

Monbank, Newport
Residential Development



Monmouthshire Housing Association

Flood Consequence Assessment

2nd Issue

May 2024



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CARDIFF, CF11 9AG

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Revision History

Revision	Revision date	Details	Authorized by	Position
A	21/05/2024	Updated Site Layout	Stephen Davis	Director
B	04/10/2024	Updated Engineering	Thomas Pugh	Associate Director

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1. Introduction

PHG Consulting is involved in a project located in Newport and has been appointed to undertake a drainage strategy report to support a planning application for a residential development at Monbank, Newport.

The FCA is compliant with TAN15 (2004) and Planning policy Wales. The new FMfP (Flood Map for Planning) has also been included as these maps represent a more accurate extents of Flood Zones, as explained in a letter from Welsh Government dated 15 December 2021, reference MA-JJ-3967-21.

Existing Site

The existing site is brownfield. The development site is split into two areas either side of Monmouth Castle Drive and covers a combined area of 0.91 ha. It is located just off B4237, Newport, at the National Grid reference ST303867. Site location is presented in Figure 1 below.



Figure 1. Site Location Plan. OS Grid Reference ST303867

2. Flood Consequence Assessment

The assessment will examine all potential sources of flooding pertaining the site and the immediate vicinity, determine the risk (flood frequency) and the effects (flood consequences) of flooding. In Wales, planning policy relating to flooding is governed by Technical Advice Note (TAN) 15: development and flood risk. This assessment has been prepared in accordance with TAN15.

Flood Maps – DAM

The Natural Resources Wales (NRW) have produced Development Advice Map (DAM) that is in accordance with TAN15, all of Wales has been assigned a flood zone. DAM is the currently used map to accompany the current TAN15 (2004).

According to DAM the site is positioned within Flood Zone B, i.e., area is known to have been flooded in the past evidenced by sedimentary deposits. TAN15 advises to check the extent of 0.1% AEP flooding in the context of site boundary.

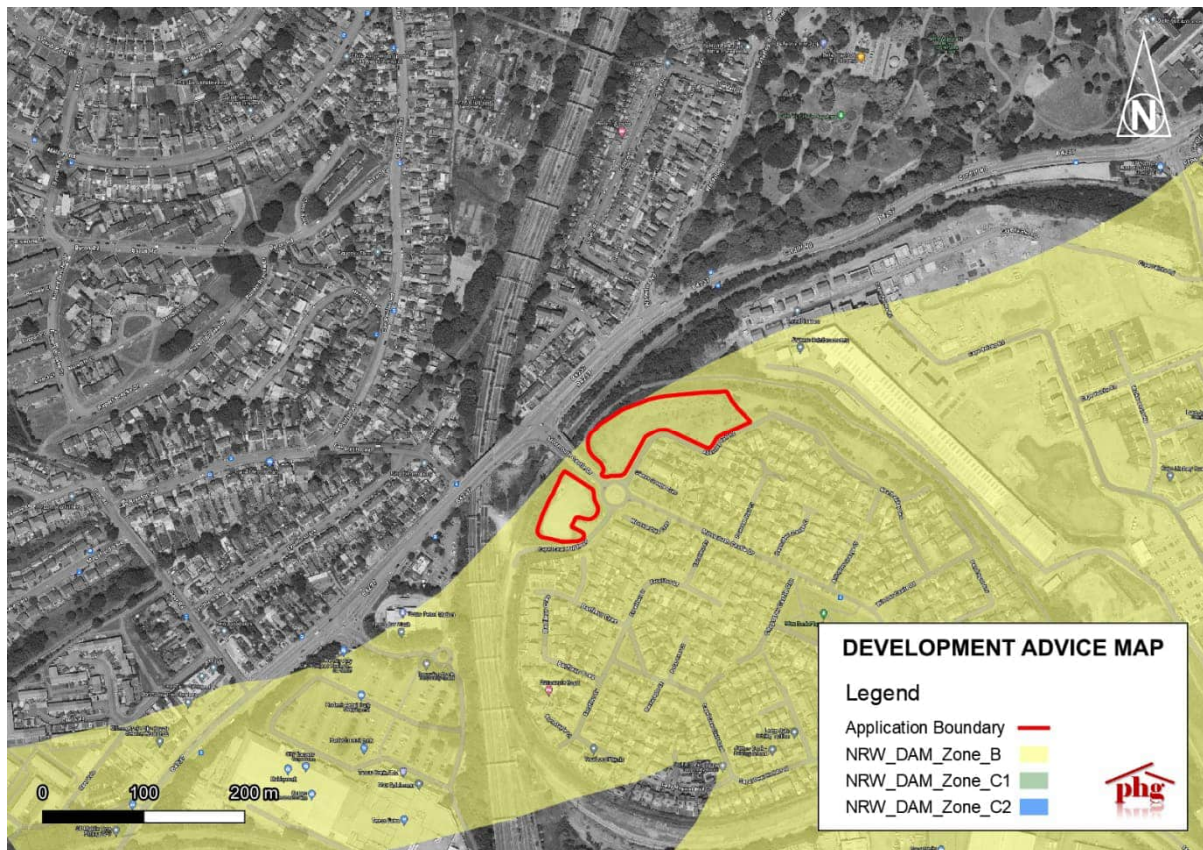


Figure 2. DAM

Table 1 in conjunction with maps included in Appendix B illustrates the Flood Risks associated with the site from all sources according to TAN15 (2004).

