

16 July 2025

Project/File: 35849 - Hereford Urban Village

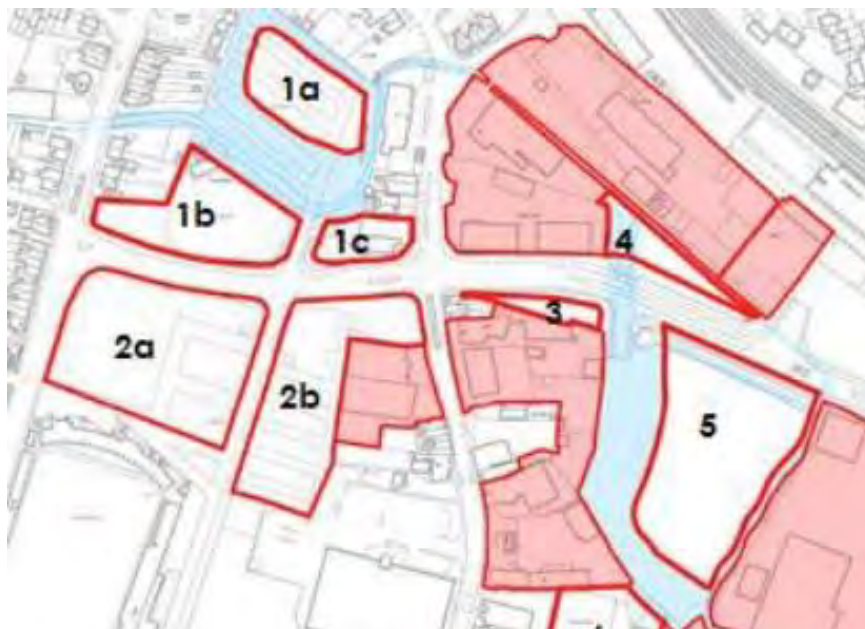
Lucy Brackenbury  
41 Bengal Street, Manchester M4 6AF

Dear Lucy Brackenbury,

**Reference: Civil and Flood Design Response to LLFA Comments for Application Ref: 251273**

Thank you for sharing the detailed feedback from the Lead Local Flood Authority (LLFA) regarding the Merton Meadows Flood Alleviation Scheme. We welcome the council'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 by LLFA (attached in 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 LLFA Comments

## 1.1 Stantec responses to LLFA comments.

The response to the comments raised by LLFA is included in the appendix. A.2.

# 2 Merton Meadows FAS design

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.

## 2.1 Additional flood storage capacity and betterment

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).

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

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

## **2.2 Post-development betterment**

In line with the requirements of national and local planning policy, a detailed assessment of flood risk to the Merton Meadows and wider masterplan 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 in the southern part of plot 1B, 1C, 2A and 2B are filled. 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. It is worth noting that these plots form part of a wider master planning scheme, and any earthworks and level raising will be covered in the broader master planning application, which is currently ongoing. The interface between the development plots and the Merton Meadows FAS works will be developed in more detail during the outline master planning application.

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.

We welcome LLFA and EA's full review of the model, and we will liaise with EA at the consultation stage for the outline wider masterplan to discuss the proposed development in the area.

### **2.2.1 Groundwater**

Groundwater flooding has been assessed within the FRA, taking into account several factors. These are:

- assessing the topography of the site,
- reviewing Level 1 and Level 2 SFRA's for the site,
- underlying geology and soils.

Additionally, the groundwater levels will be hydraulically connected to adjacent watercourses.

The southern part of plot 1B and plot 1C is part of a future wider masterplan application, which we are also developing with HCC. These areas are only shown on the cut and fill plan as a reference to understand the earthwork quantities.

The areas around the southern boundary line of FAS works on plot 1B have been developed with wider master planning, and the ground will be rearranged to suit the development proposal, and a retaining wall will not be required in the area.

The proposed new building within plot 1B and plot 5 might require to be stilted, and that will be discussed in outline master planning consultation with EA.

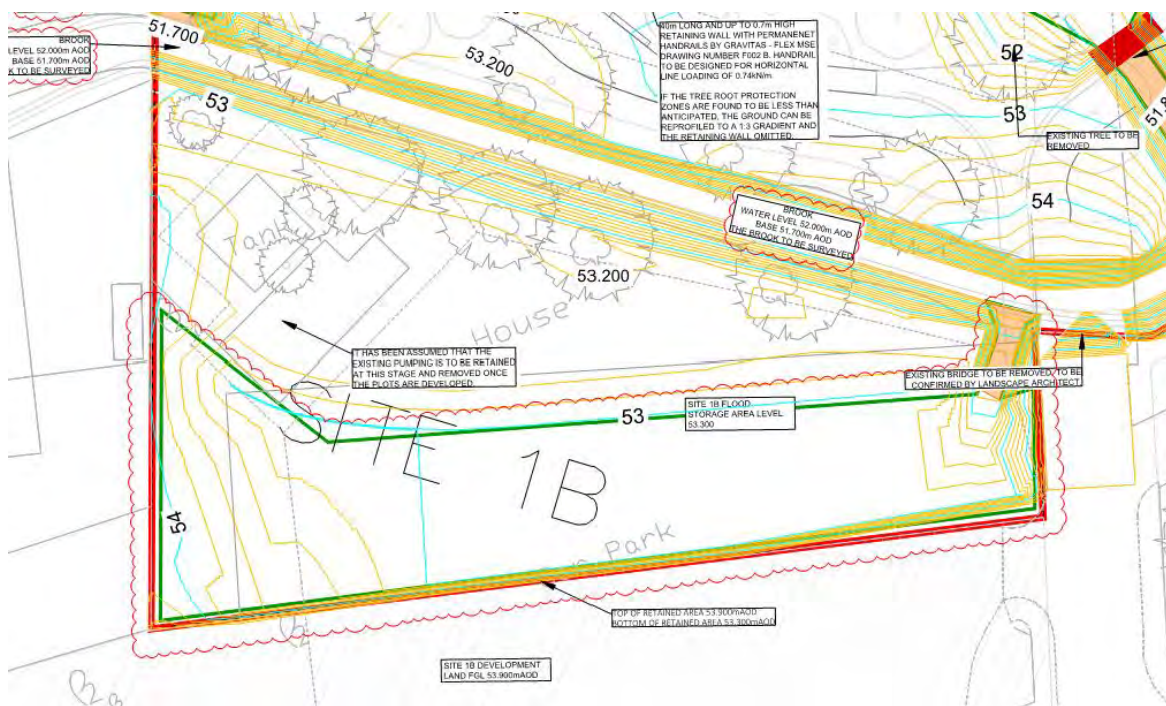


Figure 2 – extract of drawing 35849-HYD-1-XX-M3-C-90130 P02 included in appendix E.1

Following the meeting held with Welsh Water (WW), it was agreed that a further survey is required to establish whether the sewers exist and if they are functioning properly. An initial proposal to mitigate the risk of ground and river water entering the brook has been briefly discussed with WW and is included in the appendix. D.1. We will work closely with WW to find a suitable solution once the survey is completed.

In Plot 1, the proposed wetlands are 300mm deep as required by the design team, and the bed levels of the brook and the wetland are the same and are set as 51.700m AOD (refer to Appendix E.1).

In plot 5, the proposed wetlands are 300mm deep (base level 51.000) and the top of water is set at the brook base level (51.300). It has been proposed that the level of the offtake is as high as the level of the water in the brook to prevent the brook from being depleted as required by the EA.

The water availability within the wetlands will depend on many factors outside of design control, such as rainfall, evaporation, absorption, and an extended dry weather period. Additionally, it will also depend on the upstream flows and how often the water level in the brook rises above the normal level and overtops the bank in the off-take of the brook. Therefore, the water feed from the brook to the wetlands would not be permanent, and an effective strategy to reverse stagnation will need to be developed by the design team at the next stage of the design.

The measures considered in the design include making the lining of the wetlands impermeable, thereby avoiding water loss due to infiltration. The level of the water in the wetlands should be monitored during the first year. If the water level in the wetlands decreases below the recommended level (as advised by the design team), the water may need to be topped up from the nearby council-owned surface water pumping station or by discharging the proposed surface water system from the proposed development, where possible. Alternatively, a transfer licence will need to be agreed with the EA for water supply from the brook.

A water transfer licence is required to be agreed upon with the EA to provide a permanent water supply .

## 6 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.

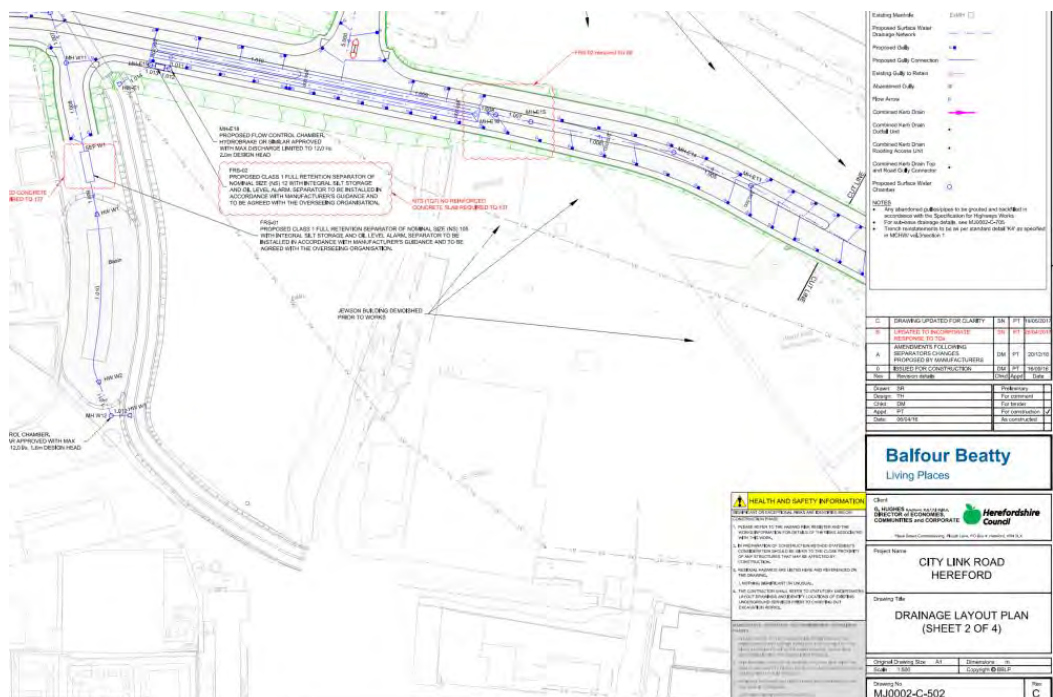


Figure 3- Proposed diversion of the brook by BB in 2017.

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.



Figure 4- Proposed layout 35849-HYD-5-XX-M3-C-90120\_P02

## 7 Ownership and Maintenance Responsibilities

It is anticipated and expected that the future maintenance of the brook, including the wetlands and Sustainable Drainage Systems (SuDS) features, will be undertaken by the Hereford County Council Management or a suitably qualified management company.

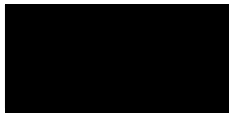
## 8 Conclusion

We are working closely with LLFA, EA, including the design team, 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 council to ensure the scheme continues to evolve in line with national guidance and local priorities.

