

51 Great Underbank, Stockport, SK1 1NE

Reference: 572 FRA- 001

Feb-24

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Flood Risk Assessment

51 Great Underbank, Stockport, SK1 1NE

Reference: 572 FRA- 001

Report Limitations

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The information presented and conclusions drawn are based on statistical data and are for guidance purposes only.

The study provides no guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of water levels, flow rates and associated probabilities.

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Purpose of this report

- 1.1 RIDA Reports Ltd has been appointed to undertake a Level 2 – Scoping Study Flood Risk Assessment for a development located at SK1 1NE.

Objectives

- 1.2 The objectives of this FRA are to demonstrate the following:
- * Whether the proposed development is likely to be affected by current or future flooding.
 - * Whether the proposed development will increase flood risk elsewhere.
 - * Whether the flood risks associated with the proposed development can be satisfactorily managed.
 - * Whether the measures proposed to deal with the flood risk are sustainable.

Documents Consulted

- 1.3 To achieve these objectives the following documents have been consulted and/or referenced:

The National Planning Policy Framework (NPPF)
CIRIA C753 document The SuDS Manual, 2015
Local Flood Risk Management Strategy (LFRMS)
Level 1 Strategic Flood Risk Assessment (SFRA)
Aerial photographs and topographical survey of the site
British Geological Society Records
Local Council flood Maps
Environment Agency flood maps
The CIRIA publication 'C635 Designing for exceedance in urban drainage— Good practice'

Development Site and Location

- 2.1 The site is located at Great Underbank, Stockport. The nearest post code is SK1 1NE. Refer to appendix A for site location plan.
- 2.2 The current use of the site is a building used for commercial activities. The current use vulnerability classification of the site is Less vulnerable . The site is located in the River Flood Zone 2. Refer to Appendix B for more details.

Development Proposals

- 2.3 The proposed development includes the extension to the rear and vertical of No 51, together with 2 town houses on Pickford's Brow . Refer to Appendix B for layout of the proposed development.
- 2.4 The vulnerability classification of the proposed development is More vulnerable with an estimated lifetime between 50 and 100 years.

Site Hydrology and Hydrogeology

- | | |
|------------------------|---|
| Hydrology | 2.5 The Hempshaw Brook - Tributary of River Mersey is located approximately 1 m away from the development. |
| Aquifer | 2.6 The development is located within a secondary aquifer type A. Aquifers type A consist of permeable layers capable of supporting water supplies at a local rather than strategic scale. They are generally aquifers formerly classified as minor aquifers. |
| Source Protection Zone | 2.7 The site is not located within a Source Protection Zone. |
| Groundwater Levels | 2.8 The ground water levels for this site are unknown. |

Site Geology

- | | |
|----------------------|---|
| Bedrock | 2.9 The British Geological Society records of the site show that it is located within the Manchester Marls Formation - Mudstone. |
| Superficial Deposits | 2.10 The British Geological Society records show that the superficial deposits are River Terrace Deposits (Undifferentiated) - Sand and Gravel. |

National Planning Policy Framework (NPPF)

- 3.1 The NPPF and its technical guidance is a set of planning policies with the key objective to contribute to the achievement of sustainable development. As part of it, they ensure that flood risk and sustainability are taken into account during the planning process. This ensures that developments are not located in flood risk areas and directs developments to lower risk areas. The NPPF applies a sequential risk-based approach to determining the suitability of land for development in flood risk areas. The NPPF also encourages developers to seek opportunities to reduce the overall level of flood risk through the layout of the development and the application of Sustainable Drainage Systems (SuDS).

The Flood and Water Management Act (2010)

- 3.2 The Flood and Water Management Act aims to reduce the flood risk associated with extreme weather events. It provides a robust management of flood risk for people, homes and businesses and also encourages the use of SuDS for developments. A robust SuDS strategy should take into account the recommendations given in this Flood Risk Assessment.

Strategic Flood Risk Assessment (SFRA)

- 3.3 Planning policy with regard to development and flood risk in the area is detailed in the Local Flood Risk Management Strategy (LFRMS) which was published in 2016. The proposed development site is located within the administrative boundary of the Stockport Metropolitan Borough Council.
- 3.4 The SFRA commits to direct new development to locations at lowest flood risk. The SFRA provides information on the levels and flood hazards that could result from flooding. The Environment Agency flood zone maps and the SFRA ignore the presence of existing flood defences when defining the potential extent of flooding.
- 3.5 This report follows the guidance given in the Local Flood Risk Management Strategy by evaluating the flood risk and providing relevant flood mitigation.

- 4.1 The NPPF guidance states that the sequential test "is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding."

Applicability of the Sequential Test

- 4.2 The flood risks were determined by identifying all the sources of flooding and assessing their possible impact and likelihood to the development. It is confirmed that the development is:
- In Flood Zone 2
 - At Medium risk of surface flooding
 - At very low risk of groundwater flooding
 - Outside of a critical drainage area
 - Outside of an area with sewer flooding
- 4.3 The planning policy framework except this type of development from the application of the sequential test. The development has been made safe and has not increase the risk to other properties.

Exception Test

- 4.4 Fluvial flood risk for this minor development was assessed using the Environment Agency Flood Zone Maps and the standing advice approach recommended in the NPPF guidelines. The standing advice takes into account the size of the development and the flood risk vulnerability of land uses.

Step 1
Flood Zone categorisation

- 4.5 The proposed development falls within The Environment Agency Flood Zone 2. The Flood Zone 2 is considered to have a medium probability of flooding with a 1000 to 100 years annual probability or 0.1-1.0%AEP.

Step 2
The Exception Test

- 4.6 The Exception Test is not required for this development.

- 5.1 The development has been assessed for all potential flood risks such as river and tidal flood risk, surface water flooding, flooding from groundwater, reservoir flood risk and drainage systems.

Historic Flooding

- 5.2 The site does not benefit from flood defences. The Environment Agency records show that the area around the site has not been flooded in the past.

Flooding from river and sea

- 5.3 The proposed development falls within The Environment Agency Flood Zone 2. The Flood Zone 2 is considered to have a medium probability of flooding with a 1000 to 100 years annual probability or 0.1-1.0%AEP.
- 5.4 The climate change allowances are as per the vulnerability of the development , the design life of the building , and the flood zone classification. The climate change allowance for this development is 41%. The nearest climate change allowance provided by the Environment Agency has been taken to complete this assessment.
- 5.5 The levels provided by the Environment Agency are shown in table 1 below. Further details are provided in appendix D.