As per TAN15, Figure 1:

Table 1. Technical Advice Note (TAN) 15: development and flood risk *Figure 1*

Description of Zone		Use within the precautionary framework
Considered to be at little or no risk of fluvial or tidal/coastal flooding.	A	Used to indicate that justification test is not applicable and no need to consider flood risk further.
Areas known to have been flooded in the past evidenced by sedimentary deposits.	B	Used as part of a precautionary approach to indicate where site levels should be checked against the extreme (0.1%) flood level. If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further.
Based on Environment Agency extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal)	C	Used to indicate that flooding issues should be considered as an integral part of decision making by the application of the justification test including assessment of consequences.
Areas of the floodplain which are developed and served by significant infrastructure, including flood defences.	C1	Used to indicate that development can take place subject to application of justification test, including acceptability of consequences.
Areas of the floodplain without significant flood defence infrastructure.	C2	Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered.

Development Category – Flood Zones Compatibility to Flood Map for Planning

The development site is classified as *Highly vulnerable development*¹ and its design life is 100 years². The Flood Map for Planning (FMfP) maps, which are advisory only, have been included in the assessment. As confirmed in the letter from Welsh Government dated 15 December 2021, the FMfP represents better and more up-to-date information on areas at flood risk than the DAM.

Flood Map for Planning - Rivers

The site is located in DAM Zone B as per Technical Advice Note 15. The site has been checked against the Flood Map for Planning to assess the risk of flooding from rivers, see Figure 3 below. The site is outside the flood zone, i.e. Flood Zone 1.

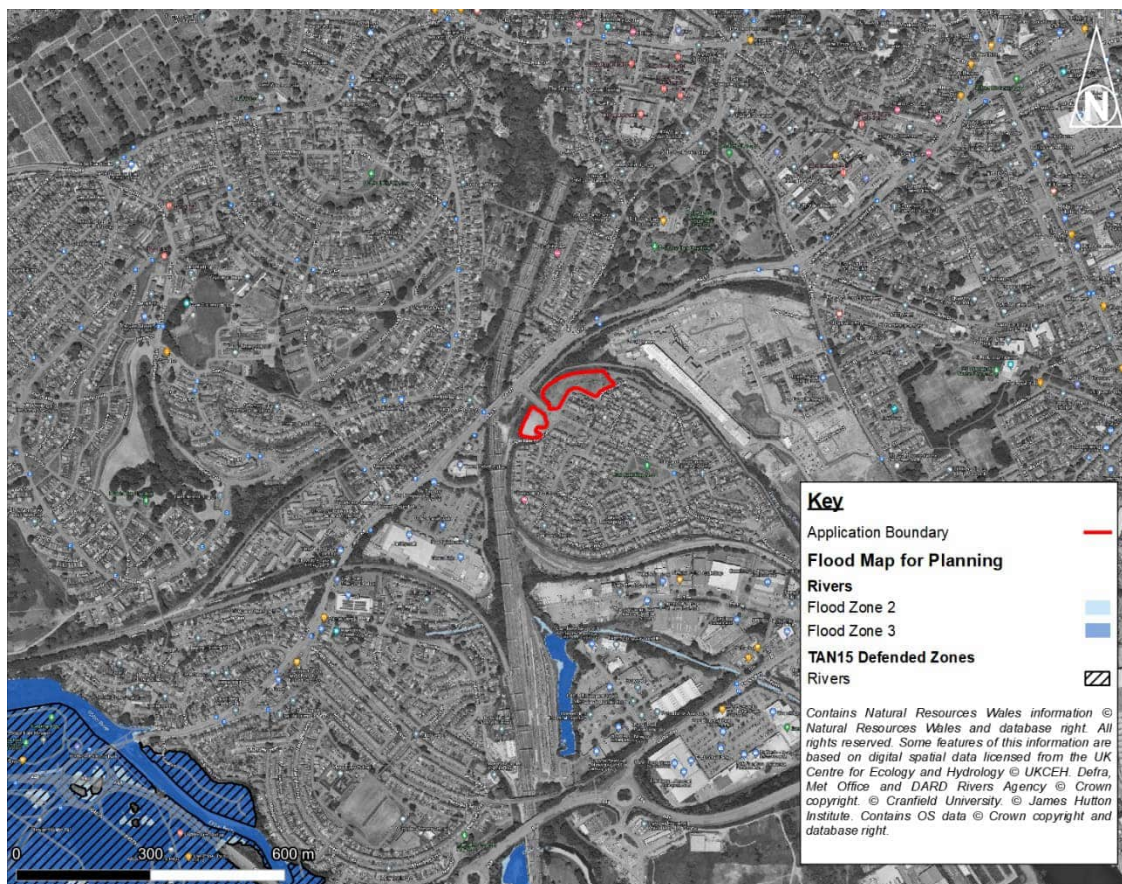


Figure 3. NRW – Flood Map for Planning - Flood Zone Rivers

Flood Map for Planning - Seas

The site is located in Flood Zone 1 from Sea, which aligns with the DAM.

¹ Technical Advice Note15: Development and Flood Risk (December 2021), Figure 3

² Guidance on Climate Change Allowances for Planning Purposes, CL-03-16, Welsh Government



Figure 4. NRW – Flood Map for Planning - Flood Zone Seas

Flood Map for Planning - Surface Water and Small Water Courses

The site is located entirely outside Flood Zone 2 or Flood Zone 3 of Surface Water and Small Watercourses. The site will be positively drained post development, therefore the extents of Flood Zones from Surface Water and Small Watercourses are unlikely to change.



