

11 July 2025

Project/File: 35849 - Hereford Urban Village

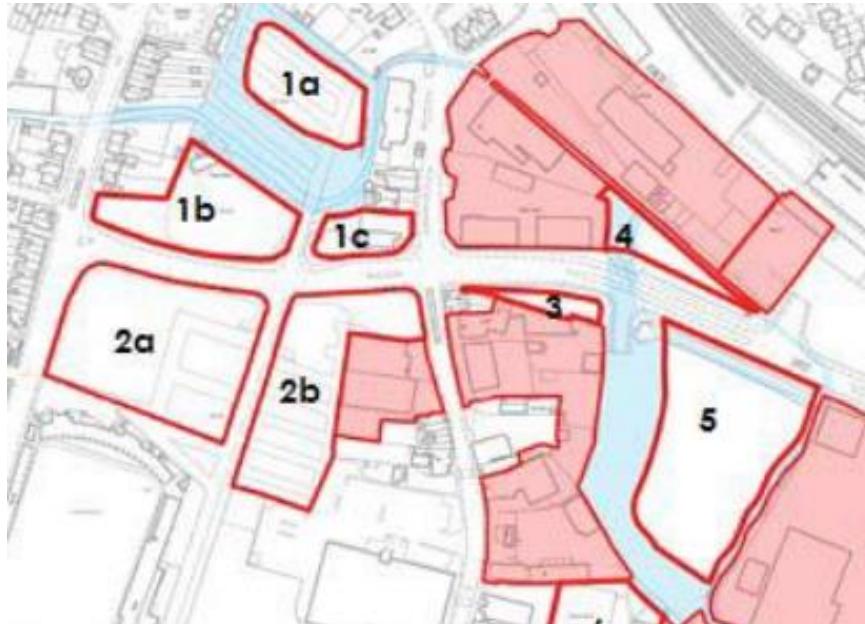
Lucy Brackenbury  
41 Bengal Street, Manchester M4 6AF

Dear Lucy Brackenbury,

**Reference: Civil and Flood Design Response to Environment Agency Comments for Application  
Ref: 251273/CD3**

Thank you for sharing the detailed feedback from the Environment Agency regarding the Merton Meadows Flood Alleviation Scheme. We welcome the Agency's continued engagement and recognise the importance of aligning the civil and flood design with wider objectives, including alleviating the risk of flooding, improving flood risk management, enhancing biodiversity, restoring watercourses, enhancing public realm quality, and promoting long-term ecological resilience.

The feedback received and the requirements of EA to full review of the modelling methodology (attached in the appendix A) is seen as a valuable opportunity to strengthen the scheme and ensure that its delivery contributes not only to flood alleviation but also to the strategic vision for the Widemarsh Brook corridor and Hereford's wider urban planning.



*Figure 1- Key plan of Merton Meadow FAS works*

# 1 Environment Agency (EA) Comments

## Comment 1

- “Were the modelled scenarios defended, i.e with the upstream Yazor Brook FAS fully working or undefended?”

The Merton Meadows FAS design model has been built and developed with the assumption that the Yazor Brook Credenhill FAS is fully operational. The existing Yazor Brook model results were reviewed, and the 50% blockage scenario of the Credenhill FAS was shown to have very little additional flood risk to the site.

## Comment 2

- “What additional flood storage capacity did the Merton Meadow FAS, in the 4 plots, actually provide?”

The proposed FAS scheme provides the following betterment:

### *Plot 1 - Drawing 35849-HYD-1-XX-M3-C-90110\_P05 Flood Compensation Plan*

The current flood storage required is 9,861 m<sup>3</sup> over an area of 10,100 m<sup>2</sup>. The average depth of water is 976mm.

The proposed storage volume is 11,316 m<sup>3</sup>, covering the same area, which corresponds to an average water depth of 1,120 mm.

From the above, we can see that the additional capacity within plot 1 is 1,455m<sup>3</sup> (11,316-9,861m<sup>3</sup>) or, on average, there will be a reduction in average water depth of 144mm (1,120mm-976mm).

### *Plot 4 - Drawing 35849-HYD-4-XX-M3-C-90110\_P02 Flood Compensation Plan*

The current flood storage required is 1,240 m<sup>3</sup> over an area of 2,600 m<sup>2</sup>. The average depth of water is 477mm.

The proposed storage volume is 3,037 m<sup>3</sup>, covering the same area, which corresponds to an average water depth of 1,168 mm.

From the above, we can see that the additional capacity within plot 4 is 1,797m<sup>3</sup> (3,037 – 1,240 m<sup>3</sup>) or, on average, there will be a reduction in average water depth of 691mm (1,168mm-477mm).

### *Plot 5 - Drawing 35849-HYD-5-XX-M3-C-90110\_P02 Flood Compensation Plan*

The current flood storage required is 12,701 m<sup>3</sup> over an area of 14,450 m<sup>2</sup>. The average depth of water is 879mm.

The proposed storage volume is 14,702 m<sup>3</sup>, covering the same area, which corresponds to an average water depth of 1,017 mm.

From the above, we can see that the additional capacity within plot 4 is 2,001m<sup>3</sup> (14,702-12,701m<sup>3</sup>) or, on average, there will be a reduction in average water depth of 138mm (1,017mm-879mm).

Reference: Application Ref: 251273/CD3

### ***Betterment over Plot 1,2,5***

The total additional flood storage capacity over the scheme is 5,253m<sup>3</sup> of water.

### **Comment 3**

- “Whether post-development outlines with the new additional storage proposals in place had been produced in order to demonstrate the betterment being provided by the scheme.”

In line with the requirements of national and local planning policy, a detailed assessment of flood risk to the Merton Meadows site is being carried out. This includes a reappraisal of existing modelling studies that have been carried out historically, as well as further detailed modelling to consolidate and update the various studies, thereby presenting a comprehensive picture of flooding at the site from the key watercourses in the area. The proposed methodology involves reappraising the baseline conditions at the site, with the results then informing the design of flood alleviation options to mitigate risks at the site. The proposed flood alleviation scheme was then incorporated into a post-development model, which we compared with the baseline scenario to assess the potential impacts of the development.

The results of the baseline modelling indicate that sites 1a, 1b, 1c, 2b, 4 and 5 are likely to flood in the future fluvial 1 in 100-year event. Site 2a is shown to remain free from flooding. Using these results, options have been developed to mitigate flood risk to the site, including the re-profiling of sites 1a and 1b to enhance floodplain storage and creating a wetland habitat within site 1a to capture and store water away from the proposed development. Within site 5, the Brook will be realigned to a more natural path, with ground levels reprofiled to create a wetland and provide additional floodplain storage. Further storage capacity is also being provided within site 4.

In addition to the above and part of this wider outline masterplan application, it has been proposed that plots 1C, 2A and 2B are filled and the finished ground levels are set 150mm above 1:100years+CC event and the FFL are set further 150mm above the finished ground level or 300mm above the flood level.

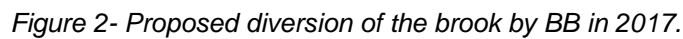
The comparison models attached in Appendix C demonstrate that the proposed mitigation measures reduce flood risk to the proposed development without increasing flood risk to adjacent or third-party lands.

## **2 EA Full review of the model**

We welcome EA's full review of the model, and we will liaise with EA at the consultation stage for the outline wider masterplan.

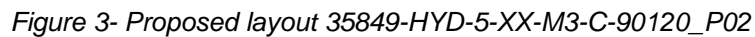
## **3 Plot 5 design intent**

Based on the discussion with LLFA and HCC the current alignment of the brook constructed when the City Link Road (CLR) was built is temporary, and based on the information provided to us, there is a previous record planning document that suggests the brook was always to be realigned to suit the proposed plot layout. Figure 2 below shows the 2017 proposal for the brook diversion.