Flood Levels

Return Period	Flood Level (m AOD)
1 in 20 (5%)	Nil
1 in 100 (1%)	Nil
1 in 200 (0.5%)	44.46
1 in 100 + 70%(CC)	45.26
1 in 1000 (0.1%)	46.63

- 5.6 The flood risk levels taken to complete this assessment is: 45.26m AOD. This is the 1 in 100 + 70%(CC) level.
- 5.7 A flood water level of 45.26m AOD is expected. The depth of water is 0.24m.

Surface water (overland flows) flood risk

5.8 The Environment Agency maps show that the flood risk from surface water is medium. The residual risk of localised ponding remains likely. The Environment Agency surface water flood risk maps are defined through application of a specific procedure based on digital terrain models and assumptions regarding losses to infiltration and/or urban drainage. The surface water flood maps is defined by the Environment Agency as follows.

5.9 *"The nationally produced surface water flood mapping only indicates where surface water flooding could occur as a result of local rainfall. It does not fully represent flooding that occurs from:*

- Ordinary watercourses*
- Drainage systems or public sewers caused by catchment-wide rainfall events*
- Rivers*
- Groundwater*

Due to the modelling techniques used, the mapping picks out depressions in the ground surface and simulates some flow along natural drainage channels, rivers, low areas in floodplains, and flow paths between buildings. Although the maps appear to show flooding from ordinary watercourses, they should not be taken as definitive mapping of flood risk from these as the conveyance effect of ordinary watercourses or drainage channels is not explicitly modelled. Also, structures (such as bridges, culverts and weirs) and flood risk management infrastructure (such as defences) are not represented.

The nationally produced surface water flood mapping does not take account of the effect of pumping stations in catchments with pumped drainage. No allowance is made for tide locking, high tidal or fluvial levels where sewers cannot discharge in to rivers or the sea."

5.10 The strategic flood risk for the Stockport Metropolitan Borough Council confirms that the flood risk for the site is Medium.

5.11 On the basis of Environment Agency and the Strategic flood risk assessment's surface water mapping, together with the presence of surface water drainage systems at the site and surrounding area it is concluded that the site is at Medium risk of flooding from surface water sources. The depth of water is potentially between 300mm and 900mm. For the purpose of this assessment a depth of water of 0.3m has been taken as the most relevant depth to the site.

Flooding from drainage systems in adjacent areas

- 5.12 The council records have been reviewed. The flooding from drainage incidents maps were not found in the Strategic Flood Risk Assessment. Therefore, for the purpose of this report, it has been assumed that the risk of flooding from drainage systems is low.

Reservoirs Risks

- 5.13 The Reservoir Flood Map (RFM) produced by the Environment Agency do not show the risk to individual properties of dam breach flooding. The maps do not indicate or relate to any particular probability of dam breach flooding. The maps were prepared for emergency planning purposes and can be used to help reservoir owners produce on-site plans and the Local Resilience Forum produce off-site plans, and to prioritise areas for evacuation/early warning in the event of a potential dam failure. The RFM shows that the development could be within the possible dam breach flooding path. See Appendix C.

Groundwater flood risk

- 5.14 The British Geological Survey's flood risk susceptibility maps show that the development has limited susceptibility to ground water flooding. The risk from groundwater flood to the site is considered very low. Refer to appendix C for record drawings.

Critical Drainage Areas

- 5.15 The Strategic Flood Risk Assessment was reviewed as part of this assessment. However, it does not show the critical drainage areas within the council. For the purpose of this report, it has been assumed that the site is outside of a notified critical drainage area.

- 6.1 The Flood hazard assessment has demonstrated that the site is:
 - In Flood Zone 2
 - At Medium risk of surface flooding
 - At very low risk of groundwater flooding
 - Outside of a critical drainage area
 - Outside of an area with sewer flooding
- 6.2 Under the NPPF it is necessary to demonstrate that, for any new development on the site, it is possible to provide an adequate level of flood protection for personnel working or living at the development.

Flood Protection

- 6.3 Where possible, flood protection for this development is typically provided by establishing the development's floor levels 300mm above the 1:100 year flood level, including allowance for climate change.
- 6.4 The flood levels have been obtained from the Environment Agency. This information is used to make the fluvial flood risk assessment for this development
- 6.5 The appropriate 1:100+CC reference level for the proposed development site is 45.26 mAOD. The existing ground level at the site is an average of 45.02mAOD. The finished floor should be 45.56mAOD.
- 6.6 The new apartments are located at level 2 with a level of 53 m AOD. The two houses are located at a level of 50.9 m AOD. Therefore the extension and the new house are located above the flood levels and do not require fluvial flood resistant or resilience interventions.
- 6.7 Due to the slopes on the site, it is likely that property walls act as retaining walls. It is recommended that a 3 barrier tanking to the building is provided to prevent groundwater ingress.

7.1 The NPPF specifically stipulates that consideration should be given to potential off-site flood impacts of any proposed development. These off-site impacts are in relation to:

- Surface water management
- Flood flow conveyance, storage and climate change

Surface Water Management

7.2 The surface water run-off will be disposed using SuDS techniques. The aim is to provide a sustainable design that accommodates the proposed attenuation volume and replicated the existing drainage regime using the SuDS hierarchy is shown in the figure below.

7.3 The SuDS techniques highlighted in red below could be used on site. This assessment is based on the ground conditions and the potential discharge points available.

The SuDS Hierarchy (Source:EA Thames region, SuDS a practical guide)

<i>Most Sustainable</i>	<i>SUDS technique</i>	<i>Flood Reduction</i>	<i>Pollution Reduction</i>	<i>Landscape & Wildlife Benefit</i>
	Living roofs	✓	✓	✓
	Basins and ponds - Constructed wetlands - Balancing ponds - Detention basins - Retention ponds	✓	✓	✓
	Filter strips and swales	✓	✓	✓
	Infiltration devices - soakaways - infiltration trenches and basins	✓	✓	✓
	Permeable surfaces and filter drains - gravelled areas - solid paving blocks - porous paviers	✓	✓	
	Least Sustainable	Tanked systems - over-sized pipes/tanks - storms cells	✓	

7.4 With no increase in the rate of surface water discharge from the site, compared to the site in its current configuration, the proposed development would have no adverse impact on surface water flood risk at the site or surrounding area. The SuDS should be designed at detailed project stage.

Flood Flow conveyance and storage

- 7.5 Due to the size of the development and its location on the flood zone, flood compensation for this development is not required.