Figure 5. NRW – Flood Map for Planning - Surface Water and Small Watercourses

Impact on flooding elsewhere

In line with TAN15, the development must insure no increase in flooding elsewhere.

Given the site is located outside of the Flood Zones from Sea, Rivers, and Surface Water, and the fact that the development will be positively drained, there will be no adverse effects on flooding elsewhere.

Therefore, it is considered that in an event of flooding, the development will not result in an increase of flooding elsewhere.

Summary of flood risk

Given the site is located outside the Flood Zone from Sea, Rivers, and Surface Water and Small Watercourses, it is concluded that on the grounds of flood risk, the proposed development site is compliant with Planning Policy Wales and TAN15.

3. Conclusions

- The proposed development site is of 0.91 ha plan area. The proposed development is of residential use and is classed as highly vulnerable development.
- The proposed development is shown to be in Zone B (DAM). Flood Map for Planning identifies it to be outside Flood Zones from Sea, Rivers, and Surface Water and Small Watercourses.
- The proposed development will not result in an increase in flooding elsewhere.
- It is concluded that on the grounds of flood risk, the proposed development site is compliant with Planning Policy Wales and TAN15.

Appendix A Site Location Plan

Site Location Plan		Scale: 1 in 1800 @ A4		Key Application Boundary —
Project: 2460 - Monbank, Newport Produced by: Pat Obermajer Printed on: 19.02.2024 Client: Monmouthshire Housing Association	OS Grid Reference: ST303867	PHG Consulting 107 Cowbridge Rd East, Cardiff CF11 9AG		



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Appendix B NRW Maps

Development Advice Map (TAN15 2004)

Flood Map for Planning

Flood Map for Planning - Flood Map for Planning - Surface Water and Small Watercourses

Flood Map for Planning - Rivers

Flood Map for Planning - Sea

Development Advice Map

Project: 2460 - Monbank, Newport
Produced by: Pat Obermajer
Printed on: 21.02.2024
Client: Monmouthshire Housing Association

OS Grid Reference: ST303867

Scale: 1 in 5000 @ A3

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Key

- Application Boundary
- Development Advice Map
- Zone B
- Zone C1
- Zone C2



The **Development Advice Map (DAM)** shows areas at risk of flooding for the purposes of land-use planning.

Zone A Considered to be at little or no risk of fluvial or tidal/coastal flooding.

Zone B Areas known to have been flooded in the past, evidenced by sedimentary deposits.

Zone C Based on Environment Agency extreme flood outline, equal to or greater than 0.1% (river, tidal, or coastal)

Zone C1 Areas of the floodplain which are developed and served by significant infrastructure, including flood defences.

Zone C2 Areas of the floodplain without significant flood defence infrastructure.

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Flood Map for Planning

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Printed on: 21.02.2024
Client: Monmouthshire Housing Association