From a civil and hydrological perspective, the new brook alignment represents the like-for-like size, profile, length, floor rate, and velocity of the existing brook. The realignment of the brook has been tested within the hydraulic model and shown to suitably address the flood risk issues without increasing flood risk elsewhere.





53.400

52.000

51.500

51.500

51.500

PERMANENT POOL  
300mm DEEP WITH  
BASE LEVEL  
51.000m AOD

FUTURE CONNECTION TO MAINTAIN FLOWS INTO THE EXISTING CHANNEL, WHICH WOULD CONNECT THE NORTHERN WETLAND/STORAGE AREA TO THE CHANNEL ALONG THE EASTERN BOUNDARY AND PROVIDE FLOW OF WATER TO THE EXISTING TREES.

DETAILS TO BE AGREED AT NEXT STAGE OF THE DESIGN.

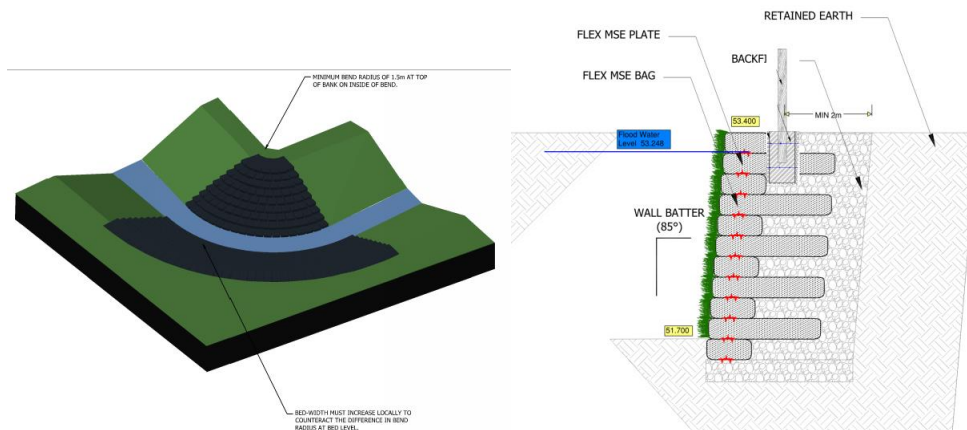
180m LONG AND UP TO 1.2m HIGH RETAINING WALL WITH PERMANENT HANDRAILS BY GRAVITAS - FLEX MSE DRAWING NUMBER F002 B. HANDRAIL TO BE DESIGNED FOR HORIZONTAL LINE LOADING OF 1.5kN/m.

IF THE TREE ROOT PROTECTION ZONE ARE FOUND TO BE LESS THAN ANTICIPATED, THE GROUND CAN BE REPROFED TO A 1:3 GRADIENT AND THE RETAINING WALL OMITTED.

Figure 4- Proposed water connection to maintain flows into the existing canal

Reference: Application Ref: 251273/CD3

It is worth mentioning that an environmentally friendly green retaining wall structure and erosion protection around the bends have been proposed as alternatives to concrete structures.



Based on the Geotechnical Design Report 35849-HYD-XX-XX-RP-GE-4000 and Ground Investigation Report 35849-HYD-XX-XX-RP-GE-0002, no contamination has been reported on site.

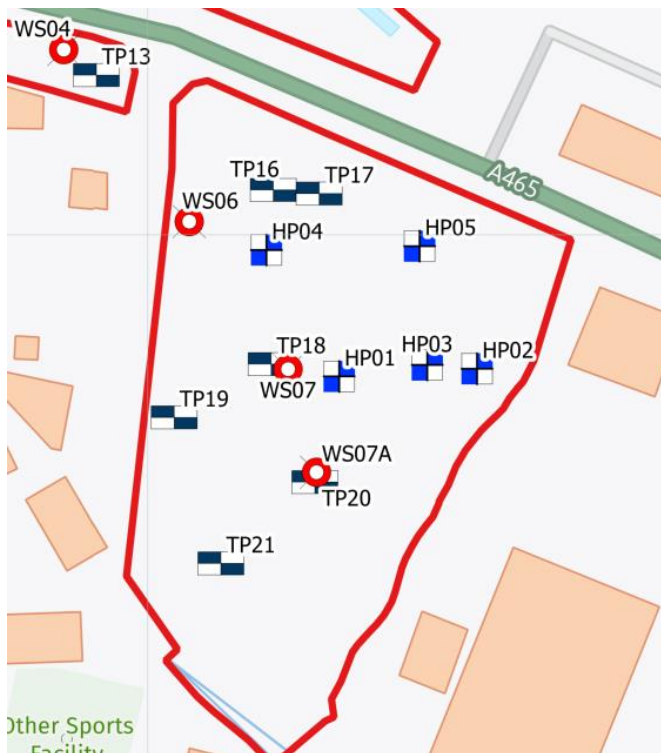


Figure 5- Ground investigation plan.

Reference: Application Ref: 251273/CD3

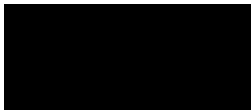
## 4 Conclusion

We are working closely with MOOWD and Greengage to ensure integration of hydraulic modelling, habitat data, and BNG principles into the detailed design and long-term management strategy.

We hope this response provides assurance that the flood and civil design has been developed to deliver both technical function and strategic value. We remain committed to working with the Agency to ensure the scheme continues to evolve in line with national guidance and local priorities.

Yours sincerely,

**Stantec UK Limited**



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Attachment: [Attachment]

Reference: Application Ref: 251273/CD3

## **Appendix A**

### **A.1 Environment Agency Comments**

Herefordshire Council  
Central Division  
PO Box 230  
Hereford  
Herefordshire  
HR1 2ZB

**Our ref:** SV/2025/113023/03-L01  
**Your ref:** 251273/CD3  
**Date:** 02 July 2025

**FAO: Heather Carlisle**

Dear Heather

**PROPOSED FLOOD ALLEVIATION SCHEME TO ADDRESS HISTORIC FLOODING ACROSS THE MERTON MEADOWS AREA OF THE CITY. CAR PARK (PLOT 1A & 1B) TOGETHER WITH PLOTS 4 & 5 EAST OF WIDEMARSH STREET HEREFORD HEREFORDSHIRE HR4 9JU**

Thank you for your re-consultation of the above planning application, received by us on 18 June 2025. We have the following additional comments for your consideration at this time.

**Flood Risk**

We responded to this application on 28 May 2025 with broadly supportive comments in flood risk terms given the proposals are for a flood alleviation scheme (FAS) and can only provide a level of flood risk betterment as well as the potential for biodiversity benefits. Whilst we offered a conditioned response overall, we did raise a number of queries, particularly:

- Were the modelled scenarios defended i.e. with the upstream Yazor Brook FAS fully working or undefended?
- What additional flood storage capacity did the Merton Meadows FAS, in the 4 plots, actually provide?
- Whether post development outlines with the new additional storage proposals in place had been produced in order to demonstrate the betterment being provided by the scheme.

We also confirmed that given the overall intentions to open up currently flood vulnerable areas for development (particularly those of a 'more vulnerable' nature), that we would expect to undertake a full review of the modelling methodology through our national Evidence and Risk (E&R) team. As we highlighted in our response, this was discussed at the February pre-application meeting. We seek to do that prior to any forthcoming residential planning applications rather than for this

flood alleviation scheme application itself and discussed this further in our previous response (SV/2025/113023/01-L01).

As discussed at the meeting and within our previous response, the model review would fall under our Cost Recovery service and would incur a charge. Due to the timescales involved we would look to carry out this review prior to any formal planning submission and would recommend further dialogue to ensure the modelling is agreed and signed off before any more subsequent development is progressed. This would give additional certainty to the council on the flood model and assist in your decision-making process.