Yours sincerely,

**Stantec UK Limited**



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## **Appendix A**

### **A.1 LLFA Comments**

### **A.2 Stantec's response on the LLFA comments raised**

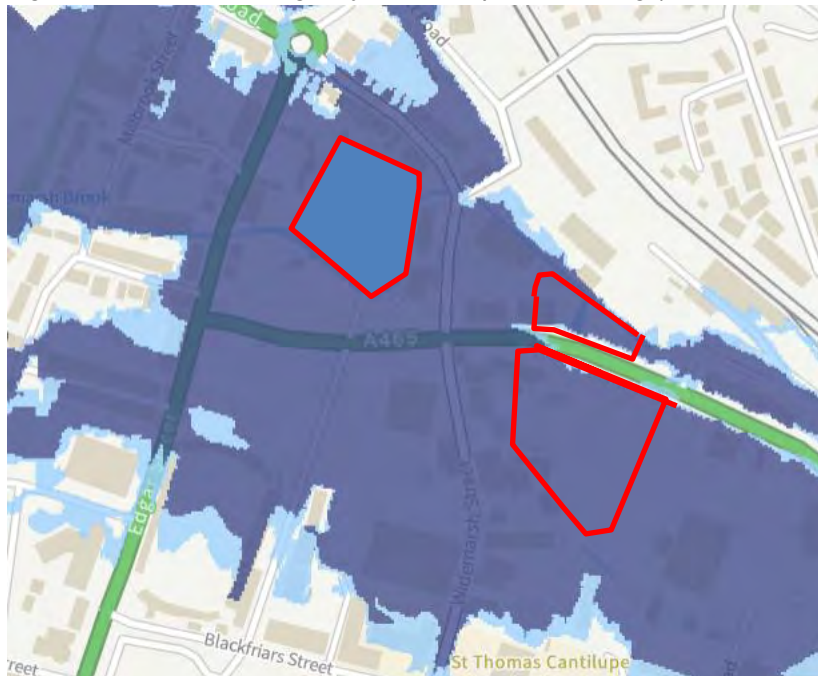
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**TYPE:** Council Development Regulation 3  
**DESCRIPTION:** Proposed flood alleviation scheme to address historic flooding across the Merton Meadows area of the city.  
**APPLICATION NO:** 251273  
**GRID REFERENCE:** OS 351131 - 240643  
**APPLICANT:** Mr Stephen Holland  
**AGENT:** Buttress 41 Bengal Street Ancoats Manchester M4 6AF

Our knowledge of the development proposals has been obtained from the following sources:

- Rappor / Stantec Flood Risk Assessment
- Rappor / Stantec Ground Investigation
- Drawings

### **Site Location**

*Figure 1: Environment Agency Flood Map for Planning (Rivers and Sea), June 2025*



### **Overview of the Proposal**

The Applicant proposes the installation of a flood alleviation scheme. The over arching strategy is one of inclusive engineering works and landscaping to satisfy Biodiversity Net Gain requirements.

The site covers an area of approx. 2.8 and is currently a car park and wasteland

The Widemarsh brook flows through the site.

### **Flood Risk**

#### *Fluvial Flood Risk*

Review of the Environment Agency's Flood Map for Planning (Figure 1) indicates that the site is located within the high probability Flood Zone 2 and 3.

The Yazor Flood Alleviation Scheme (FAS) was installed in 2009, near Credenhill. This infrastructure was installed to facilitate development within the functional Flood Plain (Flood Zone 3B) in central Hereford. The FAS displaces water from the Yazor Brook into the River Wye, thus reducing the peak flow in the Widemarsh and Yazor Brooks. The scheme was not delivered to eliminate the risk of fluvial flooding (low points adjacent to the watercourse will continue to flood). Instead, the scheme was promoted because it was impractical to excavate compensatory storage areas to make up for any lost flood plain arising due to future development within Flood Zone 3B.

A Flood Risk Assessment has been submitted. The modelling utilises the 37% climate change (the Central allowance for 2080s and beyond).

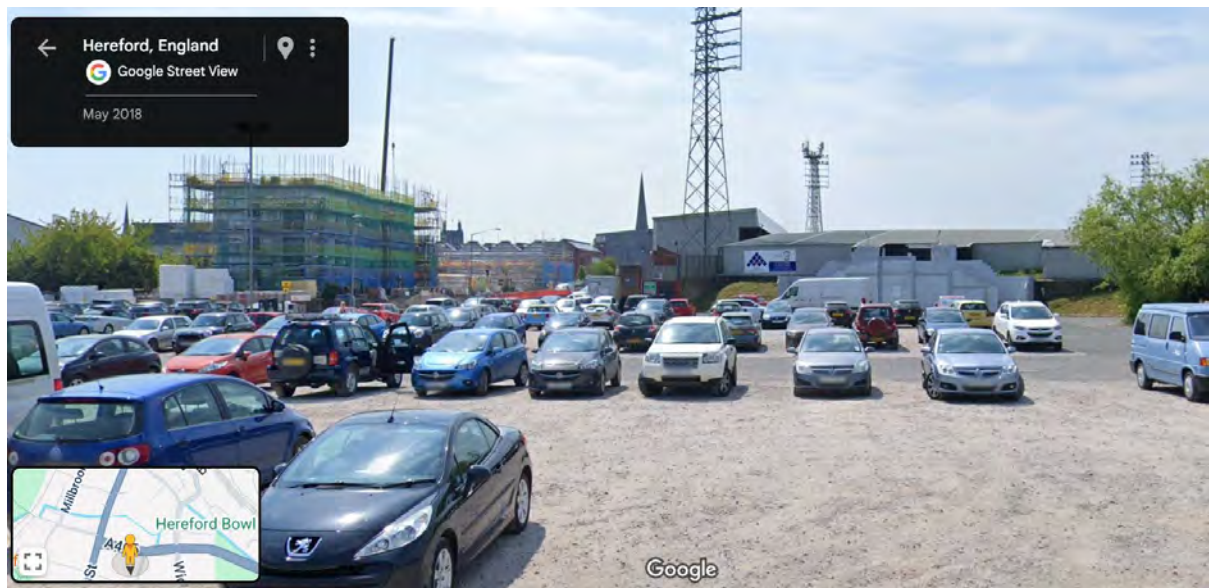
The applicant has merged the existing Yazor/Widemarsh Brook hydraulic model (held by Herefordshire Council) with another hydraulic model of the Ayles Brook. This new model is named the Merton Meadow Flood Alleviation Scheme (FAS) Model.

It is noted that the flood extents reported by the Merton Meadows FAS Model cover smaller areas than the reported by the earlier hydraulic models. We have not yet reviewed the outputs relating to the scenario of the Yazor FAS as non-operational, however we anticipate that these flood extents may also be smaller.

Conversely earlier commentary (including the 2007 flood events post-event report) suggests that there has always been a fluvial flooding issue on parts of the ESG site. When the Yazor/Widemarsh Brook hydraulic model was developed, efforts were made to calibrate the model against reported flooding by means of hydrology reviews.



6<sup>th</sup> March 2007 (before the Yazor Brook FAS) – Opposite Plot 1A



The Baseline scenario model outputs contained in Appendix F suggest that only small areas of Plot 5 are at risk of flooding in a 30 year storm. Whilst this model run assumes the Yazor FAS is fully functional, these are low lying areas that have historically flooded.



The WSP Hydrology Checks memo (2018) reads as follows :

“...while the peak flow value recorded during the March and July 2007 events at the Three Elms gauge is slightly lower than the modelled 50 year event, the observed flood extent is greater...”

The Environment Agency have provided commentary (28<sup>th</sup> May 2025) as follows :

“...the impact of the Ayles Brook has previously been under assessed and it's influence potentially underestimated based on previous ESG discussions with WSP resulting in modelled outputs not always matching historical events”

It is worth noting that whilst the original Yazor / Widemarsh Brook did not include 1D/2D representation of the Ayles Brook, the inflow from this watercourse had been considered.

Furthermore, we are not in receipt of outputs from the Merton Meadows FAS Model for more frequent flood events (pre-Yazor Brook FAS). Such model outputs will be required to validate the model if it is to be used to support any subsequent planning applications where buildings are proposed. The extent and frequency of recorded flooding pre-Yazor FAS would need to tally with any outputs that are created using the Merton Meadows FAS Model.

Herefordshire Council holds records of recent floods (post-Yazor Brook FAS). These records also need to be used for the purpose of model verification.

We note that the Environment Agency have advised that they would expect to review the modelling methodology through their Evidence and Risk Team.

Review of the model plots shows that the pre-development simulations show the watercourse running anti-clockwise through Plot 5. Following construction of the City Link Road, the watercourse was diverted to run clockwise through this plot.

The Planning Practice Guidance to NPPF identifies five classifications of flood risk vulnerability and provides recommendations on the compatibility of each vulnerability classification within each of the Flood Zones, as shown in Table 1:

*Table 1: Flood risk vulnerability and flood zone compatibility*

<b>EA Flood Zone</b>	<b>Essential Infrastructure</b>	<b>Water Compatible</b>	<b>Highly Vulnerable</b>	<b>More vulnerable</b>	<b>Less vulnerable</b>
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception test required	✓	✓
Zone 3a	Exception test required	✓	✗	Exception test required	✓
Zone 3b	Exception test required	✓	✗	✗	✗
✓ Development considered acceptable ✗ Development considered unacceptable					

The FAS application is classed as Water Compatible. Accordingly, an Exception Test is not required.

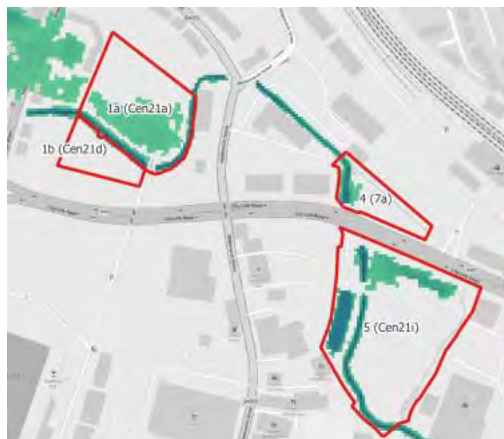
We assume that the 100 year + Climate Change model runs that have been presented for this application relate to the Yazor FAS being fully operational.

Earlier planning applications within the Edgar Street Grid (ESG) area utilised model runs that assumed that the Yazor Flood Alleviation Scheme (FAS) was partially blocked. These model outputs were used to determine finished floor levels.

In Flood Zone 3B, works should normally be designed to result in no net loss of flood plain storage and to not increase flood risk elsewhere. We understand that there is some ground raising proposed. Whilst the Yazor FAS was designed to allow some ground raising within the ESG area, the Environment Agency need to endorse these proposals.

Figure 7 shows the respective flood zones as defined by the Merton Meadow FAS model

The model outputs (Appendix F) indicate that there is no fluvial flooding in Plot 1B during a 1 in 30 year flood. Likewise, most parts of Plot 5 are shown to not be at risk of fluvial flooding the same flood event.



The model report advises that a western area of Plot 1B is to be raised to reduce flood risk to third parties

As explained above, the model that has been presented may not be an adequate tool for the purposes of setting property floor levels.

