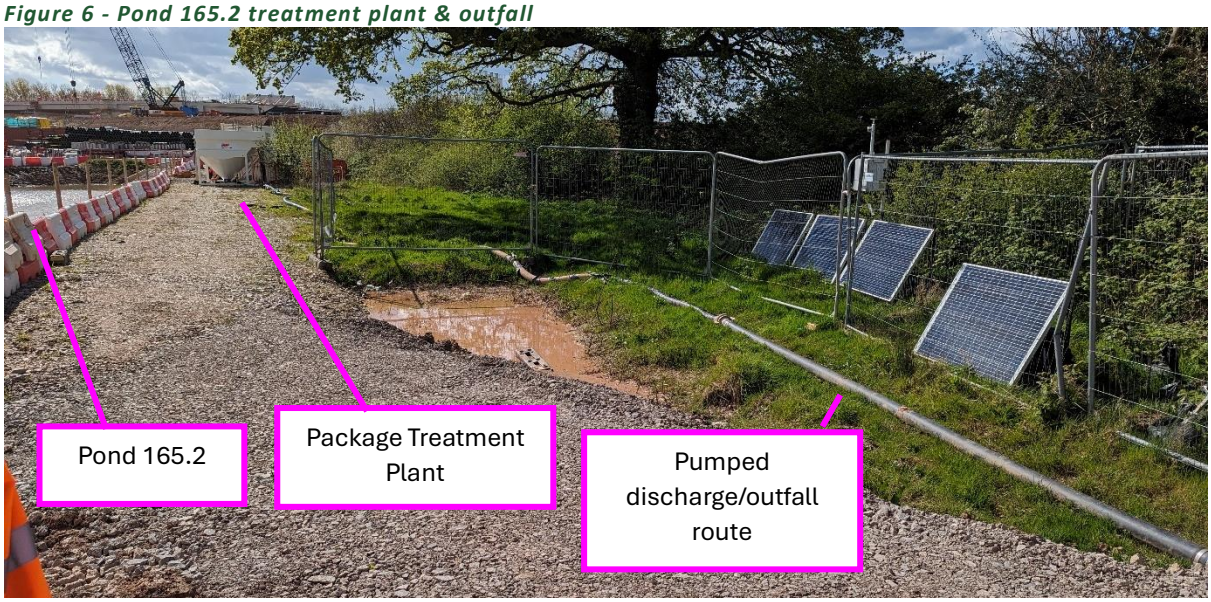


Figure 6 - Pond 165.2 treatment plant & outfall



Plank Lane

52. The visit to Plank Lane was undertaken during the prior winter on the 26th January 2023 and much of the below is consistent with advice previously given. It is however included here for completeness.

53. There are a number of different watercourses in the vicinity of Plank Lane as described previously however in summary, both the 'West Watercourse' and the 'Central Watercourse' combine on the southwest side of Plank Lane and flow through the 'West System Plank Lane Culvert' to meet the 'West System Main Culvert.' These are illustrated in Figure 7.