The latest information on the planning portal includes an updated FRA (Ref: Flood Risk Assessment (FRA) produced by Stantec (Ref: 35849-HYD-XX-XX-RP-WENV-0002/PO2 dated 20 May 2025). The latest version of the document contains an updated Chapter 5 (Sources of Flood Risk), particularly Section 5.2.3 with additional figures and a new Appendix E containing the Merton Meadows FAS Hydraulic Report which will be a key document when our Evidence & Risk team review the modelling. Whilst we had no objections to the flood alleviation proposals as outlined in our letter of 28 May 2025, the FRA is now clearer than the previous version particularly the new Figures 8, 9 and 10 which show the changes in flood depths post Flood Alleviation Scheme and the area of floodplain being reduced. Table 5 of the FRA confirms that an additional 3545m<sup>3</sup> of flood storage is being provided in Plot 5.

We note the comments made in Section 5.2.4 regarding an increase in flood risk downstream of Plot 5 (Figures 8 to 10) particularly to Rockford Rd allotment. There are also increases in the channel immediately downstream of Plot 5 though no out of channel impacts occur as the levels do not come out of bank. Again, these can be checked as part of the E&R review.

We would reiterate that we have no objection to this application for the Merton Meadows FAS on flood risk grounds, but we would wish to formally review the modelling prior to any future residential applications particularly in areas where the flood extents have been reduced to ensure the modelling is robust and fit for purpose. Previously ESG modelling with Herefordshire Council and WSP had included undefended scenarios with the Yazor Brook FAS partially and fully blocked in order to ensure no internal flooding of proposed residential properties in a worst-case scenario, and this should also form part of the future residential plot applications.

### **Ecology and Landscaping**

Further to our previous comments, we have reviewed the letter dated 13<sup>th</sup> June by Greengage (their reference: 552924jc25June09DV01\_EA\_Consultation\_Response).

Whilst we continue to recommend the condition that we offered in our previous response ref: SV/2025/113023/01-L01 for a Landscape and Ecological Management Plan that was offered in order to; ensure the protection of: wildlife, supporting habitat and to secure additional enhancements for the benefit of local ecology, we recognise that the ultimate wording of appropriate planning conditions to secure ecological protection, compensation and enhancement of the watercourse and associated land is a decision for the local planning authority. This enhancement opportunity would align with the ambitions of River Basin Management Plans and the Water Framework Directive as discussed below.



Our principal concern is that appropriate conditions are secured /included at the discretion of the local planning authority to ensure a more resilient and naturalistic solution which reflects best practice in design and sustainability. We would welcome clarification that further detailed design is ongoing and outstanding technical design and ecological challenges are being resolved.

We maintain the position/advice that the claimed positive long-term effects for wildlife (including fish and aquatic macroinvertebrates as well as other species) will only be achieved if:

- The design (geometry, sections and layout) of the realigned watercourse and wetlands is refined to be more varied and naturalistic.
- The implications or the proposed permanent year-round flow split and excavation of basins below the brook bed level on the hydrology and ecological value of the existing Widemarsh brook are addressed.

**Aquatic Macroinvertebrates:** We sought to draw attention to the availability of EA data for aquatic invertebrates rather than relying exclusively on citizen science data. We agree with the conclusion that ‘the abundance of individuals recorded indicates Widemarsh brook could provide an important resource for foraging bat and birds’ irrespective of the presence of protected or notable invertebrates. Invertebrates are also a key ecological resource for fish.

**Further Impact Assessment for Fish:** We welcome the acknowledgement that a fish rescue will be implemented where the brook is to be realigned. Best practice is also to translocate channel substrate vegetation and attendant invertebrates into a diverted channel.

It is also best practice is to retain as much as possible of the previous channel as a backwater habitat. In Plot 5 all the current alignment is shown as being infilled. Implications for the existing bankside trees are also not clear.

The reports submitted to date don’t provide extensive information, on the baseline or future hydromorphological condition of the existing watercourse (existing habitat for fish) at a site level or more strategic level. To ensure all relevant potential adverse impacts are evaluated, avoided or mitigated and that enhancements are optimised more technical information should be considered.

Although some aspects of the brook are described there is no explicit reference to substrate, hydrology or groundwater. For example, in section 5. the existing stream is straight and has a uniform and overwide wetted channel and bank full channel however it has a natural gravelly substrate and existing ecological and visual value.

The channel in section 1 is also uniform, overwide and siltier. It would benefit from some in-channel improvements to create more flow diversity and encourage a more resilient sinuous low flow channel. Subject to tree rootzone protection areas the brook would also benefit from some sympathetic bank reprofiling. It might also be possible to soften the visual and ecological impact of the concrete wall along the right bank in section 1a. The best practice construction methodology makes no reference to the management of risks associated with potentially contaminated land.

**Design Principals and Detail:** Further to our previous response, we offer the following clarification of our advice on design principles and detail. To achieve the stated aims of ecological enhancement, visual interest and user experience the natural character and soft flowing forms of the layout and hard landscaping, referred

in the landscape statement, would usefully extend to all dimensions of the brook and the wetland features.

**Layout:** It is not clear that sufficient space has been left along the diverted watercourse to allow natural processes to occur. In other words, there does not appear to be much design tolerance for the watercourse to adjust to the new alignment and develop features of ecological and visual value.

For example, if the detailed design, or subsequent interventions, require or rely on bank protection to prevent the channel migrating, then that would be counter to the stated aims of naturalising the watercourse.

We also note that approximately 50m of the diverted channel is in a straight line directly along the toe of the road embankment. This will constrain its functionality. Realigning the watercourse away from the road would allow for a more genuinely attractive design. Similarly moving the path further from the watercourse would be advisable. Along much of the proposed new alignment it appears to be as close as 2-3m away. Similarly, the distance between the basins and the watercourse is only 2-3m in many locations.

If the area to the west is planned for development, then the edge of development is very close to the proposed realigned watercourse. Expanding the wetland watercourse complex to the west would help resolve these challenges. The proposed ecological enhancement for the retained channels appears to be limited to 'introducing native plant communities and enhancing riparian habitats' in the landscape assessment. The brook is over wide, particularly in the upstream half of site one with a uniform cross section and silty bed.

It would be helpful to assess the contribution of these proposals in the context of the broader strategic initiative by the council to manage flood risk while enhancing ecological networks and public realm quality improvement along the Widemarsh brook corridor which is cited in the Landscape assessment.

**Water Framework Directive (WFD):** The Hereford Urban Village Phase 1 Desk Study and Groundsure report make reference to the Widemarsh Brook being within the Yazor Bk – source to confluence river Wye water body GB109055037040 and highlights the reason for the water body currently having a moderate status is due to ammonia temperature pH and specific pollutant levels. There is however no reference to WFD or River Basin Management Plans as a driver to inform the extent and nature of river restoration in any other supporting information.

Yours faithfully

**Mr. Matt Bennion**  
**Planning Specialist**

Direct e-mail [matthew.bennion@environment-agency.gov.uk](mailto:matthew.bennion@environment-agency.gov.uk)