- 8.1 This flood risk assessment has identified the potential flooding mechanisms that could affect the site. This assessment has concluded that the development site requires additional flood risk mitigation strategies so all the flood risk can be addressed.




Site access and public safety

- 8.2 This assessment has demonstrated that the proposed development will have no adverse impact on flood risk in the area surrounding the site. Available evidence indicates that the development would result in no change in surface water generation. There is therefore no basis to indicate that, with respect to flood risk, the proposed development would have an adverse impact on public safety.
- 8.3 It will be necessary to ensure that all building users are fully informed of procedures to be implemented during a threat of imminent flooding.

Flood Warning and evacuation

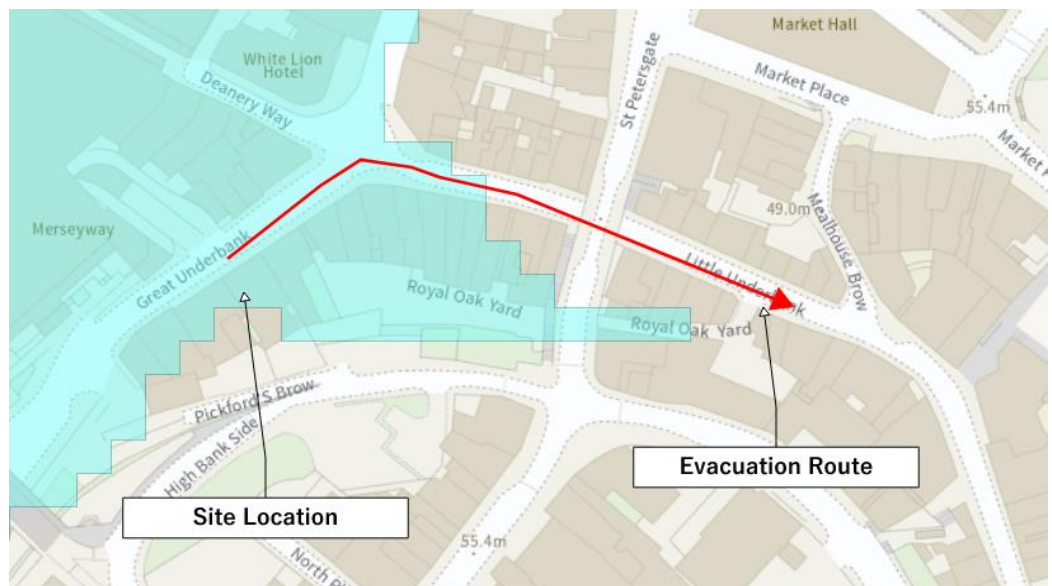
- 8.4 The site is located within an area that is covered by the Environment Agency Flood Alert service. It is recommended that the proposed development is registered with this service to receive early warning of imminent flood hazard.
- 8.6 The occupants of the site are encouraged to sign up to the alerts and should use these to form an appropriate Flood Management and Evacuation Plan tailored to their operations prior to occupation of the site. Table 4 below shows the actions that will be taken for each flood warning.
- 8.7 Action to be taken in the event of an Alarm being Raised or Flood Warning Received:
- Raise the alarm and evacuate the site following the established Fire Drill procedures. The main assembly point is as per the main house fire drill assembly point.
 - Contact Emergency Fire Services (999) if necessary and/or Environment Agency Floodline: (0845 988 1188) if the event was not expected.
 - If safe to do so, locate and turn off key services e.g. water, gas & electricity.
 - Follow the routes below to evacuate the site completely.

Actions that will be taken for each flood warning

Warning	Message	Timing	Action
 FLOOD ALERT	Flooding is possible. Be prepared.	2 hours to 2 days in advance of flooding.	<ul style="list-style-type: none"> - Be prepared for flooding. - Prepare a flood kit.
 FLOOD WARNING	Flooding is expected. Immediate action required.	Half an hour to 1 day in advance of flooding.	<ul style="list-style-type: none"> - Act now to protect your property. - Block doors with flood boards or sandbags and cover airbricks and other ventilation holes. - Move pets and valuables to a safe place. - Keep a flood kit ready. - Move any critical equipment and information to a safe location
 SEVERE FLOOD WARNING	Severe flooding. Danger to life.	When flooding poses a significant threat to life and different actions are required.	<ul style="list-style-type: none"> - Be ready should you need to evacuate from the property. - Co-operate with the emergency services and call 999 if you are in immediate danger.
Warning Removed	No further flooding is currently expected for your area.	Issued when a flood warning is no longer in force.	<ul style="list-style-type: none"> - Flood water may still be around and could be contaminated. - If you've been flooded, ring your buildings and contents insurance company as soon as possible.