Figure 7 - West System Main Culvert letterbox

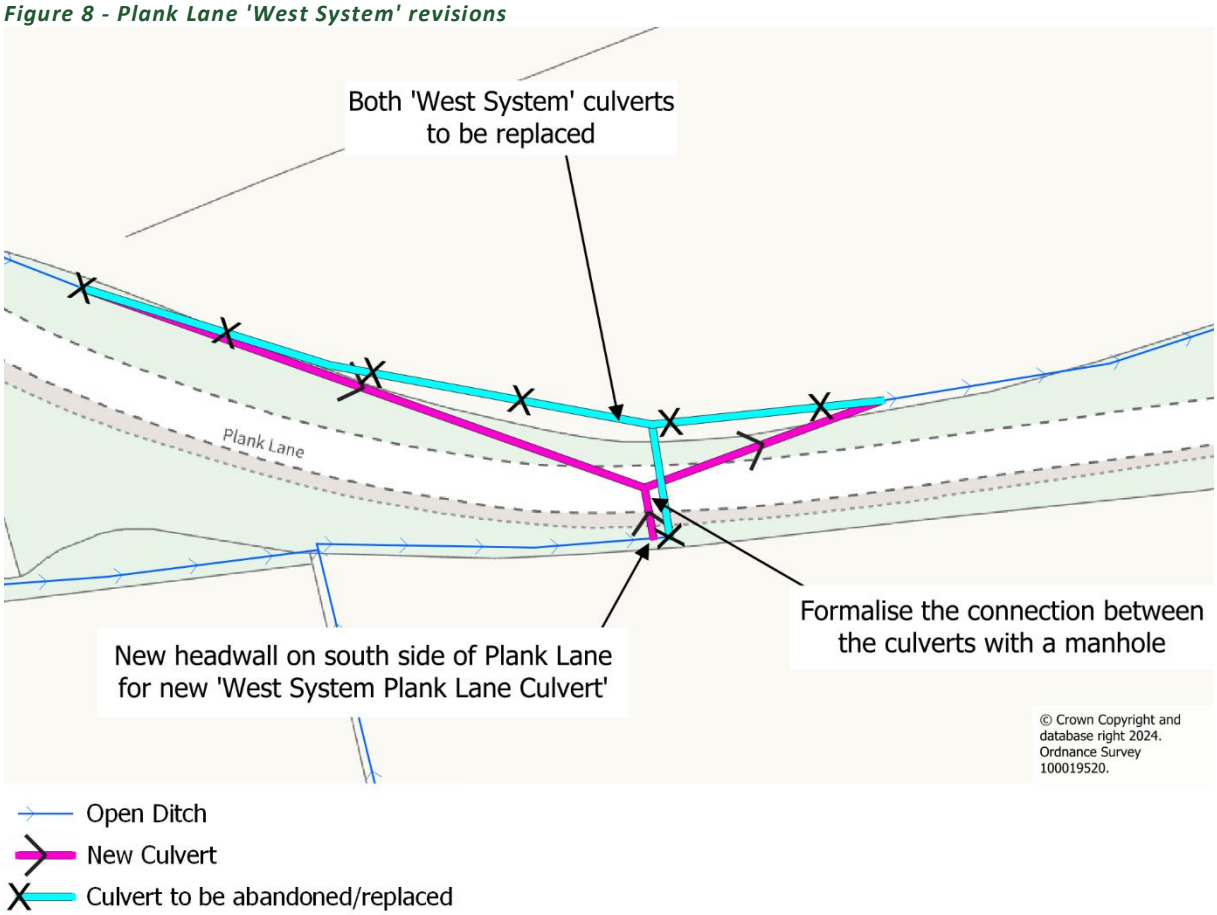
54. During the site visit, the 'West System Plank Lane Culvert' was submerged and as such the exact size and shape of it is unknown. From the observations however it is understood to be very shallow and assumed to be historic in nature.

55. It is understood the 'West System Main Culvert' was installed a number of years ago to allow the infilling of the ditch for road safety reasons. However, it's assumed based on observations that the 'West System Plank Lane culvert was not known about at the time as a 'letterbox' hole has been cut into the side 'West System Main Culvert' to allow a connection from the 'West System Plank Lane Culvert;' this is visible in Figure 7.

56. Given the levels of these two culverts and that the 'West System Main Culvert' is, for the most part, above the level of the highway, flooding to the highway is inevitable if this culvert is to be fully utilised.

57. A potential solution to the flooding to the highway in this area has been offered by the FRM team. This would involve replacing the existing system with new culverts and formalise the connection between the new 'West System Main Culvert' and the 'West System Plank Lane Culvert.' This would be subject to detailed design and costing but could look like the below sketch in Figure 8.

Figure 8 - Plank Lane 'West System' revisions



58. However, as the flooding reported along Plank Lane is located on the highway, any potential mitigation works would be further developed by WCC's County Highways team. This would be based on the resources and prioritisation of their team.

59. As regards to the 'Plank Lane East Culvert,' it is understood this is small in nature. From a photograph taken during the site visit on 26th Jan 2023, this was estimated to be 150mm or 225mm in diameter. Conversely, this culvert is included on topographic survey seen by the LLFA in reviewing the proposed drainage information for the nearby Water Orton Primary School. This topographic survey indicates the culvert is 300mm in diameter.

60. Nonetheless, the diameter of this 'Plank Lane East Culvert' may be considered small and unlikely to convey flows. However, upsizing this culvert will have the effect of passing water downstream and potentially exacerbating flood risk elsewhere, contrary to flood risk policy.