## **Appendix B**

### **B.1 35849-HYD-1-XX-M3-C-90110 Flood Compensation Plan**

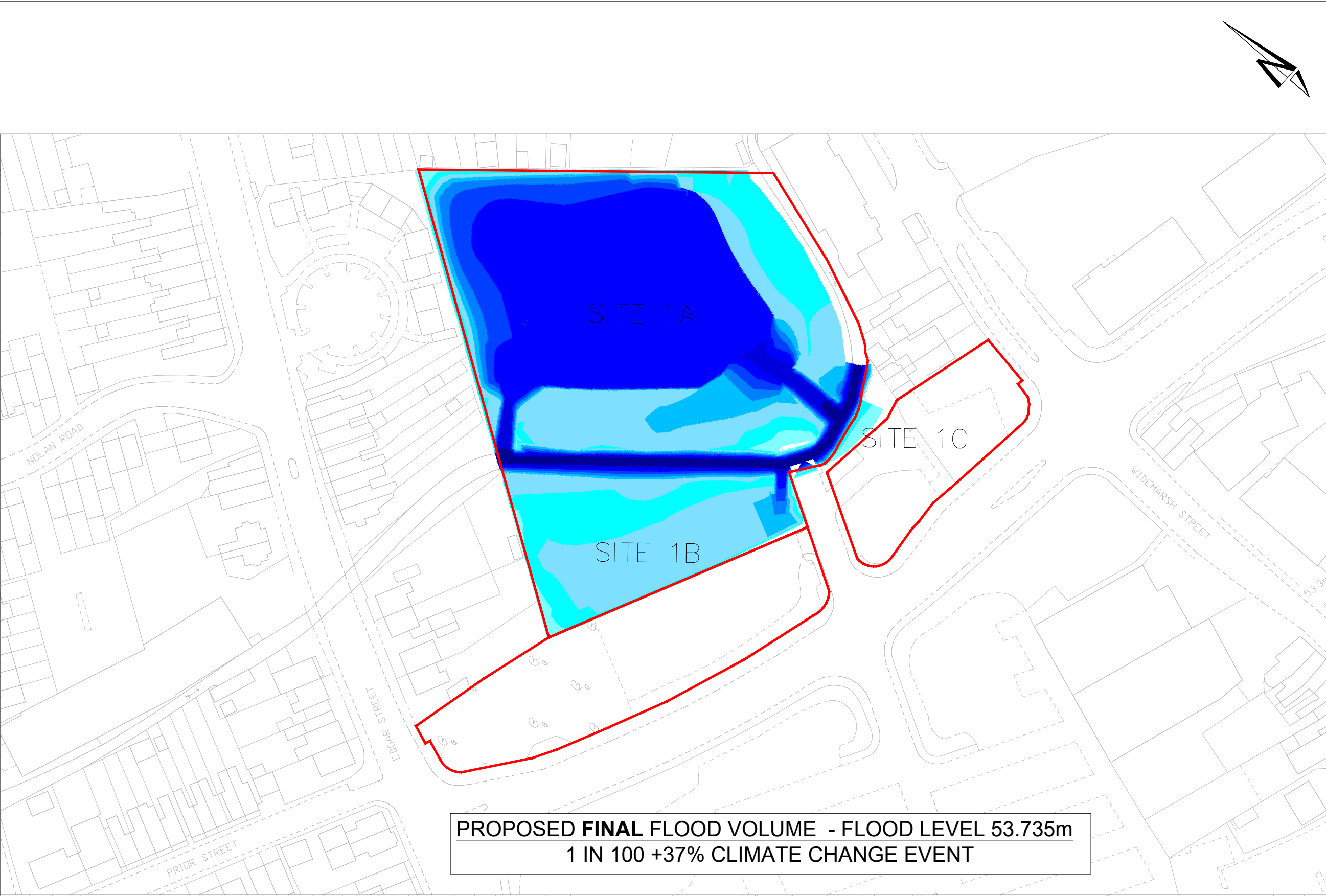
### **B.2 35849-HYD-4-XX-M3-C-90110 Flood Compensation Plan**

### **B.3 35849-HYD-5-XX-M3-C-90110 Flood Compensation Plan**





EXISTING FLOODPLAIN STORAGE EXTENTS - FLOOD LEVEL 53.735m  
1 IN 100 + 37% CLIMATE CHANGE EVENT



PROPOSED FINAL FLOOD VOLUME - FLOOD LEVEL 53.735m  
1 IN 100 +37% CLIMATE CHANGE EVENT

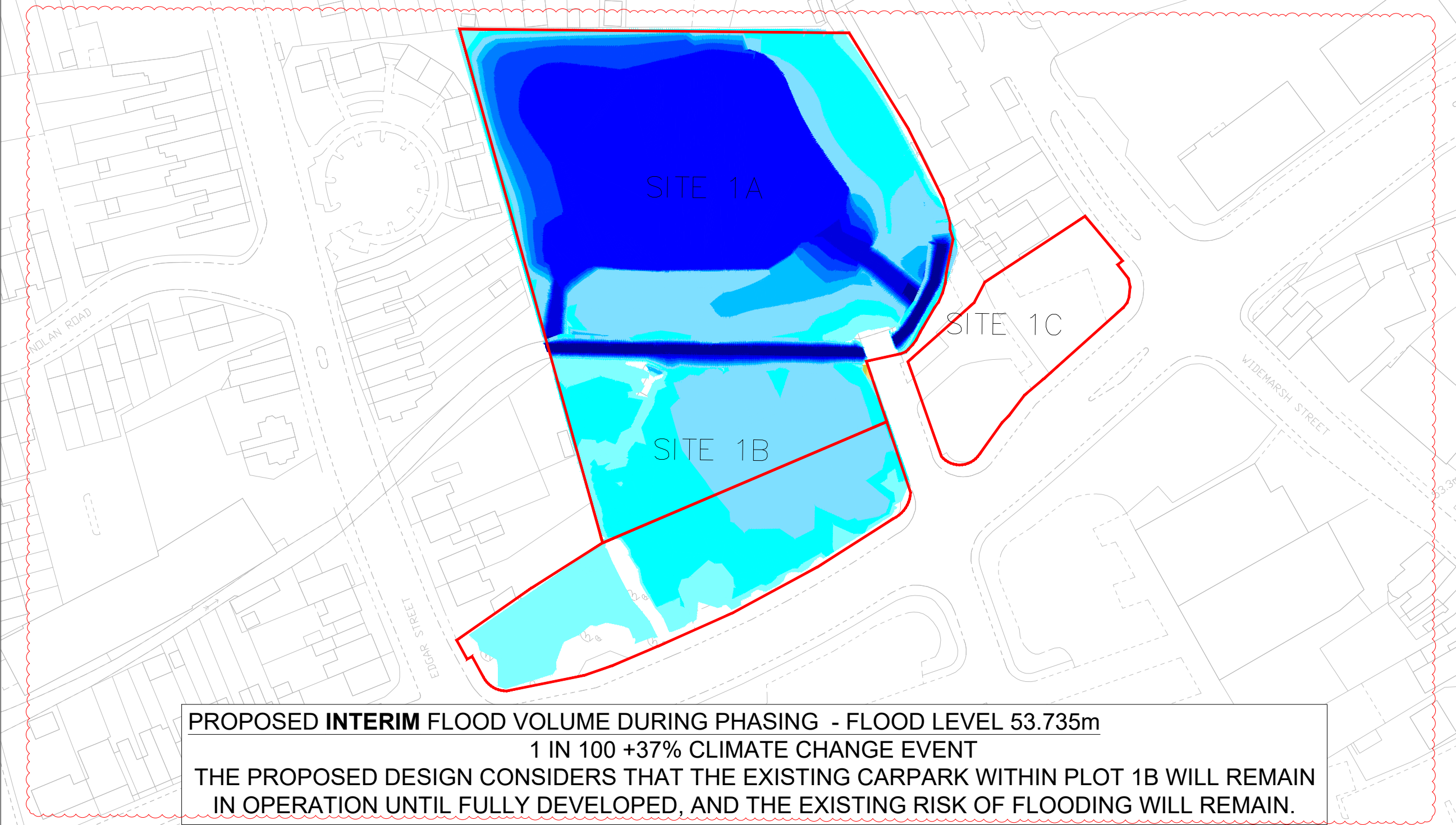
EXISTING VOLUME SUMMARY PLOT 1 AND 2B					
FLOOD WATER LEVEL VOLUME	PLOT 1A- FLOOD STORAGE VOLUME (m³)	PLOT 1B- FLOOD STORAGE VOLUME (m³)	PLOT 1C- FLOOD STORAGE VOLUME (m³)	PLOT 2B - FLOOD STORAGE VOLUME (m³) SEE DRAWING 35849-HYD-2-XX-M3-C-90110	PLOT 1 AND 2B TOTAL - FLOOD STORAGE VOLUME (m³)
EXISTING GROUND vs 1:100Y + 37%CC	4288	2751	255	2567	9861