OS Grid Reference: ST303867

Scale: 1 in 4000 @ A3

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Key

Application Boundary

Flood Map for Planning

Rivers

Flood Zone 2

Flood Zone 3

Seas

Flood Zone 2

Flood Zone 3

Surface Water and Small Watercourses

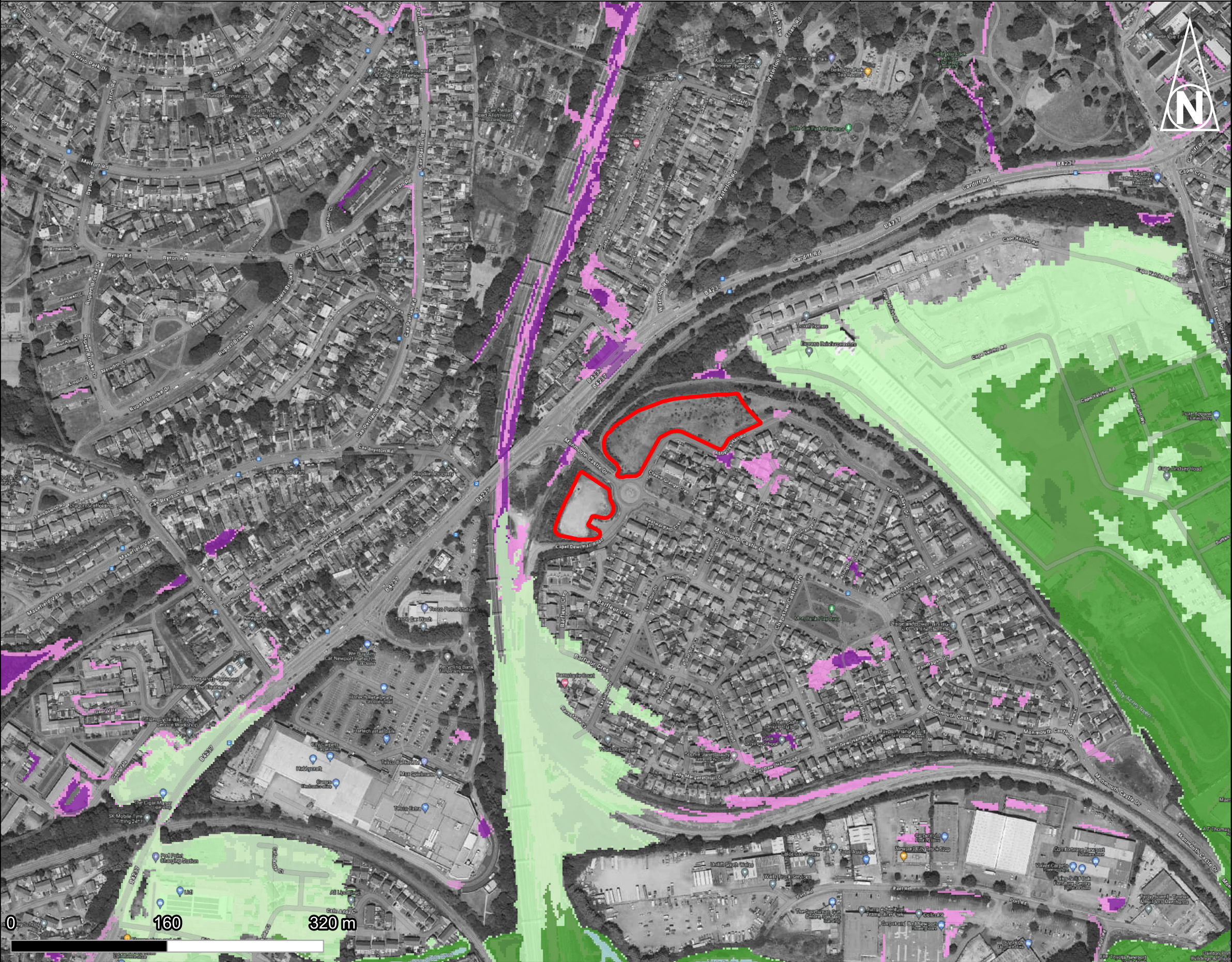
Flood Zone 2

Flood Zone 3

TAN15 Defended Zones

Rivers

Sea



Flood Zone 3 displays the extent of flooding from:

- rivers with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- the sea with a 0.5% (1 in 200) chance or greater of happening in any given year, including an allowance for climate change.
- Surface water & small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.

Flood Zone 2 displays the extent of flooding from:

- Rivers with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
- the Sea with less than 0.5% (1 in 200) but greater than or equal to 0.1% (1 in 1,000) chance of flooding in any given year, including an allowance for climate change.
- Surface water & small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.

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Flood Map for Planning - Surface Water and Small Watercourses