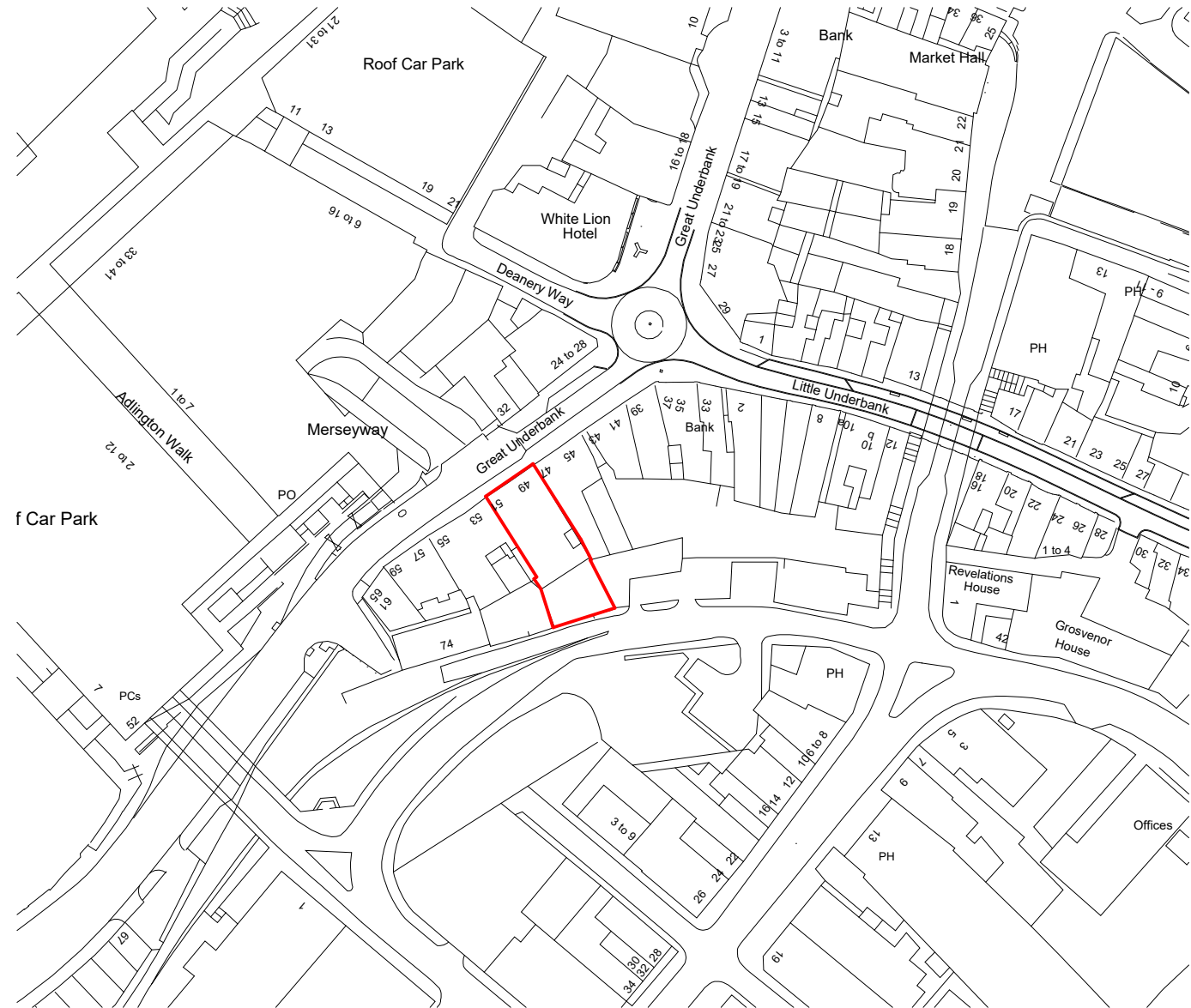
8.8 Safe egress is achievable by following Great Underbank up to Little Underbank, which is shown to be beyond the extent of flooding. See figure below for details.

Evacuation Route



- 9.1 It is concluded that subject to the proposed mitigation measures, the site can be developed in accordance with the provisions of the NPPF and the requirements of the Environment Agency and the local planning authority.
- 9.2 It is proposed that a formal Flood Warning and Emergency Response Plan is developed for the proposed development to communicate flood emergency response procedures to all the occupants of the site.
- 9.3 This report demonstrates that the proposal will be safe, in terms of flood risk, for its design life and will not increase the flood risk elsewhere.

Appendix A



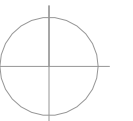
1 0100 PLN - Location Plan

scale: 1 : 1250



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Scale 1:1250
0m 12.5m 37.5m 62.5m



job title
51 Great Underbank Phase 2

DRAFT

drawing title
**GA Site
Location Plan**

client name	project address	status	scale
Kion Developments	51/51A Great Underbank Stockport SK1 1NE	PLANNING drawn SAA checked PCK	1 : 1250 @ A3 current issue 17.01.24

drawing no. **0091-KA-XX-ZZ-DR-A-0100** revision **1**

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Appendix B



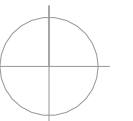
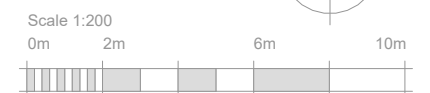
1 PLN - Site Plan

scale: 1 : 200



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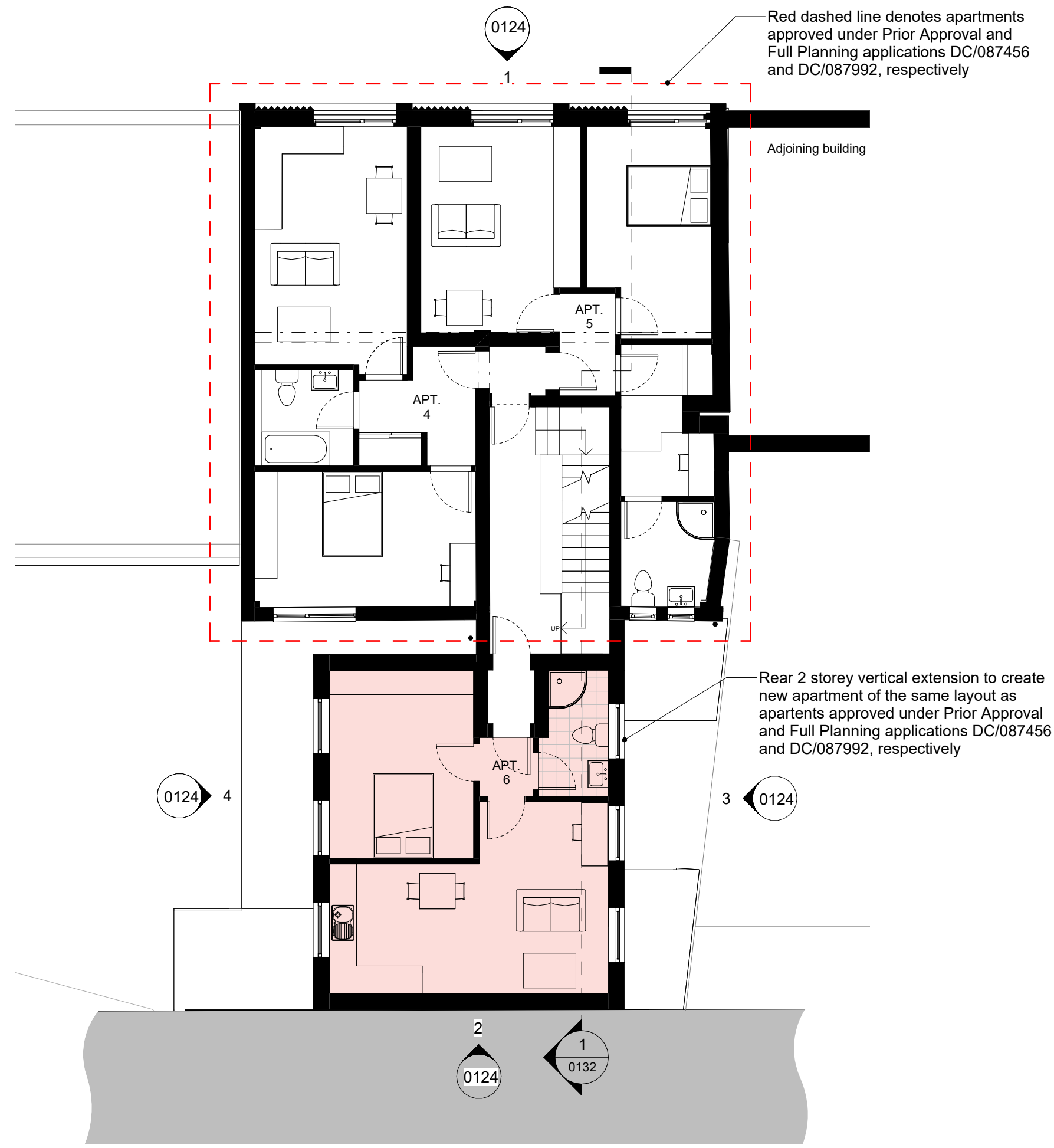
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drawing title
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Proposed Site Plan**