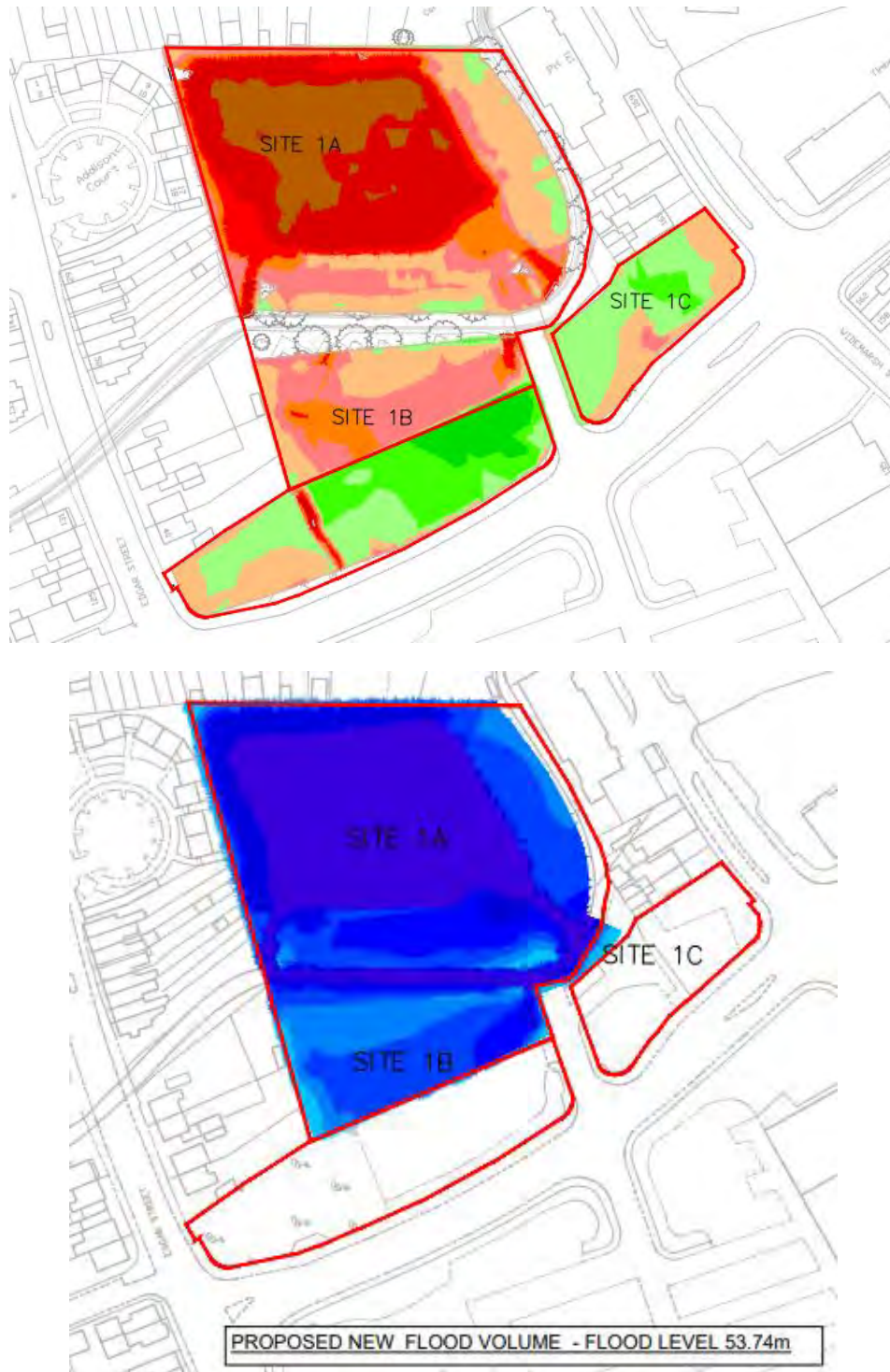
#### Ground Raising

The Yazor Brook FAS was promoted in order to mobilise development within areas previously defined as Flood Zone 3B (illustrated in Blue in the pre-Yazor FAS plot below).

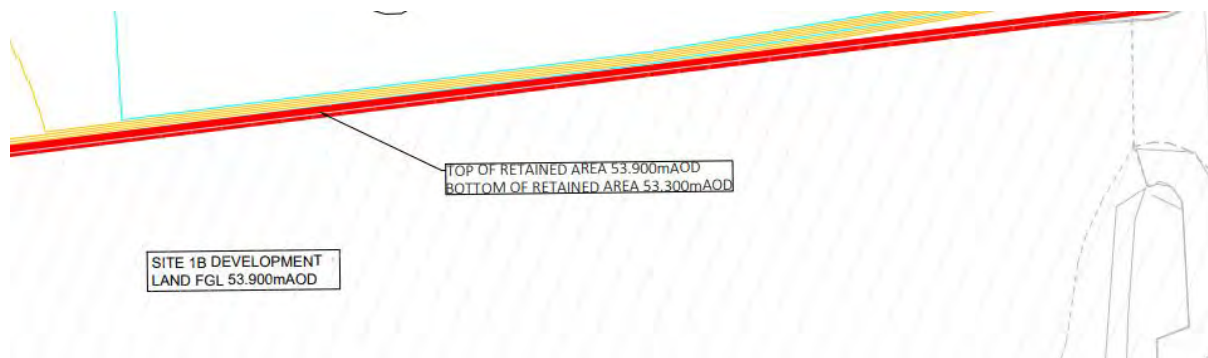


Arguably since the installation of the Yazor FAS, the Flood Zone 3B extent is now smaller.

We note that the Cut & Fill drawing for Plots 1A,1B,1C **shows works outside of the red line boundary, which are no referenced elsewhere in the planning application**. These are the areas that have been highlighted in green (spoil is shown stockpiled).



Furthermore the Proposed Contours plan for sites 1A 1B 1C includes proposed Finished Ground Levels for these plots (1B and 1C - 153.90m). The drawing suggests that there will be a retaining feature to hold the fill up.



There is conflicting commentary on the Notes on the Flood Compensation drawing 1A 1B 1C

**5.5. THE PROPOSED BUILDING IN PLOT 1B IS ON STILTS, WITH A FLOOD COMPENSATION STORAGE ALLOWANCE BELOW THE GF SLAB.**

The Environment Agency need to endorse the principle of ground raising within areas of Flood Zone 2B, as defined on the Flood Map for Planning. Whilst the principle of raising ground levels in Flood Zone 3B was agreed (this was the main driver for the Yazor FAS scheme), the Environment Agency will need to be consulted as part of a subsequent planning application. The recent EA letter 28<sup>th</sup> May 2025 did not make reference to these proposals.

Merton Meadow FAS model outputs

The Flood Compensation drawings show the proposed Flood Compensation Volumes. The volumes of excavation (pre/post construction) have been compared showing a net increase in storage at Plots 4 and 5 and a marginal increase in 1A, 1B, 1C.

The post-development modelling results (Figure 9) do indicate that the proposed Merton Meadows FAS will lead to reduced flood levels. There are some very minor changes in the 100 year + CC flood level further downstream, but away from property.

Groundwater Flood Risk

Objector Moira Jankins has highlighted a concern, that the glaciofluvial gravels form an aquifer. Concern has been raised that when development proceeds within the ESG, vulnerable people could be impacted by flooding, possibly adversely impacted by groundwater.

Parts of the existing Plot 5 are below the Wye peak flood level (we note that the new proposed base levels would be even lower).

Likewise, the bed of the Yazor Brook is likely to interact with the river gravels (for example in the vicinity of Sugwas Pool, which is flood plain).

Accordingly, groundwater levels within the ESG area are likely to be impacted when river levels are high. Consequently, the duration of any low lying flooding issues is likely to be extended (particularly low lying areas of the proposed Merton Meadow FAS).

This issue has been considered in the FRA, noting that water compatible development is proposed.

Sewerage

There is a surface water sewer and a foul sewer crossing the site. We await commentary from DCWW regarding these assets. It is possible that DCWW may require works to mitigate the risk of river and ground water from spilling into the sewers.

### Pond Design

It is proposed that the Widemarsh Brook is realigned to meander through Plot 5. Three ponds will sit either side of the meandering brook. A similar principle is proposed for plot 1A. To ensure that self-cleansing is achieved then either the watercourse will need to be lower than the ponds, or a robust section of bank will need to be provided.

The A465 culvert currently self-cleanses, with silt being re-mobilised. We note that there is a length of straight channel proposed immediately downstream of the headwall. The cross-section drawings suggest that the watercourse base will be a similar level to the pond bases.

The Environment Agency have identified that for ecological reasons the ponds will need to be deeper, accordingly the only option is to rely on a robust section of bank. It is proposed that the ponds will need to be fed via overflows, otherwise during times of low flow the silt will build up in the channel. The pond bases are typically shown 200mm lower than the watercourse bed on the proposed drawings

The Planning Statement and the Landscape Plan both include statements advising that the height of the swale inlet and outlets have been proposed to provide a permanent feed to the watercourse and avoid any stagnant water. The drawings show overflows that would come into operation following heavy rain, which is a different approach.

We note that flood water will spill into the ponds, accordingly it is likely that over the long term silt will build up in the ponds and so ultimately pond bed levels may rise.

We concur with comments made by the Environment Agency regarding the inlet and outlet swales. Notably the need for a simple, passive design that is at low risk of vandalism. Weir levels will need to be carefully selected, with a stable foundation.

The detailed design of the ponds may be addressed via a planning condition.

The Flood Compensation Volumes drawing 1A 1B 1C identifies a 100 year + CC level of 53.73m AOD. The boardwalks are raised to 53.90m AOD with the intent of providing a safe access.

The future development of the raised area of site on the western side of plot 5 will need to include provision for an access route for channel maintenance

### Overall Comment

We accept the outputs from the Merton Meadow flood model because the proposal is for Water Compatible development. The model will need to be verified and then reviewed by the Environment Agency before use on any subsequent planning applications.

The ground raising outside of the Red Line boundary is required to deliver the works. The applicant can either extend the red line boundary and reconsult the Environment Agency or raise a new application for ground raising in these areas. This issue needs to be addressed before Land Drainage can support this application.

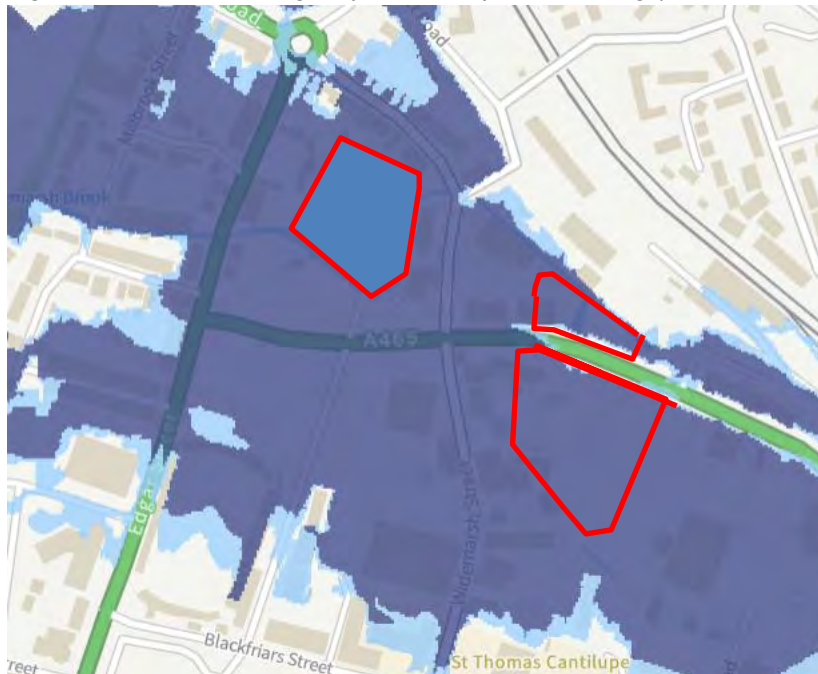
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### **Site Location**

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### **Flood Risk**

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Review of the Environment Agency's Flood Map for Planning (Figure 1) indicates that the site is located within the high probability Flood Zone 2 and 3.