PROPOSED VOLUME SUMMARY PLOT 1					
NAME	PLOT 1A AND 1B - FLOOD STORAGE VOLUME (m³)	PLOT 1C- FLOOD STORAGE VOLUME (m³)	PLOT 2B - FLOOD STORAGE VOLUME (m³)	TOTAL FLOOD STORAGE VOLUME (m³)	PROP VOL > EXTG VOL?
PROPOSED FINISHED GROUND LEVEL vs 1:100Y +37% FLOOD WATER LEVEL VOLUME	11316	0	0	11316	YES

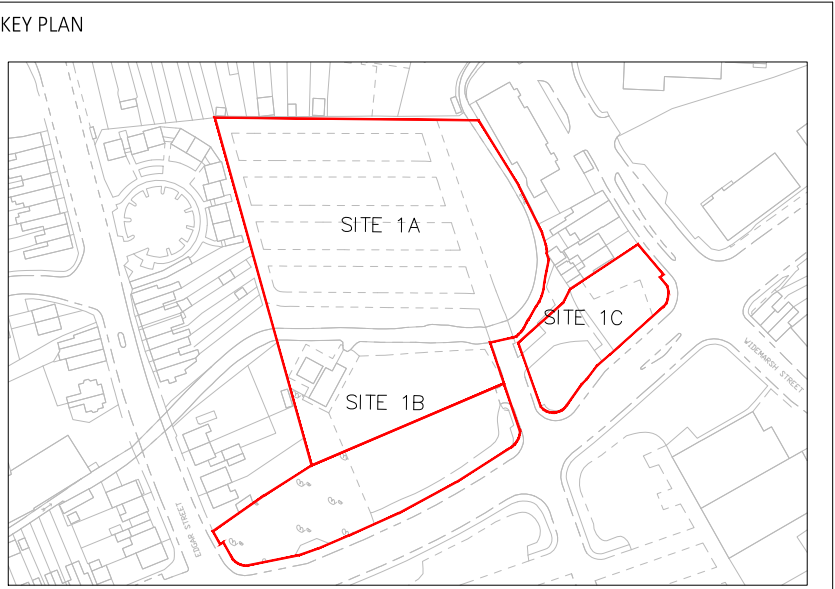
PROPOSED INTERIM PHASING VOLUME SUMMARY PLOT 1						
NAME	PLOT 1A - FLOOD STORAGE VOLUME (m³)	PLOT 1B - FLOOD STORAGE VOLUME (m³)	PLOT 1C - FLOOD STORAGE VOLUME (m³)	PLOT 2B - FLOOD STORAGE VOLUME (m³)	TOTAL FLOOD STORAGE VOLUME (m³)	PROP VOL > EXTG VOL?
PROPOSED FINISHED GROUND LEVEL vs 1:100Y +37% FLOOD WATER LEVEL VOLUME	8844	2751	0	0	11595	YES

PROPOSED FINISH GROUND LEVELS FOR PLOT 1			
NAME	PLOT 1A - mAOD	PLOT 1B - mAOD	PLOT 1C - mAOD
PROPOSED FINISH GROUND LEVEL	53.900	53.900	53.900

THE PROPOSED WATER TABLE OF THE BROOK IS ASSUMED TO BE 52.000. LEVEL TO BE SURVEYED.  
THE PROPOSED FINISH GROUND LEVELS MIGHT CHANGE PENDING OF THE WATER LEVEL IN THE BROOK AND AGREEMENT WITH ENVIRONMENT AGENCY.



PROPOSED INTERIM FLOOD VOLUME DURING PHASING - FLOOD LEVEL 53.735m  
1 IN 100 +37% CLIMATE CHANGE EVENT  
THE PROPOSED DESIGN CONSIDERS THAT THE EXISTING CARPARK WITHIN PLOT 1B WILL REMAIN IN OPERATION UNTIL FULLY DEVELOPED, AND THE EXISTING RISK OF FLOODING WILL REMAIN.



- NOTES
- THE VOLUMES PROVIDED ARE AN APPROXIMATION ONLY AND ARE BASED ON CURRENT DESIGN LEVELS.
  - THE VOLUMES PROVIDED ARE BASED ON THE CLIENT SUPPLIED TOPOGRAPHICAL SURVEY.
  - A DESIGN FLOOD LEVEL OF 53.150M AOD FOR 1 IN 100 YEAR EVENT HAS BEEN USED FOR ALL PLOTS. A FLOOD LEVEL OF 53.734M AOD FOR 1 IN 100 YEAR + 37% CC EVENT HAS BEEN USED FOR PLOT 1A AND 1C, AND FLOOD LEVEL OF 53.735M AOD FOR 1 IN 100 YEAR + 37% CC HAS BEEN USED FOR PLOT 1B.
  - THE FLOOD STORAGE AREA INCLUDED IN THESE CALCULATIONS RELATES TO THAT AREA BOUNDARY BY THE RED LINE AND DOES NOT REPRESENT THE ENTIRETY OF THE SITE.
  - THE PROPOSED SITE LAYOUT IS BASED ON THE FOLLOWING ASSUMPTIONS:
    - ALL EXISTING SURFACE WATER DRAINAGE REMOVED.
    - EXISTING PUMPING STATION REQUIRED TO BE RETAINED AS IT PROVIDES DRAINAGE FOR SURROUNDING AREAS. REMOVAL TO BE CONSIDERED AT A LATER STAGE WHEN RESIDENTIAL PLOTS ARE DEVELOPED.
    - ALL BOARDWALKS ARE DESIGNED BY SPECIALIST AND ARE TO WITHSTAND A DESIGN LIFE OF 50 YEARS.
    - ALL BOARDWALKS ARE RAISED ABOVE THE SAFE FLOOD LEVEL OF 53.900M AOD, AND THERE IS A CLEAR, SAFE ESCAPE PATH IN CASE OF FLOODING EVENTS.
    - THE PROPOSED BUILDING IN PLOT 1B IS ON STILTS, WITH A FLOOD COMPENSATION STORAGE ALLOWANCE BELOW THE GF SLAB.
    - THE DESIGN OF ALL RETAINING STRUCTURES IS TO BE DONE BY SPECIALISTS. THE EXISTING BRIDGE IS TO BE RETAINED.
  - IF THE EXISTING BRIDGE IS INTENDED TO BE USED DURING CONSTRUCTION, IT MUST BE CHECKED AND ASSESSED BY A COMPETENT STRUCTURAL ENGINEER FOR THE CONSTRUCTION TRAFFIC.
  14. THE SITE'S AREA IS PRONE TO FLOODING. A SUITABLE METHOD STATEMENT SHOULD BE PUT IN PLACE TO ENSURE THE RISK OF FLOODING IS CORRECTLY CONSIDERED DURING CONSTRUCTION.

THE EXTENT OF THE SITE BOUNDARY IS TO BE CONFIRMED.