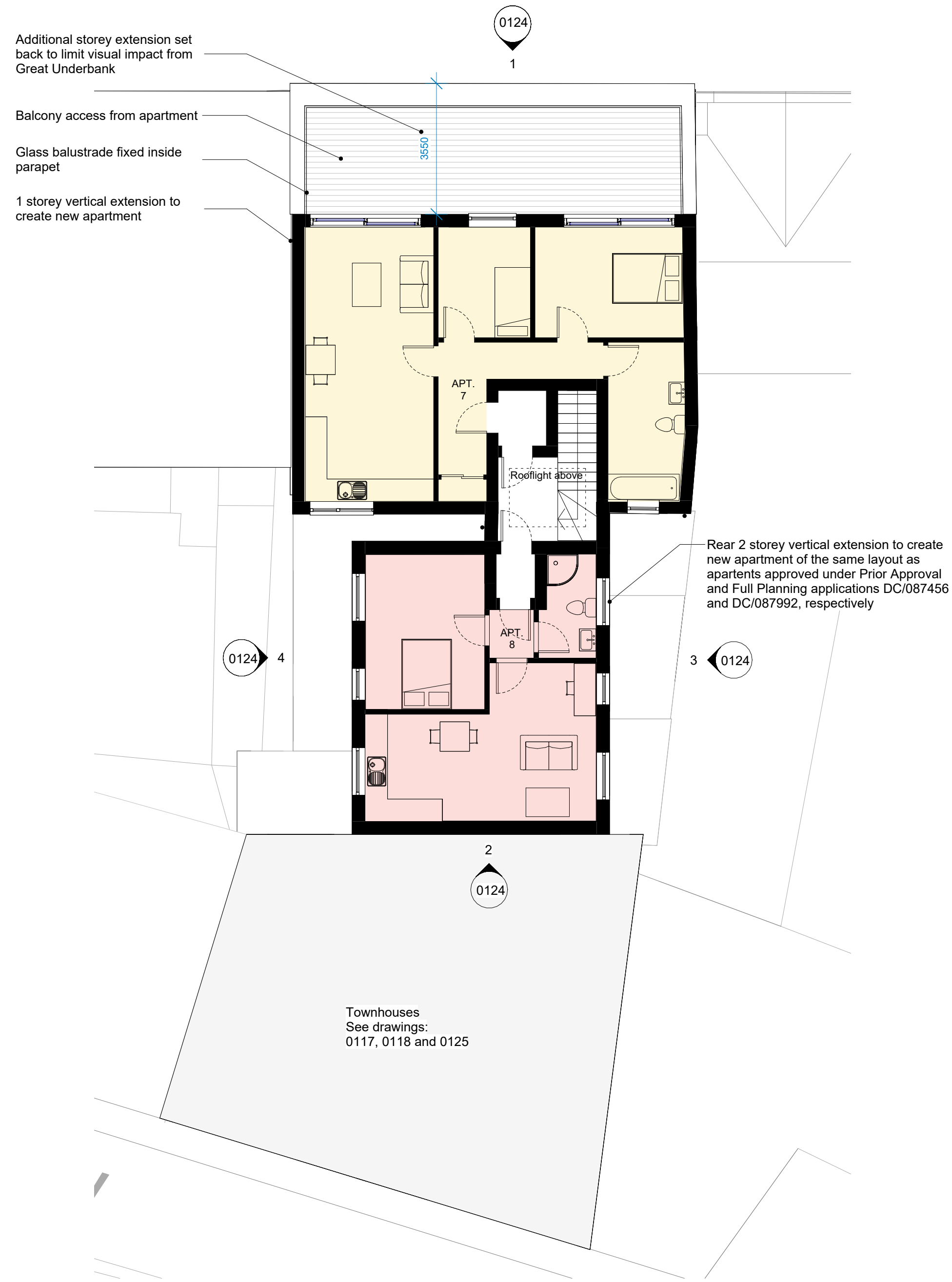
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drawing no.	revision
0091-KA-XX-ZZ-DR-A-0101	1