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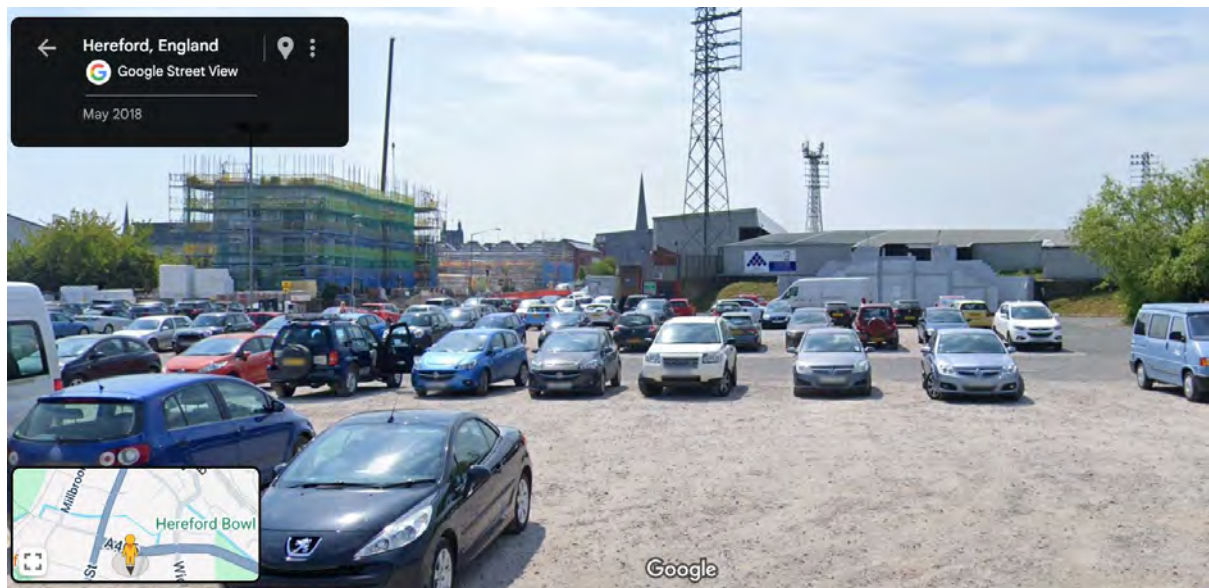
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Zone 3b	Exception test required	✓	✗	✗	✗
✓ Development considered acceptable ✗ Development considered unacceptable					

The FAS application is classed as Water Compatible. Accordingly, an Exception Test is not required.

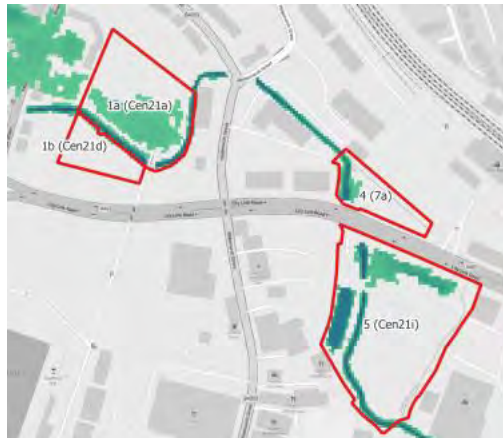
We assume that the 100 year + Climate Change model runs that have been presented for this application relate to the Yazor FAS being fully operational.

Earlier planning applications within the Edgar Street Grid (ESG) area utilised model runs that assumed that the Yazor Flood Alleviation Scheme (FAS) was partially blocked. These model outputs were used to determine finished floor levels.

In Flood Zone 3B, works should normally be designed to result in no net loss of flood plain storage and to not increase flood risk elsewhere. We understand that there is some ground raising proposed. Whilst the Yazor FAS was designed to allow some ground raising within the ESG area, the Environment Agency need to endorse these proposals.

Figure 7 shows the respective flood zones as defined by the Merton Meadow FAS model

The model outputs (Appendix F) indicate that there is no fluvial flooding in Plot 1B during a 1 in 30 year flood. Likewise, most parts of Plot 5 are shown to not be at risk of fluvial flooding the same flood event.



The model report advises that a western area of Plot 1B is to be raised to reduce flood risk to third parties

As explained above, the model that has been presented may not be an adequate tool for the purposes of setting property floor levels.

#### Ground Raising

The Yazor Brook FAS was promoted in order to mobilise development within areas previously defined as Flood Zone 3B (illustrated in Blue in the pre-Yazor FAS plot below).

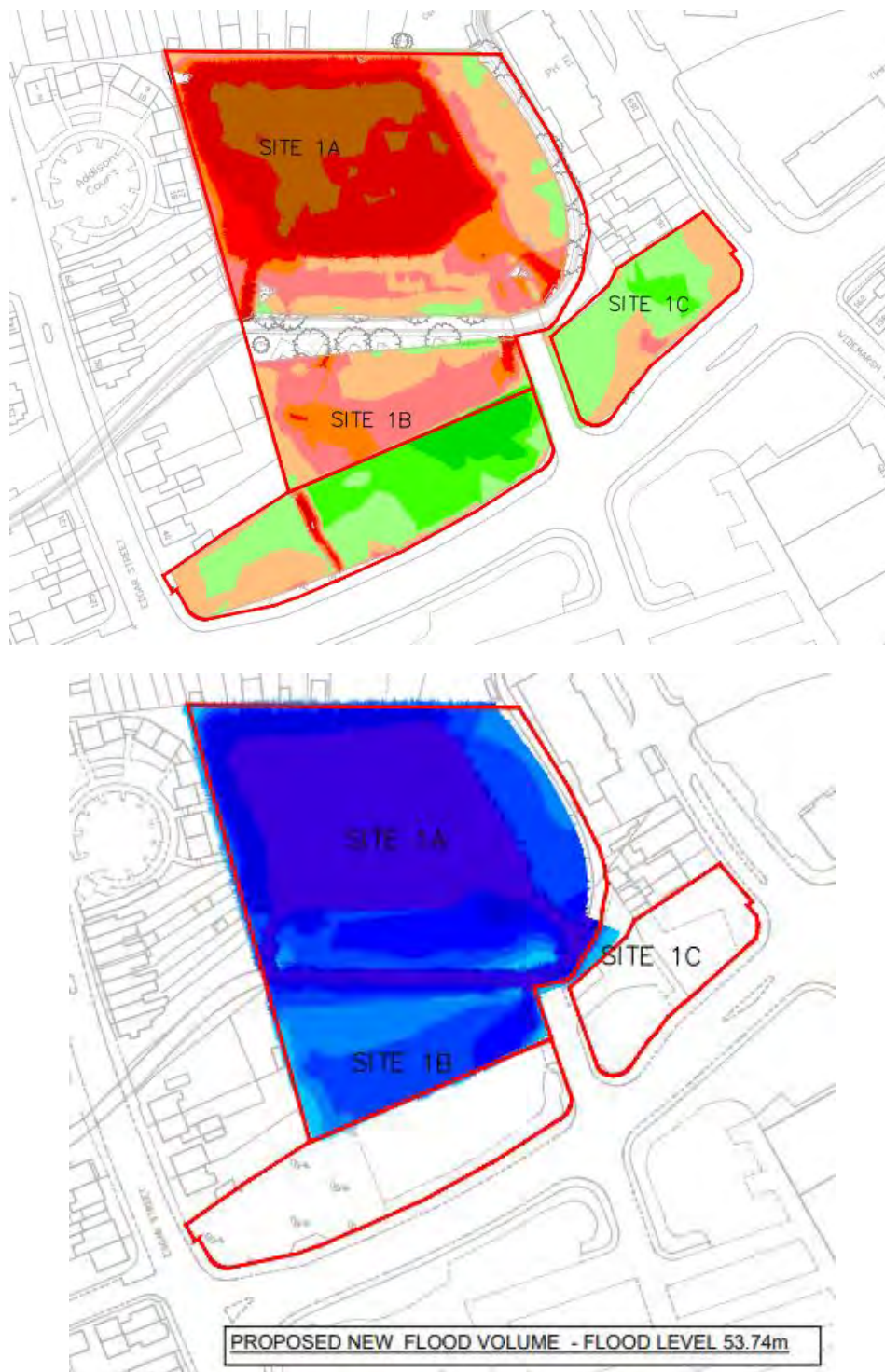


Arguably since the installation of the Yazor FAS, the Flood Zone 3B extent is now smaller.

We note that the Cut & Fill drawing for Plots 1A,1B,1C **shows works outside of the red line boundary, which are no referenced elsewhere in the planning application**. These are the areas that have been highlighted in green (spoil is shown stockpiled).

#### **Stantec:**

The plot 1B and 1C are part of future wider masterplan application which we are also developing with HCC and these areas are only shown on cut and fill plan as a reference to understand the earthwork quantities.

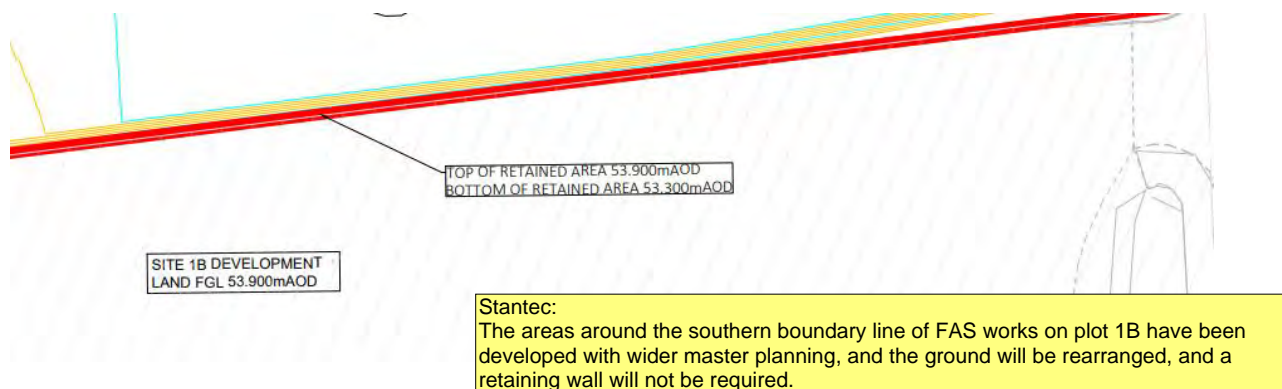


Furthermore the Proposed Contours plan for sites 1A 1B 1C includes proposed Finished Ground Levels for these plots (1B and 1C - 153.90m). The drawing suggests that there will be a retaining feature to hold the fill up.