61. Therefore, should any upsizing to this culvert be proposed, formal mitigation would be required. This would likely be in some form of upstream attenuation but would likely therefore need additional land which may be considered cost prohibitive.

Figure 9 - 'Plank Lane East Culvert' upstream inlet

Land Ownership & Riparian Responsibility

62. In undertaking this investigation, the LLFA observed both the 'Central Watercourse' and 'East Watercourse' from various vantage points including Attleboro Lane, Plank Lane and HS2's site. All observations indicate the watercourses are heavily overgrown with vegetation.

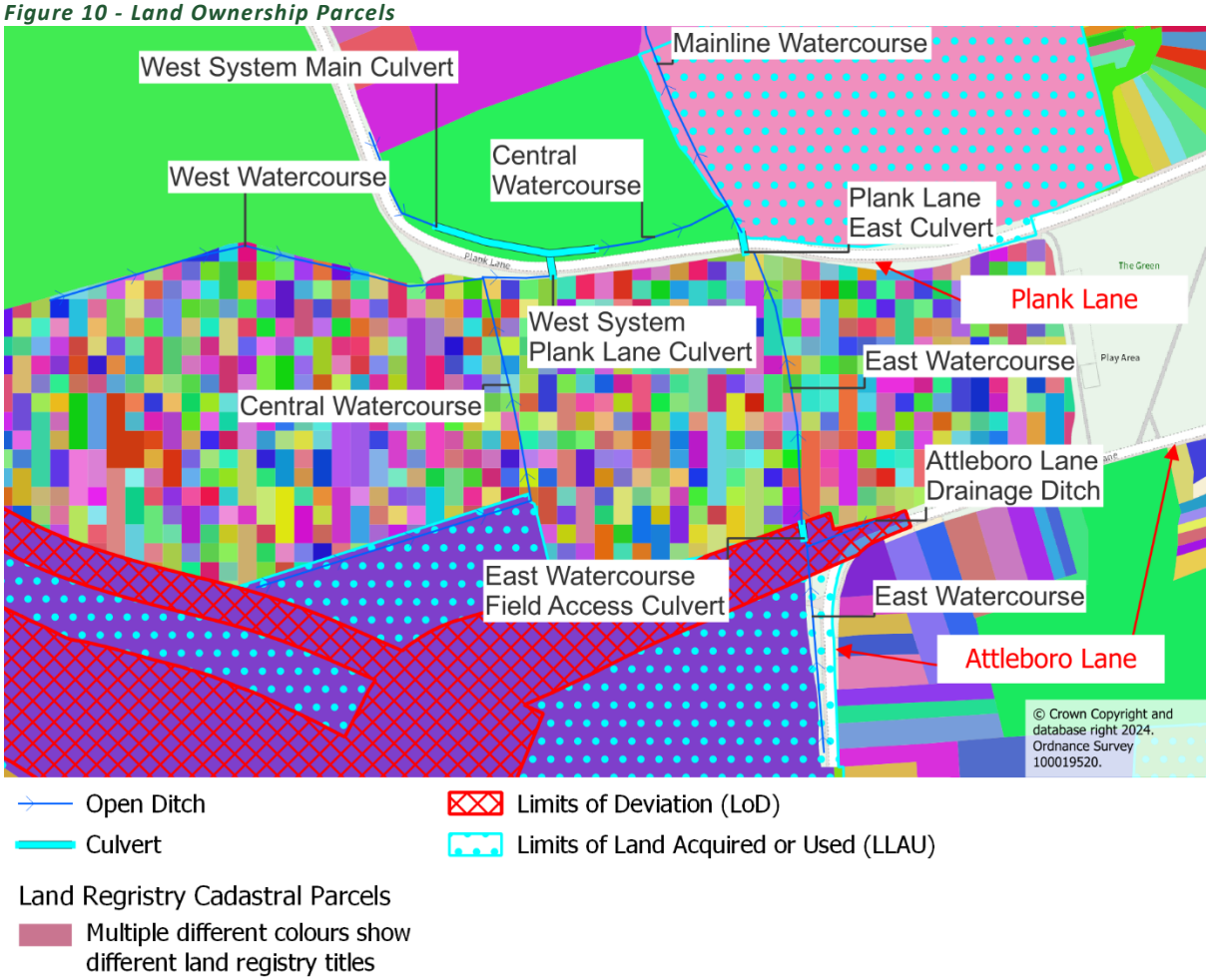
63. Following this, the LLFA has also sought to identify relevant landowners who have riparian maintenance responsibilities.