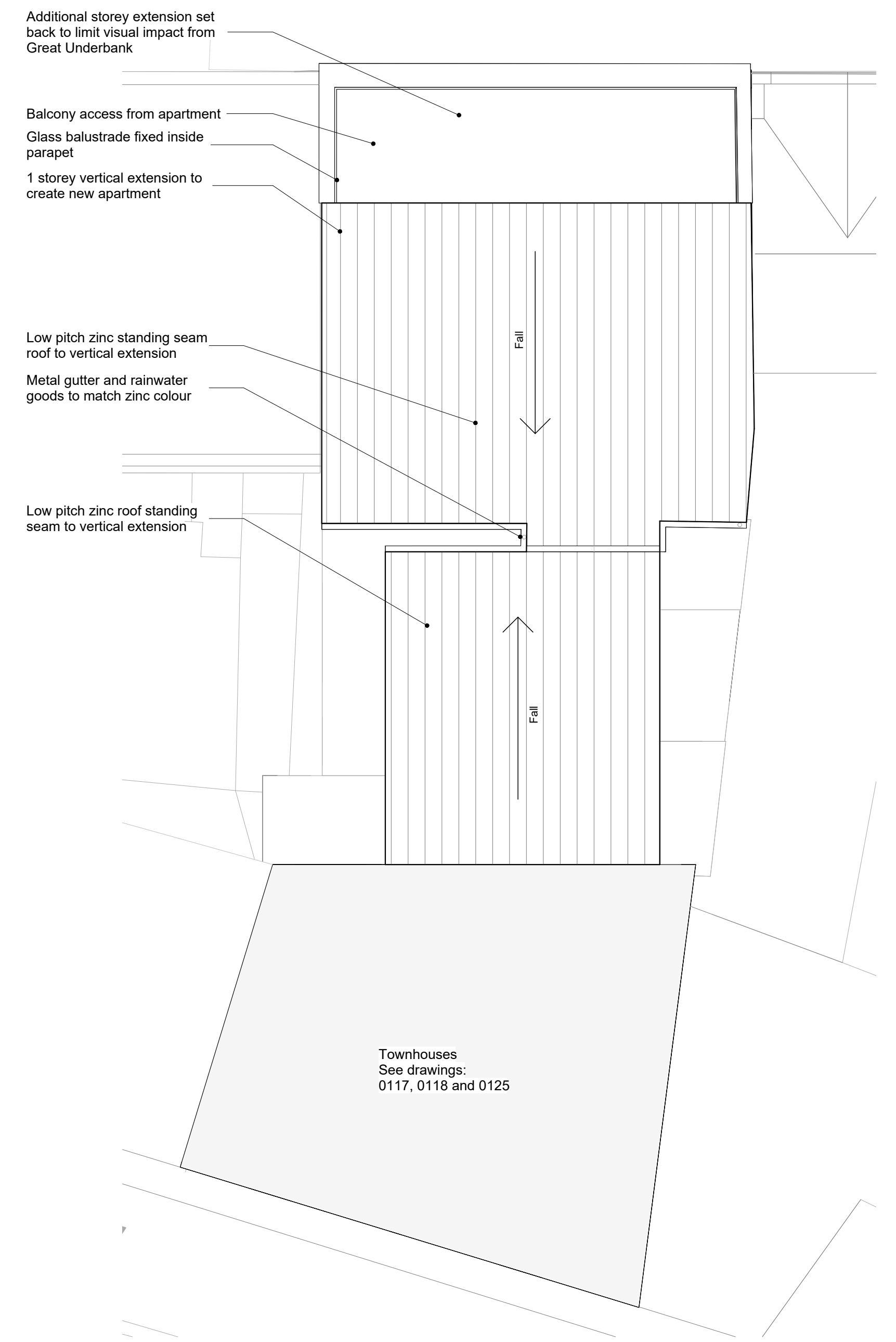
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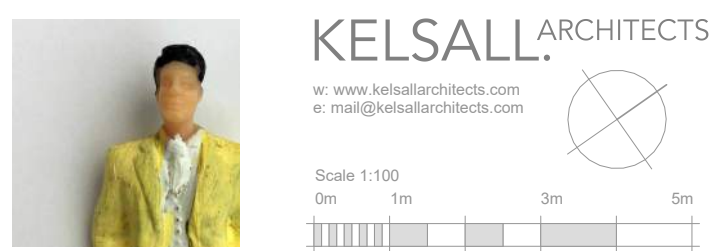
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scale: 1 : 100