Scale: 1 in 2500 @ A3



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OS Grid Reference: ST303867

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Key

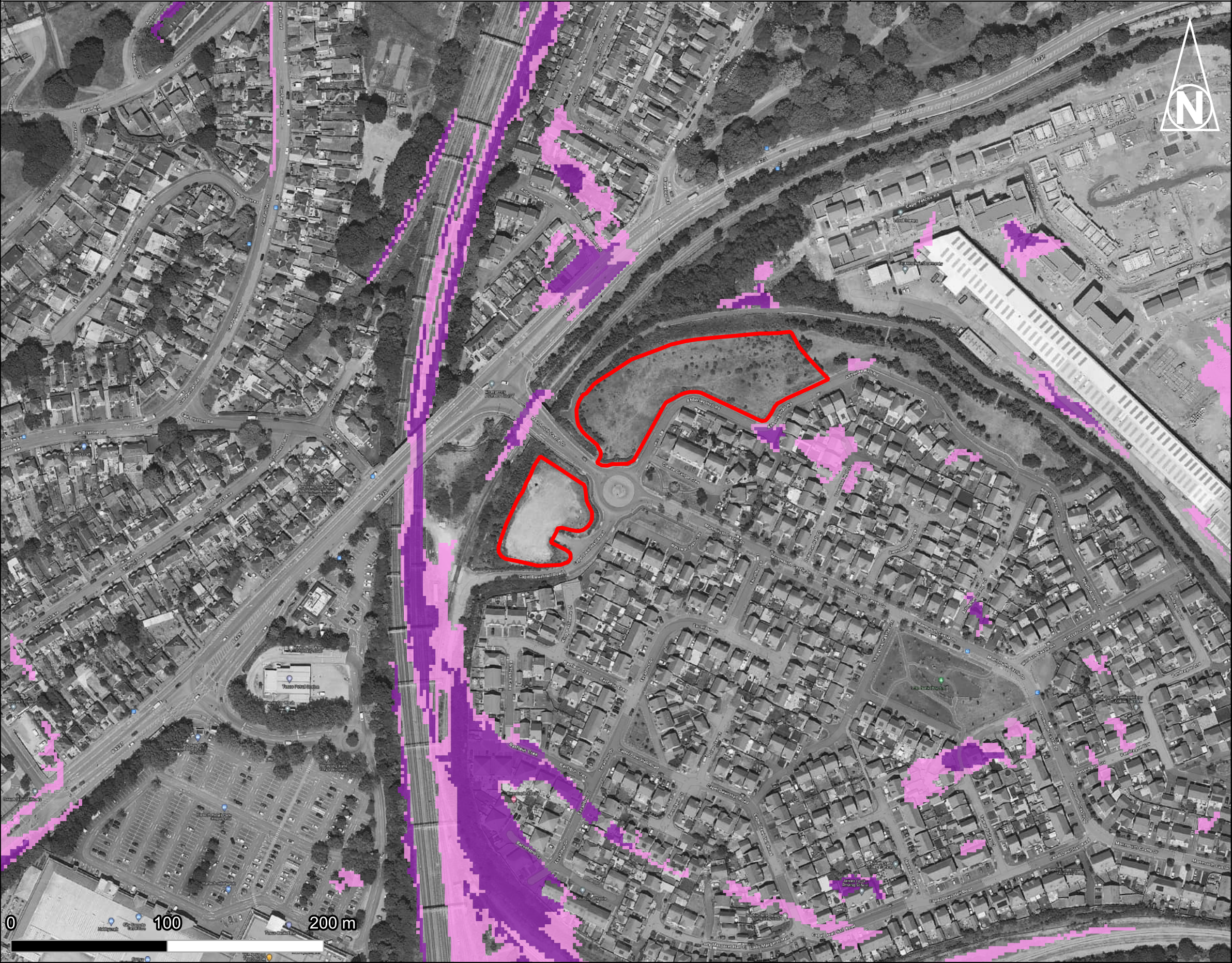
Application Boundary

Flood Map for Planning

Surface Water and Small Watercourses

Flood Zone 2

Flood Zone 3



Flood Zone 3 displays the extent of flooding from:

- rivers with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- the sea with a 0.5% (1 in 200) chance or greater of happening in any given year, including an allowance for climate change.
- Surface water & small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.

Flood Zone 2 displays the extent of flooding from:

- Rivers with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
- the Sea with less than 0.5% (1 in 200) but greater than or equal to 0.1% (1 in 1,000) chance of flooding in any given year, including an allowance for climate change.
- Surface water & small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.

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Flood Map for Planning - Rivers

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Client: Monmouthshire Housing Association

OS Grid Reference: ST303867

Scale: 1 in 8000 @ A3

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Key

- Application Boundary
- Flood Map for Planning
- Rivers
- Flood Zone 2
- Flood Zone 3
- TAN15 Defended Zones
- Rivers



Flood Zone 3 displays the extent of flooding from:

- rivers with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- the sea with a 0.5% (1 in 200) chance or greater of happening in any given year, including an allowance for climate change.
- Surface water & small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.

Flood Zone 2 displays the extent of flooding from:

- Rivers with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
- the Sea with less than 0.5% (1 in 200) but greater than or equal to 0.1% (1 in 1,000) chance of flooding in any given year, including an allowance for climate change.
- Surface water & small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.

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Flood Map for Planning - Sea

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Printed on: 21.02.2024
Client: Monmouthshire Housing Association