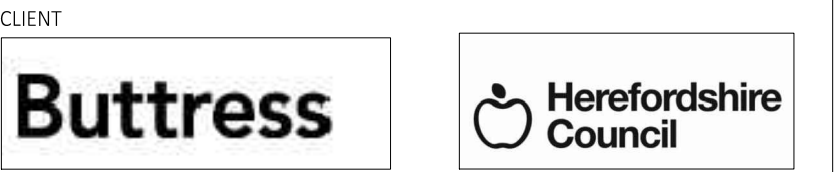
SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	0.00	0.25	
2	0.25	0.50	
3	0.50	0.75	
4	0.75	1.00	
5	1.00	1.25	
6	1.25	1.50	
7	1.50	1.75	
8	1.75	2.00	
9	2.00	2.25	

EXISTING BROOK LEVELS & PROPOSED LEVELS UPDATED					
P05	J.HO	27.06.25	V.KARATANOV	27.06.25	V. KARATANOV
PROPOSED LEVELS UPDATED					
P04	Ø.HITZGERALD	24.04.25	V.KARATANOV	24.04.25	V. KARATANOV
FLOOD VOLUMES UPDATED					
P03	Ø.HITZGERALD	14.03.25	V.KARATANOV	14.03.25	V. KARATANOV
ISSUED FOR INFORMATION					
P02	S.GADHIKAR	10.02.25	V.KARATANOV	10.02.25	V. KARATANOV
ISSUED FOR INFORMATION					
P01	S.GADHIKAR	17.12.24	V.KARATANOV	17.12.24	V. KARATANOV
REVISION NOTES/COMMENTS					
REV	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY

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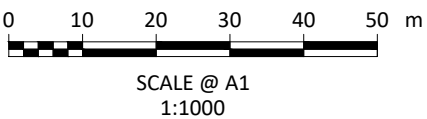
Great Suffolk Yard  
127-131 Great Suffolk Street  
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+44 (0) 2038 468456  
e: london@hydrock.com



PROJECT  
HEREFORD URBAN VILLAGE

TITLE  
FLOOD COMPENSATION VOLUMES PLAN  
SITE 1A, 1B AND 1C

HYDROCK PROJECT NO. 35849	SCALE @ A1 1:1000	STATUS S2
STATUS DESCRIPTION SUITABLE FOR INFORMATION		REVISION P05
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 35849-HYD-1-XX-M3-C-90110		



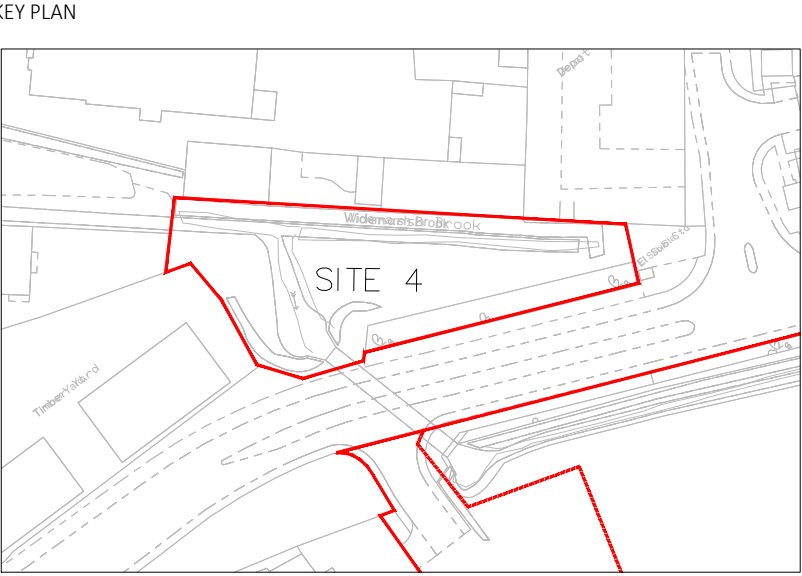




SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	0.00	0.08	
2	0.08	0.15	
3	0.15	0.23	
4	0.23	0.30	
5	0.30	0.38	
6	0.38	0.46	
7	0.46	0.53	
8	0.53	0.61	

EXISTING VOLUME SUMMARY	
NAME	FLOOD STORAGE VOLUME (m³)
1:100Y – EXISTING GROUND vs 52.57mAOD	282.6
1:100Y + 37%CC – EXISTING GROUND vs 52.345mAOD	1240.4

PROPOSED VOLUME SUMMARY PLOT 4	
NAME	FLOOD STORAGE VOLUME (m³)
PROPOSED FINISH GROUND LEVEL vs 1:100Y +37% FLOOD WATER LEVEL (FGL vs 53.345mAOD)	3037.1



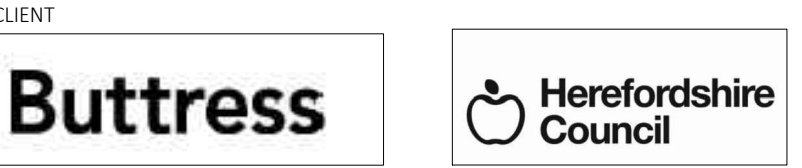
- NOTES
1. THE VOLUMES PROVIDED ARE AN APPROXIMATION ONLY AND ARE BASED ON CURRENT DESIGN LEVELS.
  2. THE VOLUMES PROVIDED ARE BASED ON THE CLIENT SUPPLIED TOPOGRAPHICAL SURVEY.
  3. A DESIGN FLOOD LEVEL OF 52.57mAOD FOR 1 IN 100 YEAR EVENT AND 53.345mAOD FOR 1 IN 100 YEAR + 37% CC EVENT HAS BEEN USED IN THE CALCULATION OF FLOOD STORAGE VOLUMES.
  4. THE FLOOD STORAGE AREA INCLUDED IN THESE CALCULATIONS RELATES TO THAT AREA BOUNDARY BY THE ORANGE LINE AND DOES NOT REPRESENT THE ENTIRETY OF THE SITE.
  5. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT HYDROCK AND THIRD PARTY DRAWINGS AND SPECIFICATIONS.
  6. THE CONTRACTOR SHALL CONDUCT THE WORKS WITH DUE REGARD FOR THE ECOLOGICAL AND ENVIRONMENTAL REQUIREMENTS OF THE SCHEME.
  7. THE DRAWING SHALL BE USED FOR THE INTENDED PURPOSE ONLY.
  8. THIS DRAWING HAS BEEN BASED ON INFORMATION PROVIDED BY OTHER PARTIES AND HYDROCK DO NOT WARRANT THE ACCURACY OF THIS INFORMATION.
  9. DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWING AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DIMENSIONS AND LEVELS ON SITE FOR THE ACTUAL SETTING OUT OF THE WORKS.
  10. HYDROCK IS NOT RESPONSIBLE FOR CHECKING DIMENSIONS ON SITE.
  11. HYDROCK IS NOT RESPONSIBLE FOR SETTING OUT GRID LINES, BUILDING LINE, ETC
  12. TEMPORARY WORKS DESIGN ASSOCIATED WITH THE CONSTRUCTION OF THE WORKS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  13. THE CONTRACTOR SHALL MAINTAIN FREE AND OPEN ACCESS TO PUBLIC HIGHWAY AND ADJACENT LANDS AT ALL TIMES DURING THE COURSE OF THE WORKS UNLESS OTHERWISE AGREED IN WRITING WITH THE INTERESTED PARTIES.
  14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL TRAFFIC MANAGEMENT PROPOSALS & PHASING. SUCH DETAILS SHALL BE SUBMITTED TO THE LOCAL HIGHWAYS AUTHORITY FOR APPROVAL PRIOR TO THE START OF THE WORKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASSOCIATED COSTS AND ORDERS.

THE EXTENT OF THE SITE BOUNDARY IS TO BE CONFIRMED.