2 PLN - Proposed Apartments Level 03
scale: 1 : 100



3 PLN - Apartments Roof Plan
scale: 1 : 100



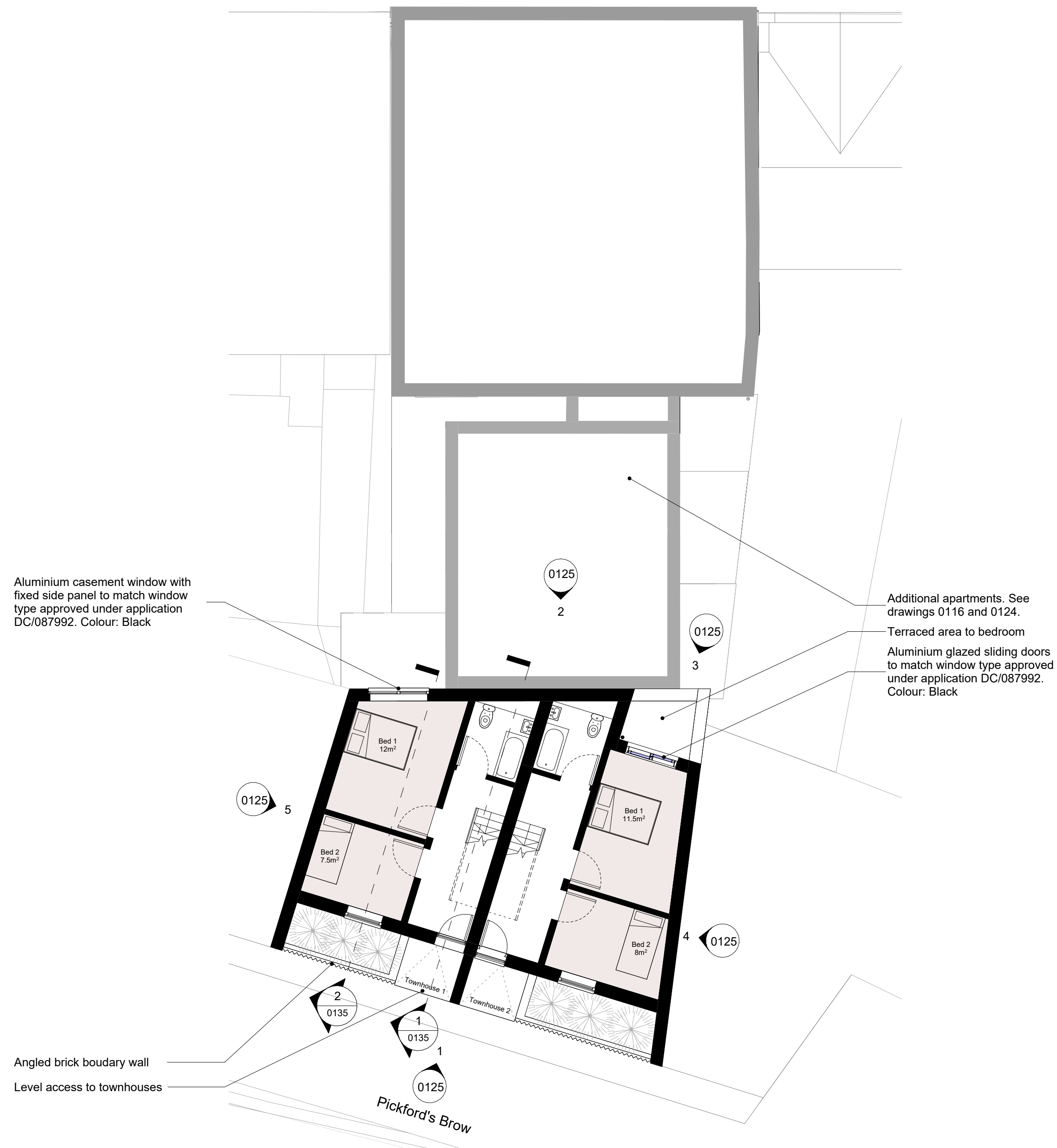
51 Great Underbank Phase 2 **DRAFT**

GA Plan
Proposed Apartment Floor and Roof Plans

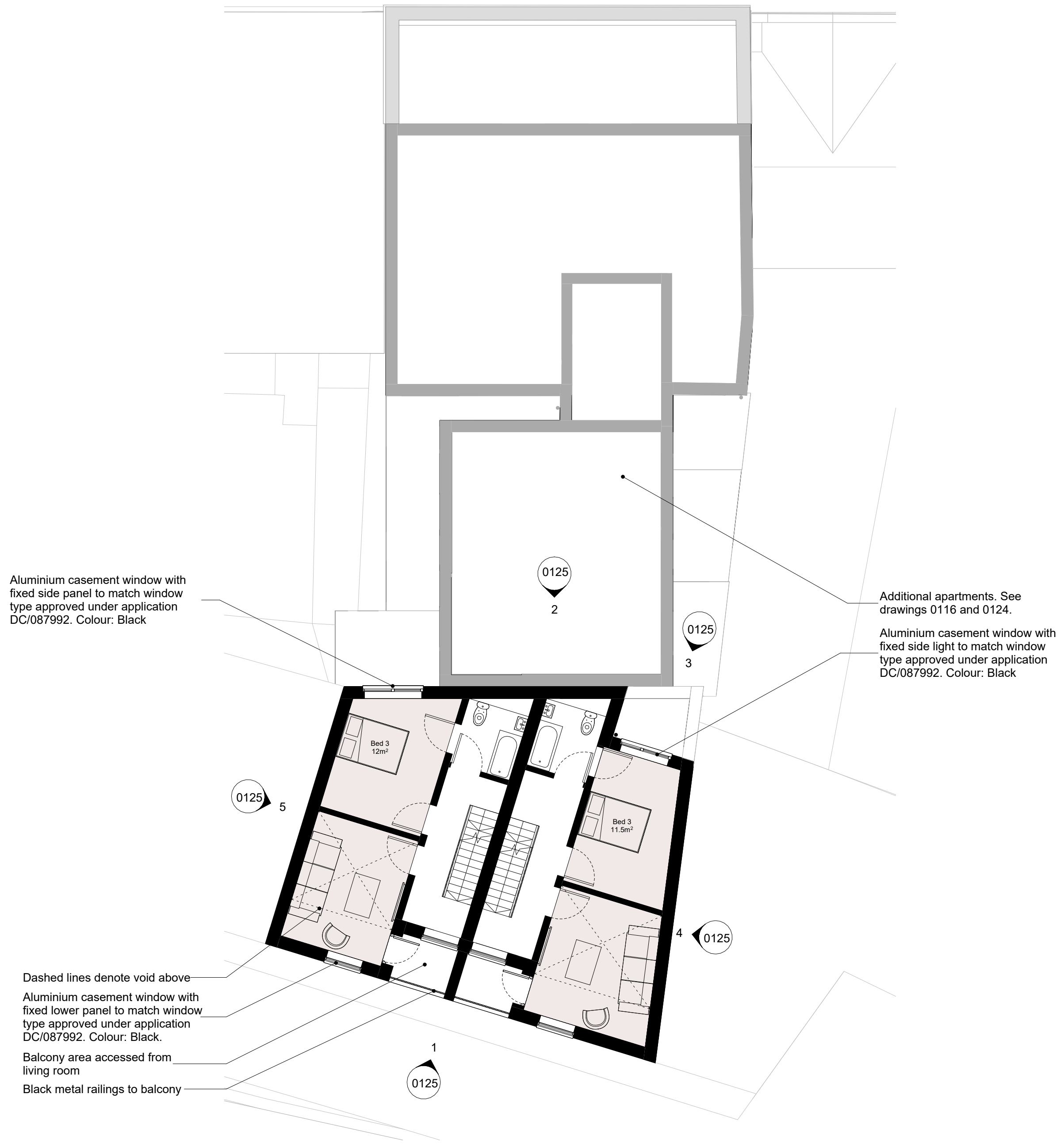
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SAA	PCK		17.01.24