Stantec:

The plot 1B and 1C are part of future wider masterplan and the consultation will take place with EA to ensure that the proposal is accepted.

The proposed FGL finished ground levels of 53.90 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. These levels are going to be discussed with EA.



There is conflicting commentary on the Notes on the Flood Compensation drawing 1A 1B 1C

**5.5. THE PROPOSED BUILDING IN PLOT 1B IS ON STILTS, WITH A FLOOD COMPENSATION STORAGE ALLOWANCE BELOW THE GF SLAB.**

The Environment Agency need to endorse the principle of ground raising within areas of Flood Zone 2B, as defined on the Flood Map for Planning. Whilst the principle of raising ground levels in Flood Zone 3B was agreed (this was the main driver for the Yazor FAS scheme), the Environment Agency will need to be consulted as part of a subsequent planning application. The recent EA letter 28<sup>th</sup> May 2025 did not make reference to these proposals.

Stantec:  
The plot 1B and 1C are part of future wider masterplan and the consultation will take place with EA to ensure that the proposal is accepted.

Merton Meadow FAS model outputs

The Flood Compensation drawings show the proposed Flood Compensation Volumes. The volumes of excavation (pre/post construction) have been compared showing a net increase in storage at Plots 4 and 5 and a marginal increase in 1A, 1B, 1C.

The post-development modelling results (Figure 9) do indicate that the proposed Merton Meadows FAS will lead to reduced flood levels. There are some very minor changes in the 100 year + CC flood level further downstream, but away from property.

Stantec:  
The proposed FAS works demonstrate that the proposed mitigation measures reduce flood risk to the proposed development without increasing flood risk to adjacent or third-party lands

Groundwater Flood Risk

Objector Moira Jankins has highlighted a concern, that the glaciofluvial gravels form an aquifer. Concern has been raised that when development proceeds within the ESG, vulnerable people could be impacted by flooding, possibly adversely impacted by groundwater.

Parts of the existing Plot 5 are below the Wye peak flood level (we note that the new proposed base levels would be even lower).

Likewise, the bed of the Yazor Brook is likely to interact with the river gravels (for example in the vicinity of Sugwas Pool, which is flood plain).

Accordingly, groundwater levels within the ESG area are likely to be impacted when river levels are high. Consequently, the duration of any low lying flooding issues is likely to be extended (particularly low lying areas of the proposed Merton Meadow FAS).

This issue has been considered in the FRA, noting that water compatible development is proposed.

Sewerage

Stantec:  
Groundwater flooding has been assessed within the FRA, considering a number of factors. These are assessing the topography of the site, reviewing Level 1 and Level 2 SFRA's for the site, underlying geology and soils. Additionally, the groundwater levels will be hydraulically connected to adjacent watercourses.

There is a surface water sewer and a foul sewer crossing the site. We await commentary from DCWW regarding these assets. It is possible that DCWW may require works to mitigate the risk of river and ground water from spilling into the sewers.

Stantec:

Following the meeting held with Welsh Water (WW), it was agreed that a further survey is required to establish whether the sewers exist and if they are functioning properly. An initial proposal to mitigate the risk of ground and river water entering the brook has been briefly discussed with WW and is included in the appendix. D.1. We will work with WW to find a suitable solution once the survey is completed.

### Pond Design

It is proposed that the Widemarsh Brook is realigned to meander through Plot 5. Three ponds will sit either side of the meandering brook. A similar principle is proposed for plot 1A. To ensure that self-cleansing is achieved then either the watercourse will need to be lower than the ponds, or a robust section of bank will need to be provided.

Stantec:

The proposal is that a robust section of the bank is proposed with suitable erosion protection.

The A465 culvert currently self-cleanses, with silt being re-mobilised. We note that there is a length of straight channel proposed immediately downstream of the headwall. The cross-section drawings suggest that the watercourse base will be a similar level to the pond bases.

Stantec: We will need to understand more in regards to the comment above and we will work closely to ensure that a suitable solution is found. The straight channel including the pond downstream of A465 culvert is retained and the alignment being proposed to minimise the area and maximise the development land.

The Environment Agency have identified that for ecological reasons the ponds will need to be deeper, accordingly the only option is to rely on a robust section of bank. It is proposed that the ponds will need to be fed via overflows, otherwise during times of low flow the silt will build up in the channel. The pond bases are typically shown 200mm lower than the watercourse bed on the proposed drawings

Stantec: In Plot 1 the proposed the proposed wetlands are 300mm deep and the bed levels of the brook and the wetland is the same and is set as 51.700m AOD (refer to appendix E). In plot 5 the proposed wetlands are 300mm deep (base level 51.000) and the top of water is set at brook base level (51.300). The proposal will avoid depleting the brook. A water transfer licence is required to be agreed with EA to provide a permanent feed of water.

The Planning Statement and the Landscape Plan both include statements advising that the height of the swale inlet and outlets have been proposed to provide a permanent feed to the watercourse and avoid any stagnant water. The drawings show overflows that would come into operation following heavy rain, which is a different approach.

Stantec: Follow on the review of the design we agree with the comment that the water feed as described above would not be permanent (unless a transfer licence is agreed with EA), and an effective strategy to reverse stagnation will need to be developed with the design team at the next stage of the design.

We note that flood water will spill into the ponds, accordingly it is likely that over the long term silt will build up in the ponds and so ultimately pond bed levels may rise.

Stantec: It is anticipated and expected that the future maintenance of the brook, spillways including of the Sustainable Drainage Systems (SuDS) features, will be undertaken by the owner HCC or a suitably qualified management company with a suitable management arrangement in place. The management plan should include but not limited to regular inspection and cleaning of silt.

We concur with comments made by the Environment Agency regarding the inlet and outlet swales. Notably the need for a simple, passive design that is at low risk of vandalism. Weir levels will need to be carefully selected, with a stable foundation.

Stantec: Follow on the review of the design we agree with the comment that the water feed as described above would not be permanent (unless a transfer licence is agreed with EA), and an effective strategy to reverse stagnation will need to be agreed with the ecologist and landscaping designer at the next stage of the design.

The detailed design of the ponds may be addressed via a planning condition.

The Flood Compensation Volumes drawing 1A 1B 1C identifies a 100 year + CC level of 53.73m AOD. The boardwalks are raised to 53.90m AOD with the intent of providing a safe access.

The future development of the raised area of site on the western side of plot 5 will need to include provision for an access route for channel maintenance

Stantec: A safe access is going to be provided with in the wider masterplan development of plot 5.

### Overall Comment

We accept the outputs from the Merton Meadow flood model because the proposal is for Water Compatible development. The model will need to be verified and then reviewed by the Environment Agency before use on any subsequent planning applications.

The ground raising outside of the Red Line boundary is required to deliver the works. The applicant can either extend the red line boundary and reconsult the Environment Agency or raise a new application for ground raising in these areas. This issue needs to be addressed before Land Drainage can support this application.

Stantec: The raising of the ground will form part of the wider masterplan for the area and suitable Material Management Plan (MMP) and earthwork specification will be in place for the works. The MMP and earthworks will be discussed with EA as part of the wider outline masterplan consultation.

As explained above, the detailed design of the proposed basins and offtakes can be addressed by means of a suitably worded condition.

We understand that there are proposals for Herefordshire Council to maintain the basins. The applicant should confirm whether this is the case and which party will be responsible for maintenance. Provision of a Maintenance Plan may be conditioned.

**Stantec:**

It is anticipated and expected that the future maintenance of the brook including of the wetlands and Sustainable Drainage Systems (SuDS) features, will be undertaken by the HCC Management or a suitably qualified management company. We welcome EA's full review of the model, and we will liaise with EA at the consultation stage for the outline wider masterplan.

## **Appendix B**

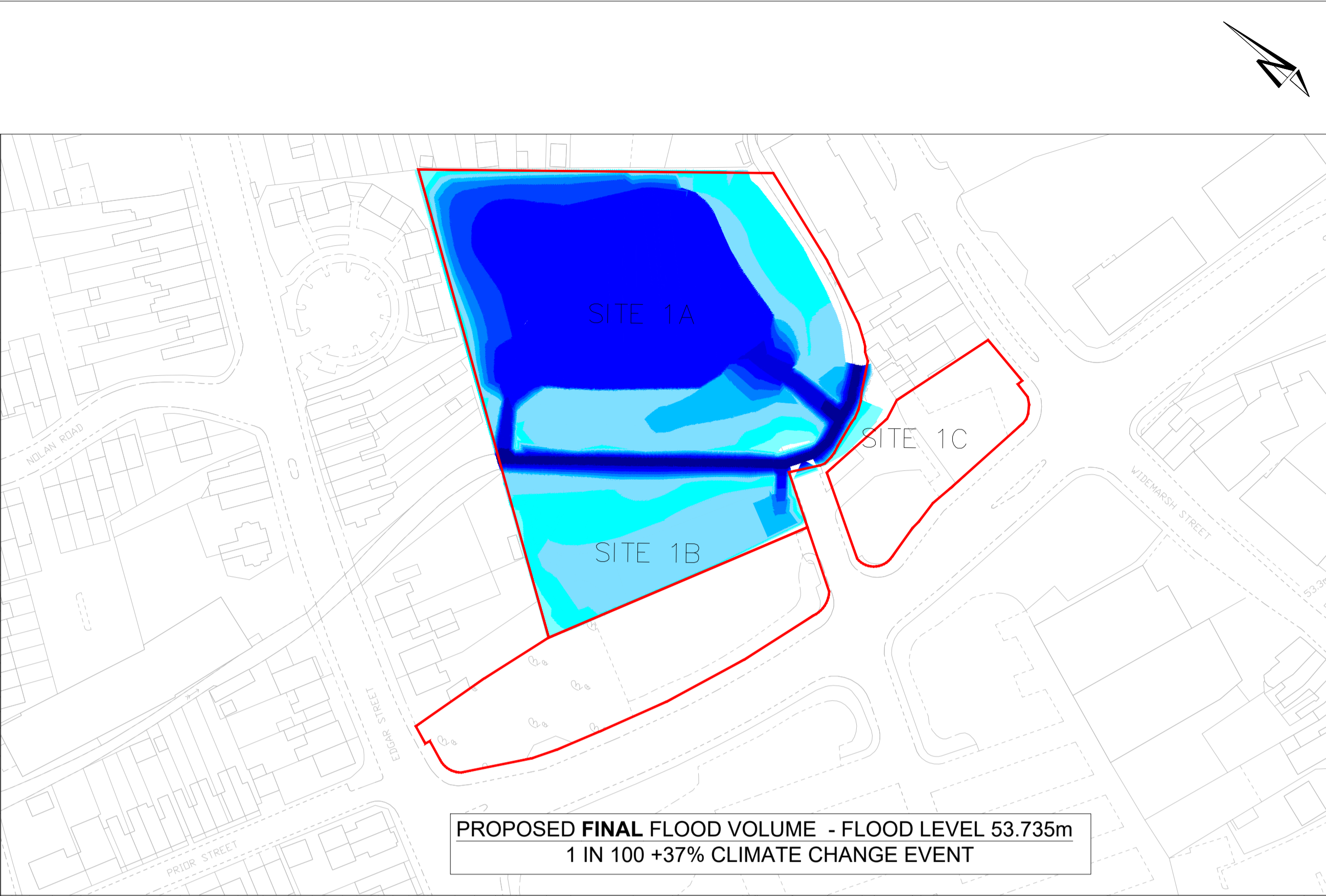
### **B.1 35849-HYD-1-XX-M3-C-90110 Flood Compensation Plan**