OS Grid Reference: ST303867

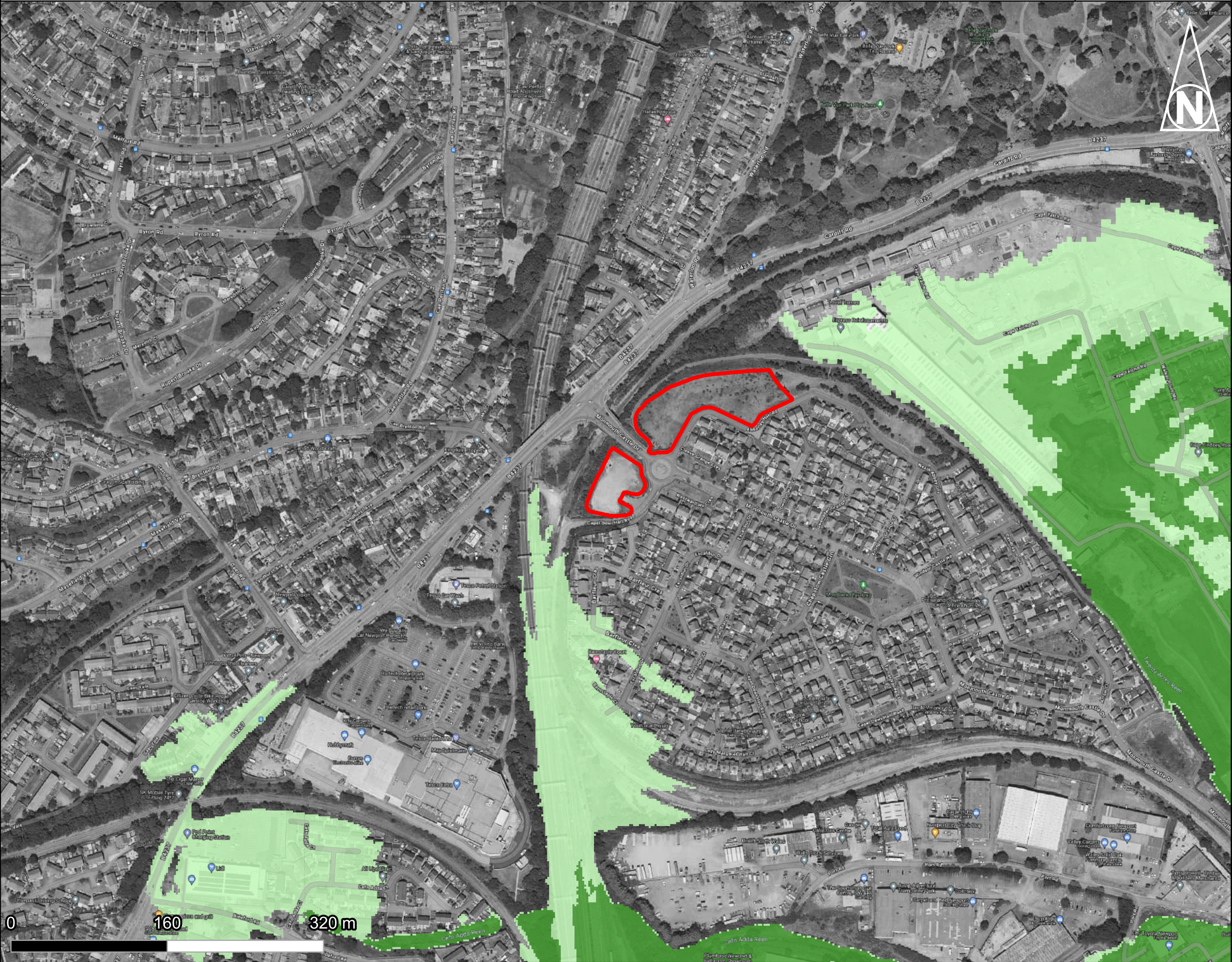
Scale: 1 in 4000 @ A3

PHG Consulting
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Cardiff
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Key

- Application Boundary
- Flood Map for Planning
- Seas
- Flood Zone 2
- Flood Zone 3
- TAN15 Defended Zones
- Sea



Flood Zone 3 displays the extent of flooding from:

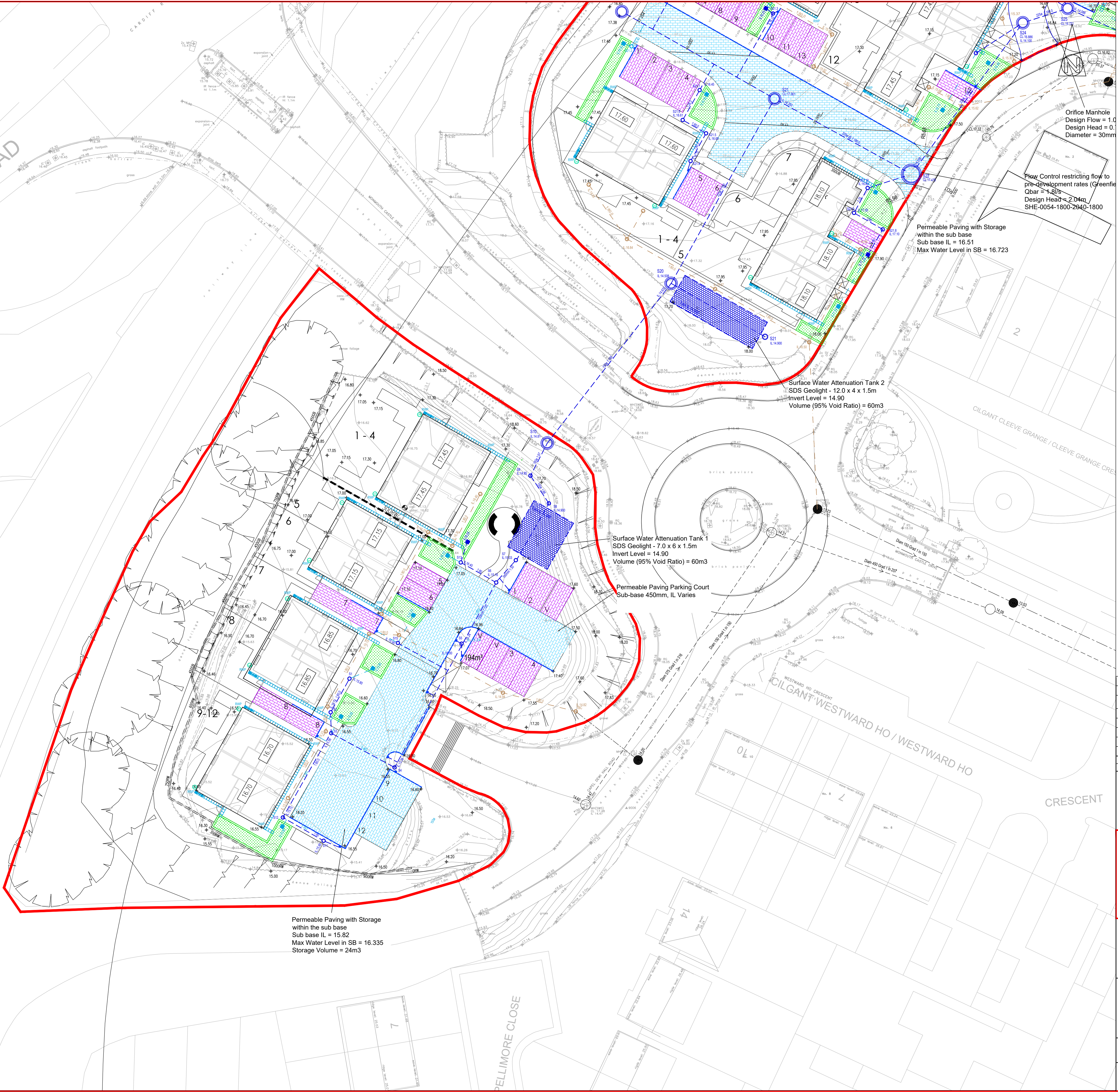
- rivers with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- the sea with a 0.5% (1 in 200) chance or greater of happening in any given year, including an allowance for climate change.
- Surface water & small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.

Flood Zone 2 displays the extent of flooding from:

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- the Sea with less than 0.5% (1 in 200) but greater than or equal to 0.1% (1 in 1,000) chance of flooding in any given year, including an allowance for climate change.
- Surface water & small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.