PO2	FLOOD VOLUMES UPDATED					
	Ó.FITZGERALD	17.04.25	V.KARATANOV	17.04.25	V. KARATANOV	17.04.25
PO1	ISSUED FOR INFORMATION					
	S.GADHIKAR	20.12.24	V.KARATANOV	20.12.24	V. KARATANOV	20.12.24
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE



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PROJECT  
HEREFORD URBAN VILLAGE

TITLE  
FLOOD COMPENSATION VOLUMES PLAN  
SITE 4

HYDROCK PROJECT NO. 35849	SCALE @ A1 1:500	STATUS S2
STATUS DESCRIPTION SUITABLE FOR INFORMATION		
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 35849-HYD-4-XX-M3-C-90110		
		REVISION P02





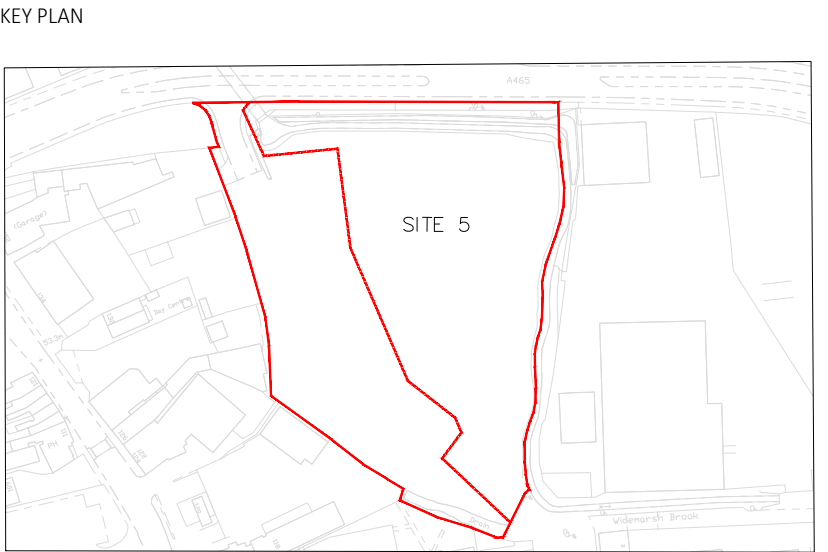
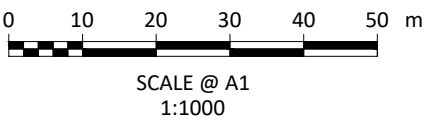
EXISTING FLOODPLAIN STORAGE EXTENTS - FLOOD LEVEL 53.248m  
1 IN 100 + 37% CLIMATE CHANGE EVENT

PROPOSED NEW FLOOD VOLUME - FLOOD LEVEL 53.248m

EXISTING VOLUME SUMMARY			
NAME	FLOOD STORAGE VOLUME (m³)	VOLUME FROM CITY LINK ROAD (m³)	TOTAL VOLUME REQUIRED (m³)
1:100Y + 37%CC – EXISTING GROUND vs 53.248mAOD	11911	790	12701

REQUIRED PROPOSED VOLUME SUMMARY PLOT 5	
NAME	FLOOD STORAGE VOLUME (m³)
PROPOSED FINISHED GROUND LEVEL vs 1:100Y+37% FLOOD WATER LEVEL VOLUME (FGL vs 53.248mAOD)	14702

SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	0.00	0.08	
2	0.08	0.15	
3	0.15	0.23	
4	0.23	0.30	
5	0.30	0.38	
6	0.38	0.46	
7	0.46	0.53	
8	0.53	0.61	
9	0.61	0.69	
10	0.69	0.76	



- NOTES
- THE VOLUMES PROVIDED ARE AN APPROXIMATION ONLY AND ARE BASED ON CURRENT DESIGN LEVELS.
  - THE VOLUMES PROVIDED ARE BASED ON THE CLIENT SUPPLIED TOPOGRAPHICAL SURVEY.
  - A DESIGN FLOOD LEVEL OF 53.248mAOD IN THE 1 IN 100 YEAR + 37% CC EVENT HAS BEEN USED IN THE CALCULATION OF FLOOD STORAGE VOLUMES.
  - THE FLOOD STORAGE AREA INCLUDED IN THESE CALCULATIONS RELATES TO THAT AREA BOUNDARY BY THE ORANGE LINE AND DOES NOT REPRESENT THE ENTIRETY OF THE SITE.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT HYDROCK AND THIRD PARTY DRAWINGS AND SPECIFICATIONS.
  - THE CONTRACTOR SHALL CONDUCT THE WORKS WITH DUE REGARD FOR THE ECOLOGICAL AND ENVIRONMENTAL REQUIREMENTS OF THE SCHEME.
  - THE DRAWING SHALL BE USED FOR THE INTENDED PURPOSE ONLY.
  - THIS DRAWING HAS BEEN BASED ON INFORMATION PROVIDED BY OTHER PARTIES AND HYDROCK DO NOT WARRANT THE ACCURACY OF THIS INFORMATION.
  - DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWING AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DIMENSIONS AND LEVELS ON SITE FOR THE ACTUAL SETTING OUT OF THE WORKS.
  - HYDROCK IS NOT RESPONSIBLE FOR CHECKING DIMENSIONS ON SITE.
  - HYDROCK IS NOT RESPONSIBLE FOR SETTING OUT GRID LINES, BUILDING LINE, ETC.
  - TEMPORARY WORKS DESIGN ASSOCIATED WITH THE CONSTRUCTION OF THE WORKS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - THE CONTRACTOR SHALL MAINTAIN FREE AND OPEN ACCESS TO PUBLIC HIGHWAY AND ADJACENT LANDS AT ALL TIMES DURING THE COURSE OF THE WORKS UNLESS OTHERWISE AGREED IN WRITING WITH THE INTERESTED PARTIES.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL TRAFFIC MANAGEMENT PROPOSALS & PHASING. SUCH DETAILS SHALL BE SUBMITTED TO THE LOCAL HIGHWAYS AUTHORITY FOR APPROVAL PRIOR TO THE START OF THE WORKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASSOCIATED COSTS AND ORDERS.
  - CONFLICTING INFORMATION SHOWN ON THE ENGINEER'S DRAWINGS OR DISCREPANCIES BETWEEN THE INFORMATION GIVEN BY THE INFORMATION AND THAT PROVIDED BY OTHERS MUST BE REFERRED TO THE ENGINEER BEFORE THE WORKS COMMENCE.
  - EXISTING TOPOGRAPHICAL SURVEY FROM AZIMUTH LAND SURVEYS LIMITED, DWG REFERENCE BB3585 01-02 RECEIVED ON 28/11/2024.

THE EXTENT OF THE SITE BOUNDARY IS TO BE CONFIRMED.

FROM THE EXISTING TOPOGRAPHICAL SURVEY INFORMATION PROVIDED, IT APPEARS THAT EARTH BUNDS AND PONDING AREAS HAVE FORMED ON PLOT 5, WHICH WE COULD NOT SEE DURING OUR SITE WALKOVER ON 11.09.24. THE CLIENT SHOULD CONFIRM THAT THE EXISTING TOPOGRAPHICAL SURVEY REFLECTS THE EXACT TOPOGRAPHY OF THE SITE.

P04	UPDATED RED LINE BOUNDARIES					
	Ó.FITZGERALD	12.05.25	V.KARATANOV	12.05.25	V.KARATANOV	12.05.25
P03	FLOOD VOLUMES UPDATED					
	Ó.FITZGERALD	29.04.25	V.KARATANOV	29.04.25	V.KARATANOV	29.04.25
P02	SITE BOUNDARY AND FLOOD VOLUMES UPDATED					
	S.GADHIKAR	21.02.25	V.KARATANOV	21.02.25	V.KARATANOV	21.02.25
P01	ISSUED FOR INFORMATION					
	S.GADHIKAR	20.12.24	V.KARATANOV	20.12.24	V.KARATANOV	20.12.24
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
<div><div><div>Hydrock</div><div>now</div><div>Stantec</div></div><div>Great Suffolk Yard 127-131 Great Suffolk Street London SE1 1PP t: +44 (0) 2038 468456 e: london@hydrock.com</div></div>						

CLIENT

Buttress

Herefordshire Council

PROJECT

HEREFORD URBAN VILLAGE

TITLE

FLOOD COMPENSATION VOLUMES PLAN  
SITE 5

HYDROCK PROJECT NO. 35849	SCALE @ A1 1:1000	
STATUS DESCRIPTION SUITABLE FOR INFORMATION		STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 35849-HYD-5-XX-M3-C-90110		REVISION P04



## **Appendix C**

### **C.1 Figure showing the difference in the extent of the flood between the existing baseline model and the post-development model**