### **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

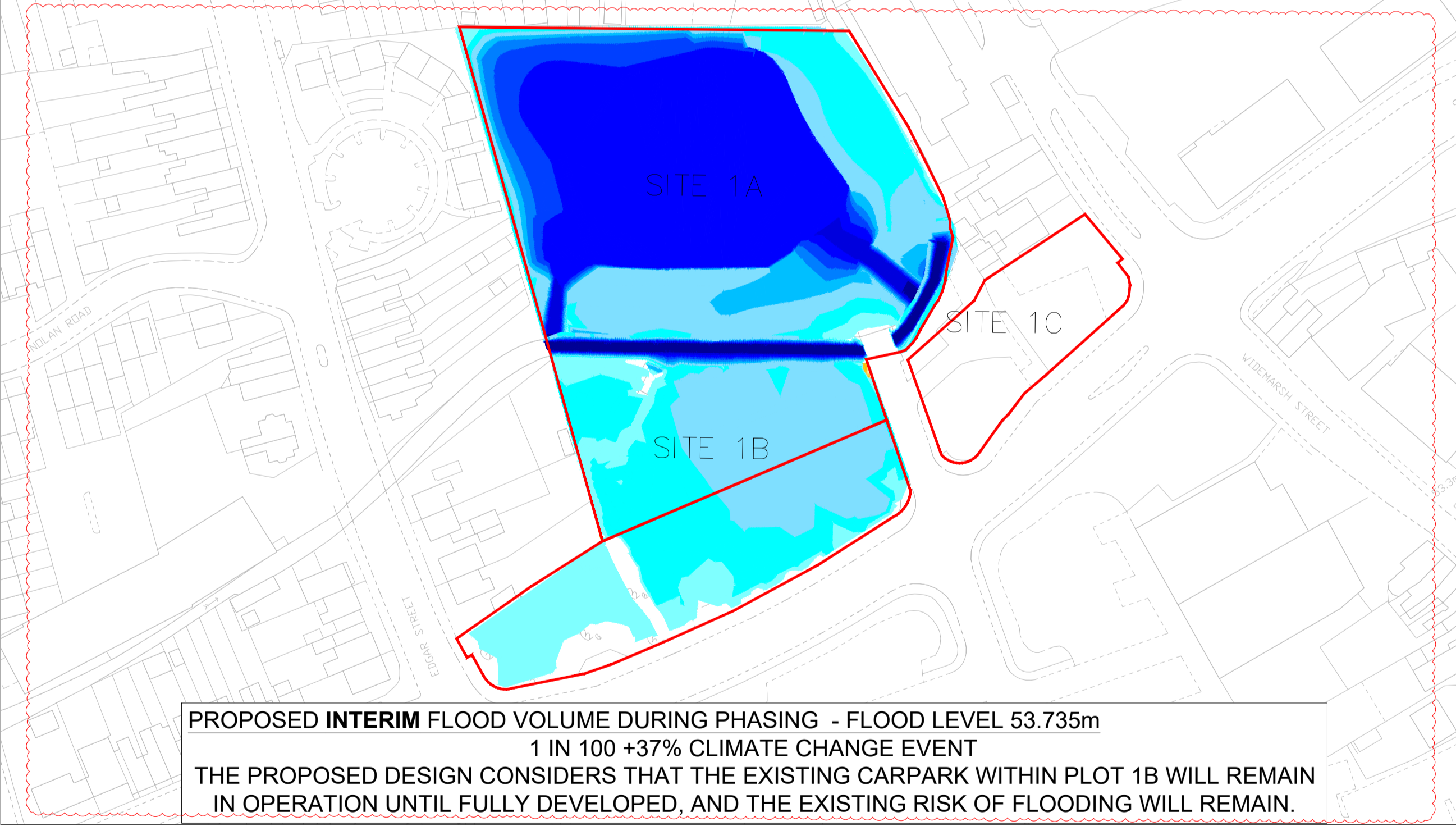
EXISTING VOLUME SUMMARY PLOT 1 AND 2B					
FLOOD WATER LEVEL VOLUME	PLOT 1A- FLOOD STORAGE VOLUME (m³)	PLOT 1B- FLOOD STORAGE VOLUME (m³)	PLOT 1C- FLOOD STORAGE VOLUME (m³)	PLOT 2B - FLOOD STORAGE VOLUME (m³) SEE DRAWING 35849-HYD-2-XX-M3-C-90110	PLOT 1 AND 2B TOTAL - FLOOD STORAGE VOLUME (m³)
EXISTING 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

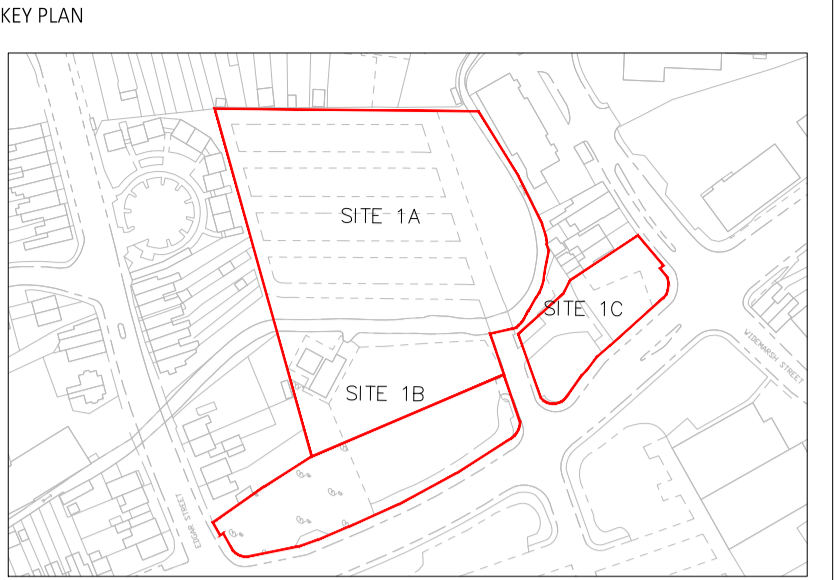
PROPOSED INTERIM PHASING VOLUME SUMMARY PLOT 1						
NAME	PLOT 1A - FLOOD STORAGE VOLUME (m³)	PLOT 1B - FLOOD STORAGE VOLUME (m³)	PLOT 1C - FLOOD STORAGE VOLUME (m³)	PLOT 2B - FLOOD STORAGE VOLUME (m³)	TOTAL FLOOD STORAGE VOLUME (m³)	PROP VOL > EXTG VOL?
PROPOSED FINISHED GROUND LEVEL vs 1:100Y +37%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

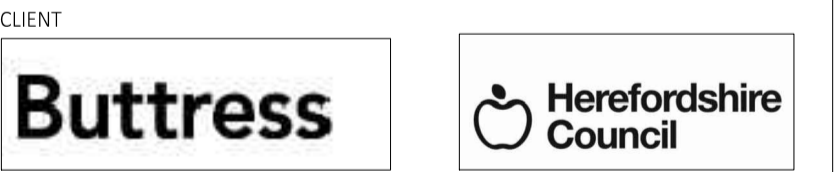
THE EXTENT OF THE SITE BOUNDARY IS TO BE CONFIRMED.

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	Ö.FITZGERALD	24.04.25	V.KARATANOV	24.04.25	V. KARATANOV
FLOOD VOLUMES UPDATED					
P03	Ö.FITZGERALD	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



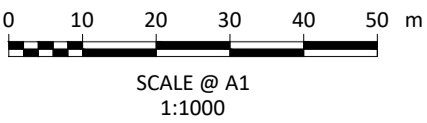
Great Suffolk Yard  
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e: london@hydrock.com

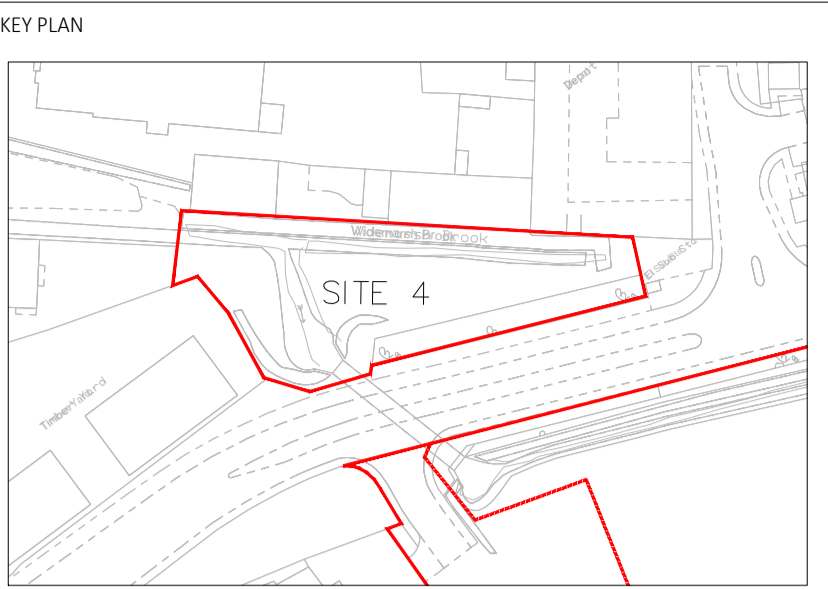


PROJECT  
HEREFORD URBAN VILLAGE

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		





- 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.

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

P02	FLOOD VOLUMES UPDATED					
	Ó.FITZGERALD	17.04.25	V.KARATANOV	17.04.25	V. KARATANOV	17.04.25
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

  
now  


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e: london@hydrock.com

CLIENT



PROJECT  
HEREFORD URBAN VILLAGE

TITLE  
FLOOD COMPENSATION VOLUMES PLAN  
SITE 4

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



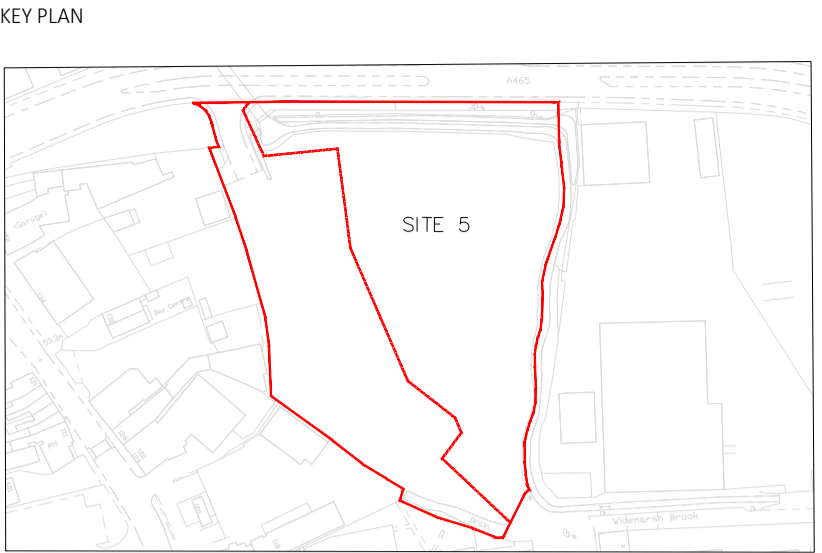
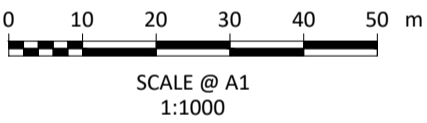
EXISTING FLOODPLAIN STORAGE EXTENTS - FLOOD LEVEL 53.248m  
1 IN 100 + 37% CLIMATE CHANGE EVENT