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Appendix C Proposed Engineering Layout

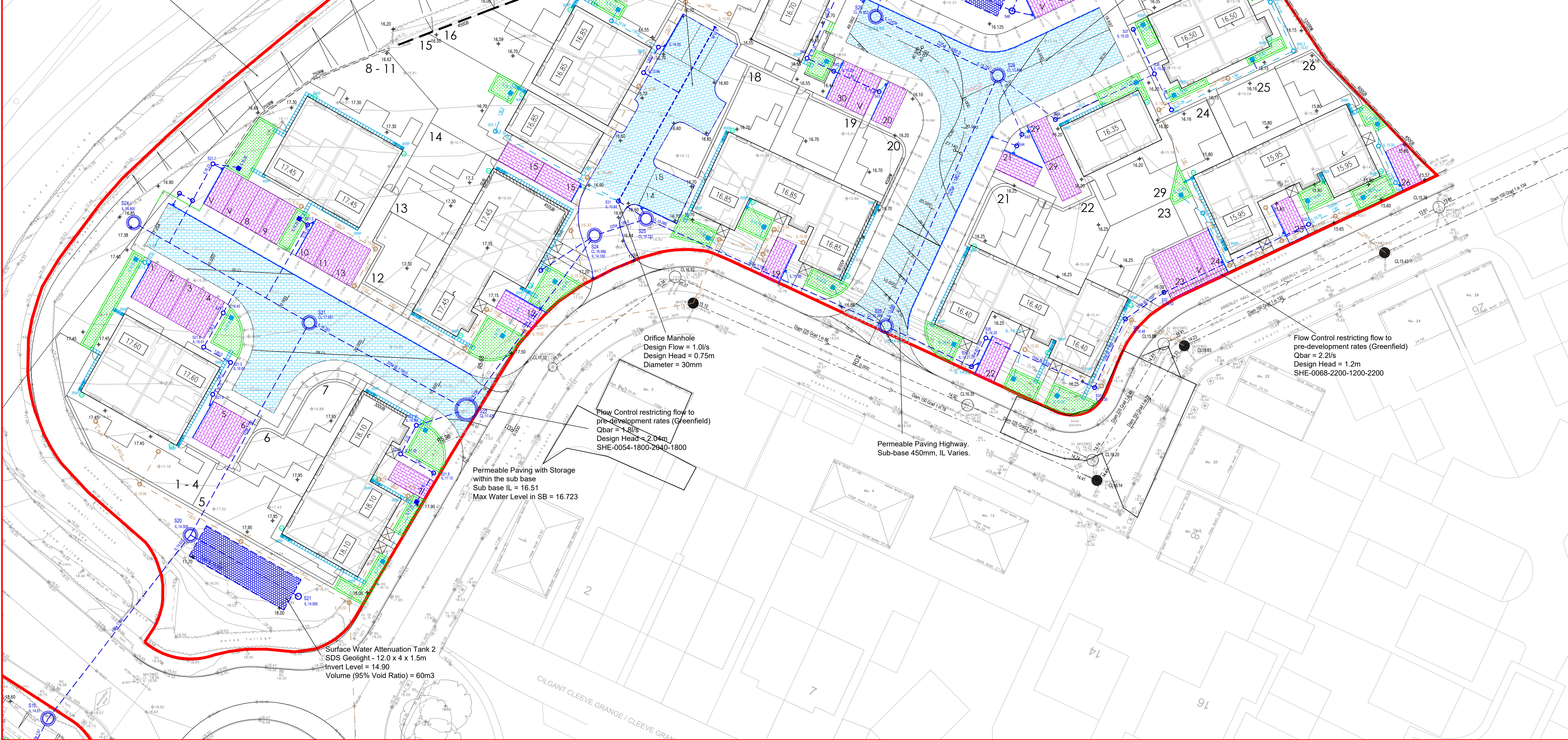


Date:	Job no.	Drg. no.	Rev.
Feb-24	2460	100-1	G

Legend

- 179.50 Finished Floor Level (FFL) +/-450mm
- Retaining Wall - (Height shows difference in levels - Finished Levels at bottom and top)
- Proposed Finished Ground Level
- Additional Underbuild (below d.p.c. as shown)
- Tanking
- Gravel Board Retainment (Max 450mm)
- Steps (to be Part M Compliant)
- 1:2m gradient batters to be used - subject to approval by a suitable qualified Geo-technical Engineer.
- Existing DCWW Surface Water Sewer
- Existing DCWW Foul Sewer
- Proposed Foul Water Sewer (S104)
- Proposed Surface Water Sewer
- Perforated pipe underdrain - Permeable Paving
- SuDS Bioretention Area with overflows and perforated underdrain
- SuDS Permeable Paving (private)
- SuDS Permeable Paving (adopted) Fully lined with perforated under drain
- Private surface water drain (1000 unless shown otherwise) and inspection chamber <3m deep with restricted access depths over 1.2m (Type 3)
- Adoptable surface water drain (1000 unless shown otherwise) and inspection chamber <3m deep with restricted access depths over 1.2m (Type 3)
- Fin Drain to Permeable Paving (private parking bays)
- RWP Discharging to Bio-retention area via channel drain
- Foul Water lateral and IC's (adoptable) <3m deep with restricted access depths over 1.2m (Type 3)
- DCWW to adopt under the S104 agreement
- Foul Water lateral and IC's (private)
- Water Butt - No required per plot (private)
- Surface Water Attenuation Cells - SDS Geolight