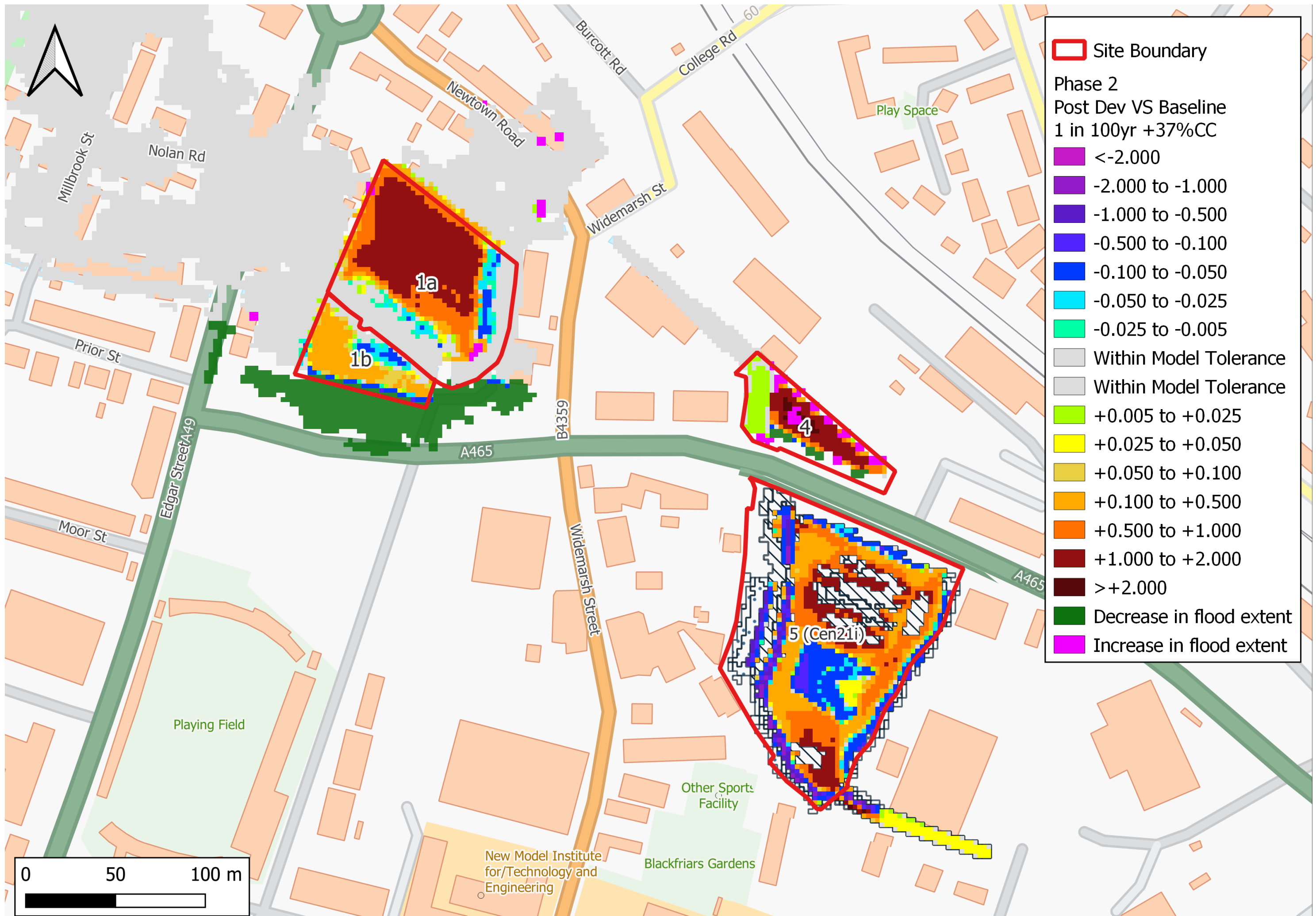


Figure showing the difference in the extent of the flood between the existing baseline model and the post-development model

**Additional Comments from Greengage to support Stantec's Response Above;**

The existing brook will be left to run dry. We acknowledge the EA preference a substrate translocation, the can be achieved within the realigned brook, not withstanding the redline boundary.

## Landscape Design Response to Environment Agency Comments

Application Ref: 251273/CD3

Site: Car park (Plot 1A & 1B) together with Plots 4 & 5, East of Widemarsh Street, Hereford, Herefordshire, HR4 9JU

Date: 9 July 2025

Attention: Lucy Brackenbury

Thank you for sharing the detailed feedback from the Environment Agency regarding the Merton Meadows Flood Alleviation Scheme. We welcome the Agency's continued engagement and recognise the importance of aligning the landscape design with wider objectives around watercourse restoration, public realm quality, and long-term ecological resilience.

The feedback received is seen as a valuable opportunity to strengthen the scheme and ensure that its delivery contributes not only to flood alleviation, but also to the strategic vision for the Widemarsh Brook corridor and Hereford's wider urban landscape.

### Design Principles and Layout

The alignment of the brook and configuration of the wetland basins have been shaped to deliver a multifunctional and adaptive landscape. The design reconciles several core priorities: flood risk management, ecological enhancement, public space delivery, and unlocking of residential development plots. As outlined in Section 4.2 of the Landscape Design Statement (Rev C), the brook realignment introduces varied edge conditions, topographic modulation, and planting typologies that support biodiversity and visual legibility.

This green-blue corridor is intended as a dynamic, place-responsive landscape. Subtle meanders, adaptive geometry, and changes in bank profile are employed to enhance user experience and ecological richness. We acknowledge spatial constraints in several areas and commit to reviewing channel geometry, buffer widths, and footpath alignments during Stage 4 design, to improve resilience and support natural processes wherever feasible.

### Spatial Buffers and Constrained Edges

In areas where proximity between watercourse, paths, or infrastructure is limited, the design adopts landscape-led techniques to mitigate impact. These include soft edge treatments, planted shelves, and vegetated transitions to maintain ecological function and soften the visual interface. Figure 12 and the design sections within the Landscape Statement illustrate how these elements respond to constrained contexts while promoting hydromorphological benefit.

Importantly, engineered bank protection is avoided except at structurally necessary access or path crossing points. This supports the Agency's objective to allow space for natural adjustment and vegetation succession over time.

### Wetland Basin Integration

The attenuation basins are not standalone infrastructure but form part of a continuous flood-adaptive and ecologically enriched landscape. As outlined in Section 5.3 of the Landscape Design Statement, they incorporate marginal planting, varied depths, and ecological edge treatments that contribute to both habitat value and public realm character.

### Urban Context and Deliverability

The positioning of the brook and open space also reflects the need to release and structure land for residential development. As described in Section 3.1 of the Landscape Design Statement, the brook realignment enables delivery of flood-resilient housing alongside a multifunctional parkland. This reinforces the scheme's role in balancing growth, resilience, and quality of life in line with Herefordshire's spatial strategy.

### Public Realm and Long-Term Vision

The scheme contributes to the strategic vision for the Widemarsh Brook corridor as a continuous green-blue network. Section 6.1 of the Landscape Design Statement highlights the role of this linear space as a civic and ecological connector through the new urban village.

# MOOWD

The design responds to Water Framework Directive ambitions and supports the River Basin Management Plan by restoring channel structure, expanding wetland coverage, and improving access to nature in urban areas.

## **Collaboration and Forward Steps**

To ensure continued alignment, we would welcome the opportunity to engage in a design review session with the Environment Agency during Stage 4 technical development. This would provide a forum to further test ideas, refine channel and path geometry, and explore long-term landscape and ecological performance.

We are working closely with Stantec and Greengage to ensure integration of hydraulic modelling, habitat data, and BNG principles into the detailed design and long-term management strategy. The LEMP will include a 10-year monitoring framework aligned with RBMP objectives, with a focus on vegetation succession, hydromorphology, and access to nature.

We hope this response provides assurance that the landscape design has been developed to deliver both technical function and strategic value. We remain committed to working with the Agency to ensure the scheme continues to evolve in line with national guidance and local priorities.

Best regards,



Michael Cowdy  
Director, MOOWD  
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+44 7496 282281