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	

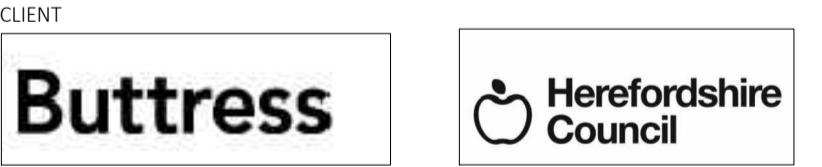


- NOTES
- THE VOLUMES PROVIDED ARE AN APPROXIMATION ONLY AND ARE BASED ON CURRENT DESIGN LEVELS.
  - THE VOLUMES PROVIDED ARE BASED ON THE CLIENT SUPPLIED TOPOGRAPHICAL SURVEY.
  - A DESIGN FLOOD LEVEL OF 53.248m AOD IN THE 1 IN 100 YEAR + 37% CC EVENT HAS BEEN USED IN THE CALCULATION OF FLOOD STORAGE 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>						



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**

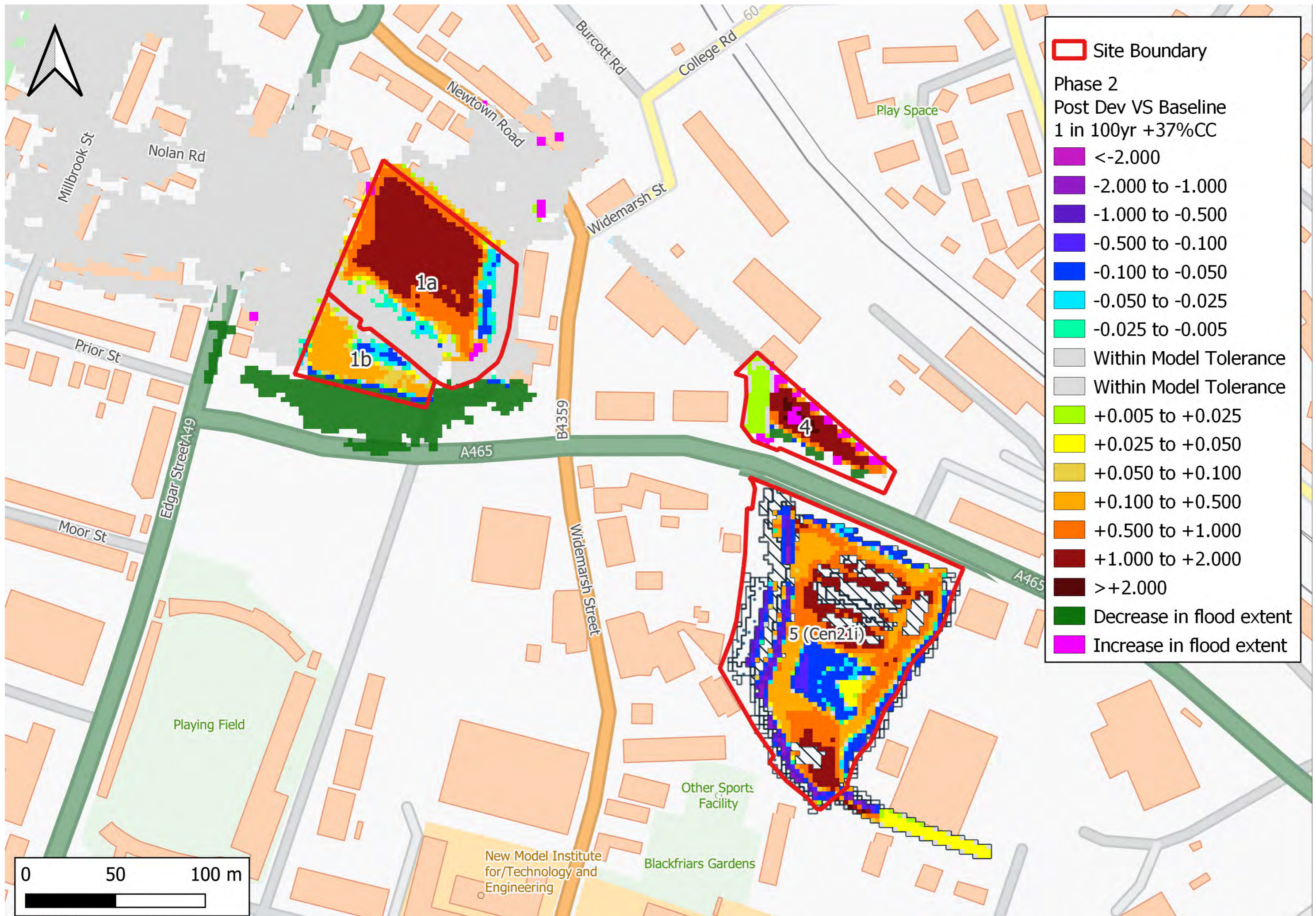
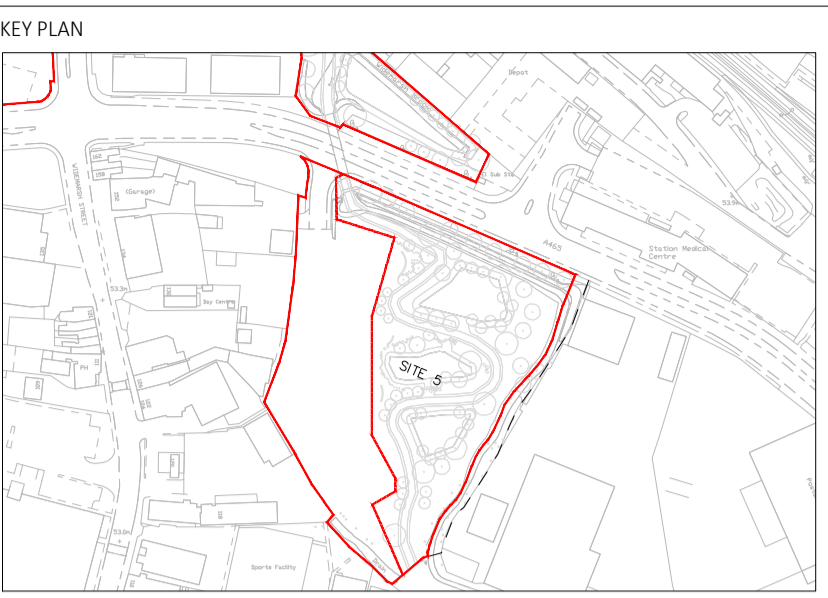
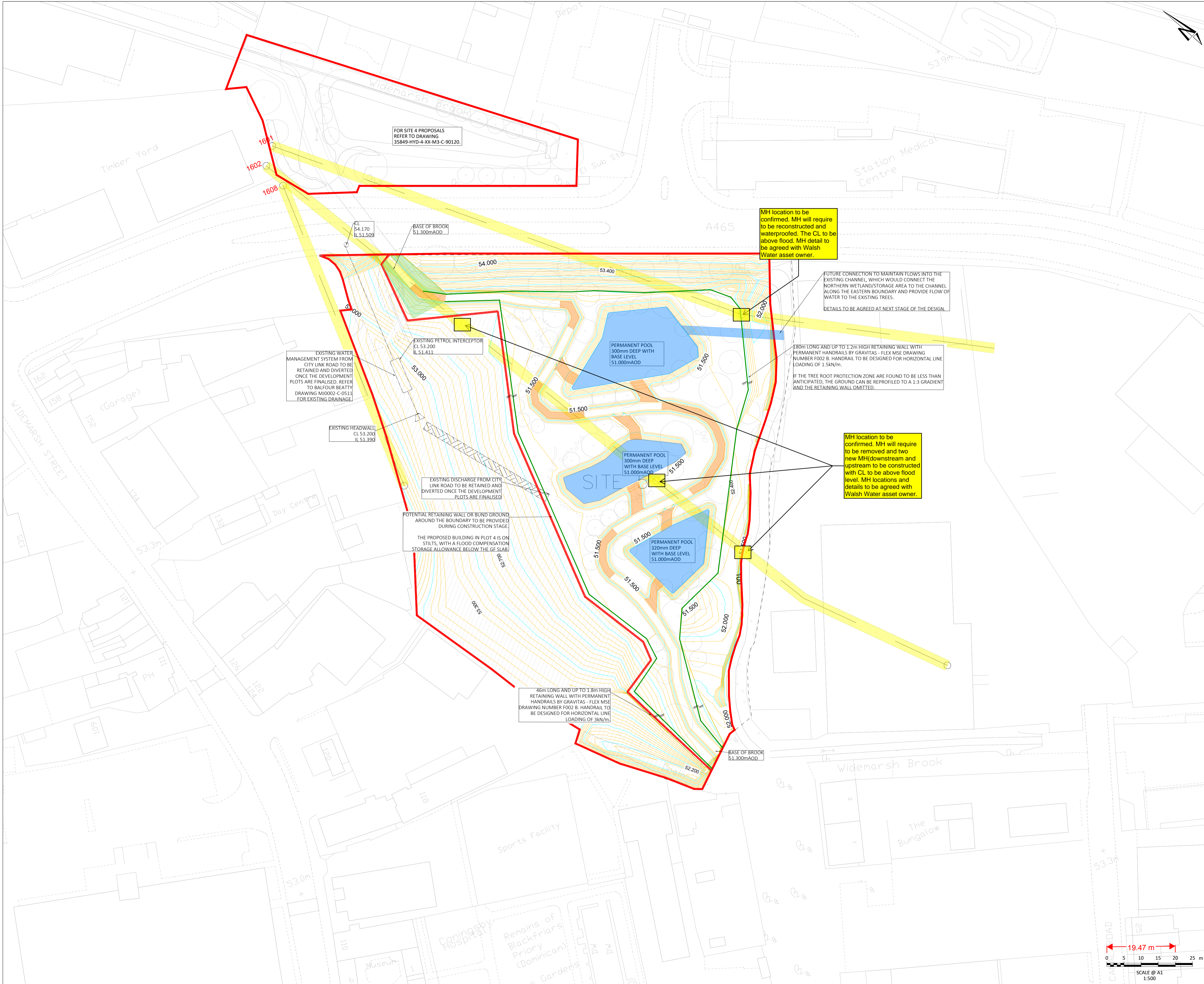


Figure showing the difference in the extent of the flood between the existing baseline model and the post-development model

## **Appendix D**

- D.1 Sketch showing the proposed remedial work to the existing sewer in plot 5.**



- NOTES
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT HYDROCK AND THIRD PARTY DRAWINGS AND SPECIFICATIONS.
  2. THE CONTRACTOR SHALL CONDUCT THE WORKS WITH DUE REGARD FOR THE ECOLOGICAL AND ENVIRONMENTAL REQUIREMENTS OF THE SCHEME.
  3. THE DRAWING SHALL BE USED FOR THE INTENDED PURPOSE ONLY.
  4. THIS DRAWING HAS BEEN BASED ON INFORMATION PROVIDED BY OTHER PARTIES AND HYDROCK DO NOT WARRANT THE ACCURACY OF THIS INFORMATION.
  5. 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.
  6. HYDROCK IS NOT RESPONSIBLE FOR CHECKING DIMENSIONS ON SITE.
  7. HYDROCK IS NOT RESPONSIBLE FOR SETTING OUT GRID LINES, BUILDING LINE, ETC.
  8. TEMPORARY WORKS DESIGN ASSOCIATED WITH THE CONSTRUCTION OF THE WORKS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  9. 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.
  10. 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.
  11. 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.
  12. EXISTING TOPOGRAPHICAL SURVEY FROM AZIMUTH LAND SURVEYS LIMITED, DWG REFERENCE BB3585 01-02 RECEIVED ON 28/11/2024.
  13. TREE SURVEY FROM ALL SILVA TREE CONSULTANCY, DWG REFERENCE 15429-Tree\_Survey\_Plan\_ASTC RECEIVED ON 12/03/2025.
  14. FOR EXTERNAL DETAILS REFER TO DRAWING 35849-HYD-XX-XX-DR-C-91010.