SLOPE REGRADED TO 1:2 TO ACCOMMODATE PROPOSED SITE LEVELS



- GENERAL NOTES**
- Do not scale
 - The contractor is to check and verify all buildings and site dimensions and levels, including sewer invert levels, before works start on site. The contractor is to comply in all aspects with the current Building Legislation, NRSWA1991, British Standards, Building Regulations etc.
 - Positions of existing services/statutory undertakers apparatus adjacent to or crossing proposed excavations are to be checked by the contractor prior to starting work
 - This drawing is to be read in conjunction with and checked against all other drawings, engineering details, specification and any structural, geotechnical or other specialist document provided.
 - Any anomaly or contradiction between any of the above is to be reported to Monmouthshire Housing Association.
 - This drawing is schematic for clarity only, positions of pipe runs and manholes may vary on site due to site conditions

- ROAD AND SEWER ADOPTION NOTES**
- All works for Adoption under a Section 38 Agreement shall be carried out to the approval of Newport Council.
 - All works for Adoption under a Section 104 Agreement shall be carried out to the National Water Council Guide "Sewers for Adoption" 7th Edition and Dwr Cymru Welsh Water's requirements.
 - Street lighting posts to be pegged on site and agreed by the local authority prior to erection commencing.

- DRAINAGE NOTES**
- All private drainage shall be in accordance with BS8301 and relevant sections of Approved Document H of the Building Regulations.
 - The contractor is to check the level of existing sewers being used as outfalls or crossing proposed drainage runs PRIOR to laying any pipes. Any discrepancies are to be reported to PHG Consulting Engineers.
 - Position of soil pipes, stubstacks, WC outlets, rainwater downpipes, etc., positions are to be checked against the house type working drawings.
 - Private house drainage will be flexibly jointed plastic or clay pipework. Diameter 100mm unless shown otherwise.
 - All connections for House Drainage shall be 100mm unless noted otherwise and must extend 500mm behind the back of footway/homezone road. All connections when laid shall be plugged, protected as necessary and marked with a stake for future use.
 - For private drains where cover to pipes is less than 900mm in vehicular areas or 500mm in other areas protection in the form of a 100mm thick concrete pad shall be provided over the pipe granular surround.
 - Where pipes pass through screen walls, footings or retaining walls, Intels are to be provided over. Under buildings pipes shall be surrounded with 150mm thickness of granular material. Where drains pass within 1m of buildings the wall foundation shall be taken down below the invert of the pipe.
 - Where drains do not exceed 600mm deep, plastic or clay access fittings minimum diameter 225mm shall be used. Elsewhere proprietary plastic or precast concrete inspection chambers shall be used. Unless shown otherwise FV inspection chambers are to be 750mm below dpc level and SW chambers and rodding eyes to be 600mm below dpc.
 - All gullies and rainwater downpipes connected directly to drains are to be roddable.
 - All drainage shall be laid upstream and each run between manholes shall be laid complete prior to backfilling. Where this is not practical trial holes or other means of identifying the line and level of services shall be carried out prior to works commencing.
 - All branch drains, or connections, are to discharge to the collectors obliquely, and in the direction of the main flow.
 - All low spots on handstanding areas to have yard gullies unless permeable paving is used.
 - The developer must self-verify and certify that the design criteria, material standards and workmanship specifications for the proposed adoptable sewers are in accordance with those set out in "Sewers for Adoption" 7th Edition, A Section 106 application to connect must be made to the water authority, the developer shall give 21 days' notice prior to connection, and the works may only be undertaken by a SSIP accredited contractor.
 - The foul sewers must achieve a minimum flow velocity of 0.75 m/s at one third design flow or when the sewer has a nominal internal diameter of 100mm or where 10 properties or less are connected the sewer must be laid at minimum of 1:80. Where the sewer has a nominal internal diameter of 150mm and at least 10 dwelling units are connected the sewer will be laid at a minimum gradient of 1:150. The maximum gradient a sewer can be laid is 1:5.
 - The surface water sewers must achieve a minimum flow velocity of 1 m/s at pipe full flow or when the sewer has a nominal internal diameter of 100mm the sewer must be laid at minimum of 1:100. Where the sewer has a nominal internal diameter of 150mm or greater the sewer will be laid at a minimum gradient of 1:150. The maximum gradient a sewer can be laid is 1:5.
 - All inspection chamber and manhole covers should adhere to BS EN 124 and be suitable for where the chambers and manholes are situated.
 - Where sewers are located in proximity or between buildings refer to Figures B.1 and B.2.
 - Where new drains pass beneath existing foundations, the walls/foundations are to be fully supported in the temporary condition. Trenches to be infilled with concrete post-construction with rocker pipes placed either side of the wall, in accordance with the details

Rev.	Date	Details	Amendments	By	CHK.
D	23/10/24	Issued for Full-SAB		TP	SD
C	04/10/24	Engineering updated following SAB comments		TP	SD
B	26/09/24	Layout amended, drainage updated following pre-SAB comments		TP	SD
A	29/07/24	Foul drainage added		TP	TOR
	15/07/24	SUDS strategy updated for Pre-SAB submission		TP	TOR

Client

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Project: **Monmouthshire Housing
Monbank
Newport**

Drawing title: **Engineering Layout
Sheet 2**

Drawn	Chk.	Status	Scale
SJD	TOR	Planning	1:250 @ A1
Date	Job no.	Dwg no.	Rev.
Feb-24	2460	100-2	D