64. Figure 10 below shows the Land Registry cadastral parcels and these are coloured randomly in different colours to illustrate separate areas. Also shown are the two areas owned by HS2:

    (a) The Limits of Deviation (LoD) show the area of land taken by HS2 permanent works set out in Schedule 1 of the HS2 Act. This includes the line itself, bridges, highway realignments etc.

    (b) The Limit of Land Acquired or Used (LLAU) is the land HS2 can use for supporting purposes. This might be land used during construction and sold off after completion of the works or might include land used for ancillary purposes such as drainage balancing ponds, habitat creation or other environmental mitigation.

Figure 10 - Land Ownership Parcels



65. As shown in Figure 10, there are many parcels of land between Attleboro Lane / HS2 and Plank Lane. The LLFA has been unable to determine the land ownership through this area due to a couple of factors.

    (a) The Land Registry cadastral parcels bear no relation to real world boundaries such as fence lines. Therefore determining the exact location of each parcel within the field without surveying equipment may be considered very challenging.

    (b) The quantum of parcels, whereby each parcel requires the purchase of the title deeds from the Land Registry and subsequent formal notification of riparian maintenance responsibility, is both cost and resource prohibitive.

66. Nonetheless, each landowner within and abutting a watercourse is a riparian landowner and therefore has responsibilities to maintain the watercourse to aid the free-flow of water.

67. Further information on this is available in Warwickshire County Council LLFA's *Land Drainage Rights & Responsibilities leaflet*[4].

[4] https://api.warwickshire.gov.uk/documents/WCCC-1039-69

6. Summary

68. The winter of 2023/24 has been an exceptionally wet period with the county affected by numerous named storms from Babet in October through Henk in January and onwards to Storm Kathleen in April. Preceding and including this, the period of November 2022 to April 2024 was the wettest 18 month period on record in England.

69. As such catchments may be considered saturated and unable to absorb any further rainfall. Therefore, the response to rainfall has changed.

70. Attleboro Lane and Plank Lane have experienced multiple instances of flooding over the winter of 2023/24 as a result of both large storm events and more regular rainfall being unable to soakaway as would occur in drier periods.

71. All flooding known to have occurred during the winter of 2023/24 has been limited mainly to highways with no reports of internal property flooding. Similarly, that flooding corroborates with areas that are considered 'high risk' of surface water flooding as per the Flood Risk from Surface Water mapping.

72. Site visits have been undertaken on 26th January 2023 to Plank Lane and 17th April 2024 to Attleboro Lane and the HS2 worksite.

73. The indicative causes and potential solutions to flooding at Plank Lane have been outlined above. However, given flooding is limited to the highways, any works would be led by County Highways in line with their own risk assessments and prioritisation.

74. At Attleboro Lane, investigations have found the 'East Watercourse Field Access Culvert', a 150mm diameter pipe blocked by an unknown object below the water level on the day of the site visit.

75. Nonetheless, this 150mm culvert is to be replaced and formalised as part of the realignment of Attleboro Lane. The new culvert will be 450mm in diameter with headwalls on the upstream and downstream ends. This culvert has been reviewed and consented under Schedule 33 Part 5. It is understood these works are to take place during 2024 and it may be reasonable to expect this new culvert will aid the transfer of water away from Attleboro Lane itself.

76. Surface water runoff from the HS2 site is collected in Pond 165.2 which has consent from both the LLFA for the headwall. and from the EA for a discharge rate of 84l/s. This is in line with the pre-development greenfield runoff rate. However, due to water quality issues, a package treatment plant is in use and therefore water is currently discharged from this pond via a pump at a rate of circa 16l/s, significantly below the consented rate.

77. Given the nature of the flooding in that it has not resulted in internal flooding to properties, the LLFA do not believe further investigation is warranted. The LLFA will continue to review BBV's applications through Schedule 33 Part 5 where appropriate and is available to support highways colleagues through any further design development should they wish to progress matters.