- LEGEND :
- MAJOR CONTOURS (0.500m INTERVALS)
  - MINOR CONTOURS (0.100m INTERVALS)
  - AREAS OUTSIDE OF FAS WORKS
  - BROOK RADIUS BEND DETAILS BY GRAVITAS - FLEX MSE DRAWING NUMBER F089
  - PEDESTRIAN BRIDGE REQUIRED BY OTHERS
  - SEWER EASEMENT
  - EXISTING BANK SLOPE STABILITY RETAINED
  - ANCHORING TRENCH

THE EXTENT OF THE SITE BOUNDARY IS TO BE CONFIRMED.

P02	UPDATED RED LINE BOUNDARIES				
	O.FITZGERALD	12.05.25	V.KARATANOV	12.05.25	V. KARATANOV
P01	INITIAL ISSUE				
	O.FITZGERALD	29.04.25	V.KARATANOV	29.04.25	V. KARATANOV
REV	REVISION NOTES/COMMENTS				
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY

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CLIENT

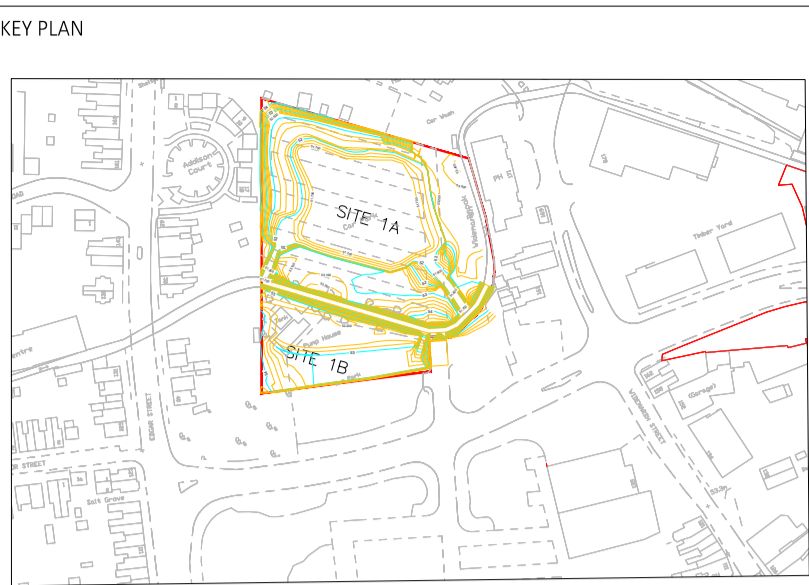
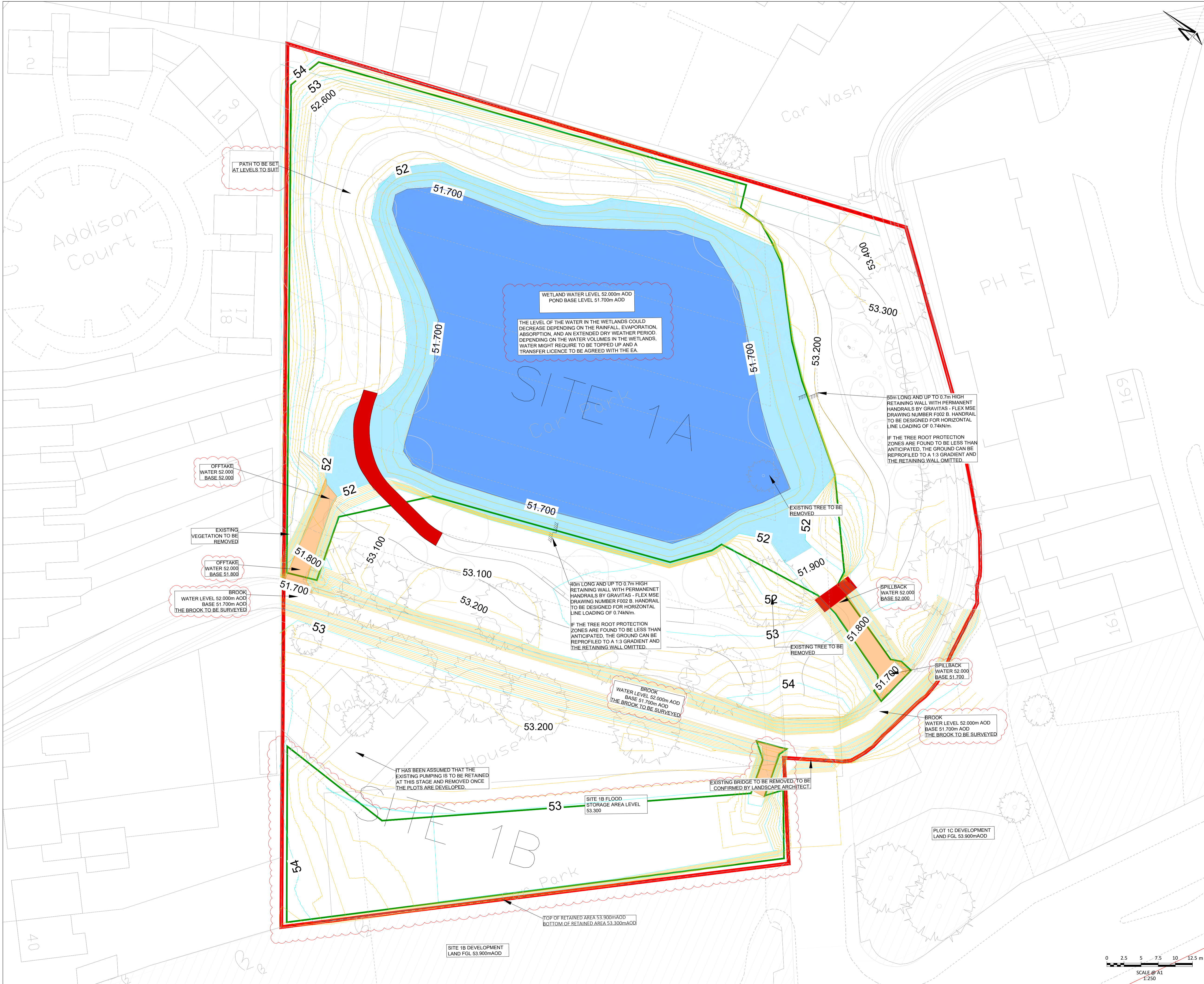
PROJECT  
MERTON MEADOWS  
FLOOD ALLEVIATION SCHEME

TITLE  
PLOT 5  
PROPOSED CONTOURS

HYDROCK PROJECT NO. 35849		SCALE @ A1 1:500	
STATUS DESCRIPTION SUITABLE FOR INFORMATION			STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 35849-HYD-5-XX-M3-C-90120			REVISION P02

## **Appendix E**

### **E.1 Proposed contour drawing 35849-HYD-1-XX-M3-C-90130 for plot 1**



- NOTES
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT HYDROCK (NOW STANTEC) AND THIRD PARTY DRAWINGS AND SPECIFICATIONS.
  2. THE CONTRACTOR SHALL CONDUCT THE WORKS WITH DUE REGARD FOR THE ECOLOGICAL AND ENVIRONMENTAL REQUIREMENTS OF THE SCHEME.
  3. THE DRAWING SHALL BE USED FOR THE INTENDED PURPOSE ONLY.
  4. THIS DRAWING HAS BEEN BASED ON INFORMATION PROVIDED BY OTHER PARTIES AND HYDROCK (NOW STANTEC) DO NOT WARRANT THE ACCURACY OF THIS INFORMATION.
  5. 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.
  6. HYDROCK (NOW STANTEC) IS NOT RESPONSIBLE FOR CHECKING DIMENSIONS ON SITE.
  7. HYDROCK (NOW STANTEC) IS NOT RESPONSIBLE FOR SETTING OUT GRID LINES, BUILDING LINE, ETC.
  8. TEMPORARY WORKS DESIGN ASSOCIATED WITH THE CONSTRUCTION OF THE WORKS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  9. 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.
  10. 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.
  11. 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.
  12. THE PROPOSED SITE LAYOUT IS BASED ON THE FOLLOWING ASSUMPTIONS:
    - 12.1. ALL EXISTING SURFACE WATER DRAINAGE REMOVED.
    - 12.2. 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.
    - 12.3. ALL BOARDWALKS ARE DESIGNED BY SPECIALIST AND ARE TO WITHSTAND A DESIGN LIFE OF 50 YEARS.
    - 12.4. 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.
    - 12.5. THE PROPOSED BUILDING IN PLOT 1B IS ON STILTS, WITH A FLOOD COMPENSATION STORAGE ALLOWANCE BELOW THE GF SLAB.
    - 12.6. THE DESIGN OF ALL RETAINING STRUCTURES IS TO BE DONE BY SPECIALISTS.
    - 12.7. THE EXISTING BRIDGE IS TO BE RETAINED.
  13. 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.
  15. FOR EXTERNAL DETAILS REFER TO DRAWING 35849-HYD-XX-XX-DR-C-91010.

- LEGEND :
- MAJOR CONTOURS (0.500m INTERVALS)
  - MINOR CONTOURS (0.100m INTERVALS)
  - AREAS OUTSIDE OF FAS WORKS
  - BROOK RADIUS BEND DETAILS BY GRAVITAS - FLEX MSE DRAWING NUMBER F069
  - PEDESTRIAN BRIDGE REQUIRED BY OTHERS
  - ANCHORING TRENCH



THE EXTENT OF THE SITE BOUNDARY IS TO BE CONFIRMED.

UPDATED PROPOSED LEVELS					
P02	J.HO	27.06.25	V.KARATANOV	27.06.25	V. KARATANOV
ISSUED FOR INFORMATION					
P01	O.FITZGERALD	24.04.25	V.KARATANOV	24.04.25	V. KARATANOV
REVISION NOTES/COMMENTS					
REV	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY

  
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PROJECT  
HEREFORD URBAN VILLAGE

TITLE  
PROPOSED CONTOURS  
PLOTS 1A & 1B

HYDROCK PROJECT NO. 35849	SCALE @ A1 1:250	STATUS S2
STATUS DESCRIPTION FOR INFORMATION		REVISION P02
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 35849-HYD-1-XX-M3-C-90120		