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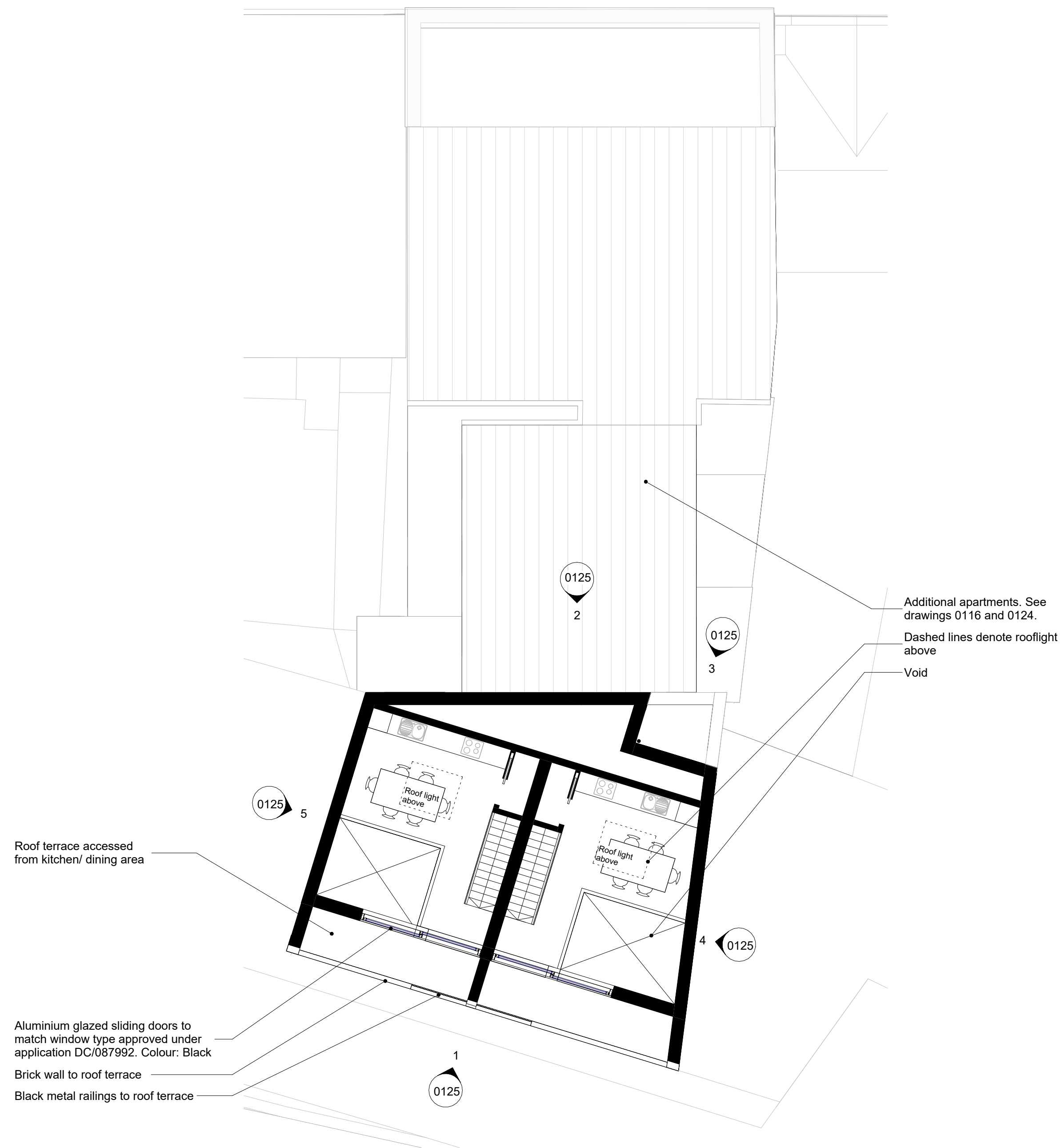
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1 Phase 2 - Proposed Townhouses Level 0
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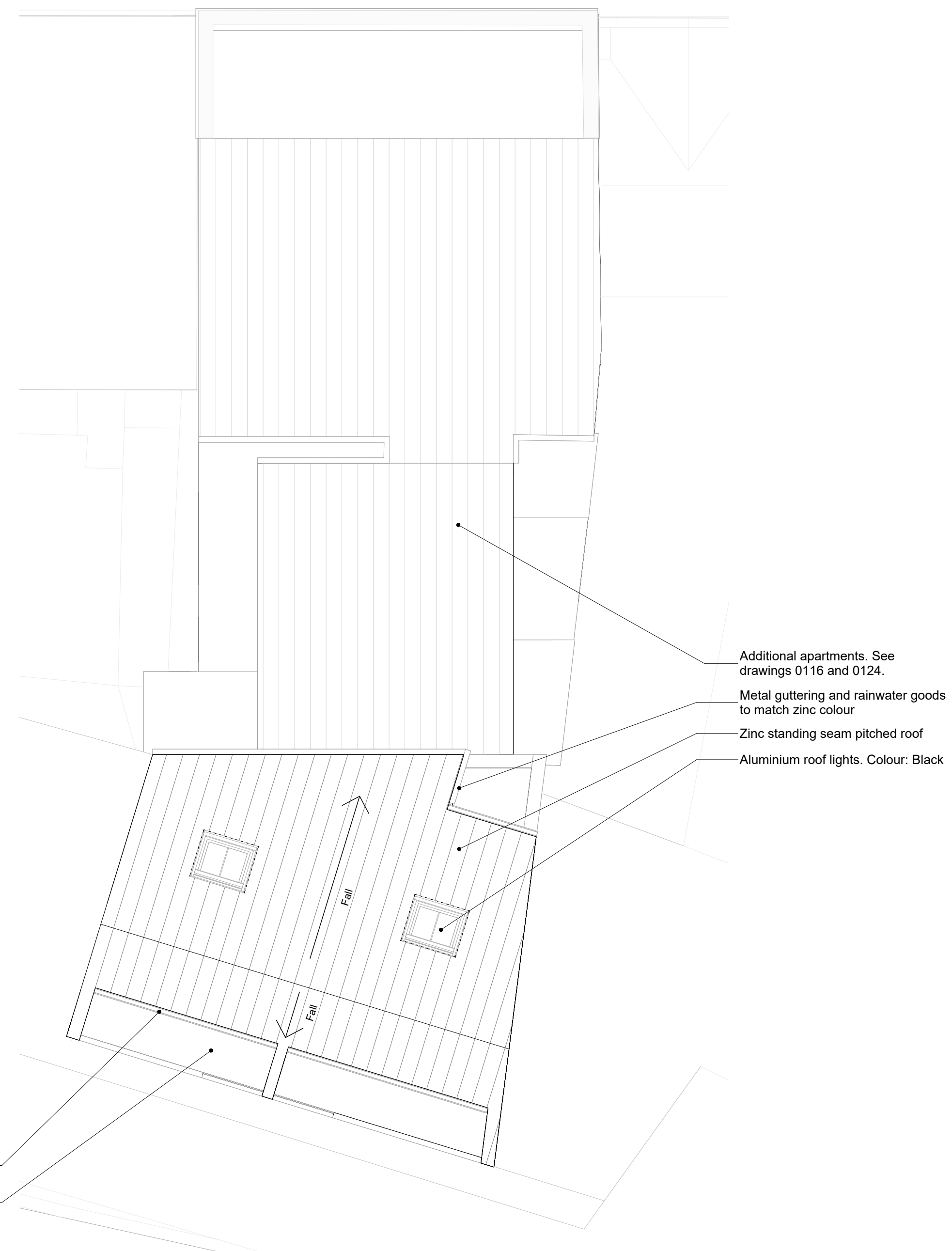


2 Phase 2 - Proposed Townhouses Level 01
scale: 1 : 100



1 Phase 2 - Proposed Townhouses Level 02 Plan

scale: 1 : 100



2 Phase 2 - Proposed Townhouses Level 03 Plan

scale: 1 : 100



51 Great Underbank Phase 2 **DRAFT**

GA Plan
Proposed Townhouse Second Floor and Roof Plans

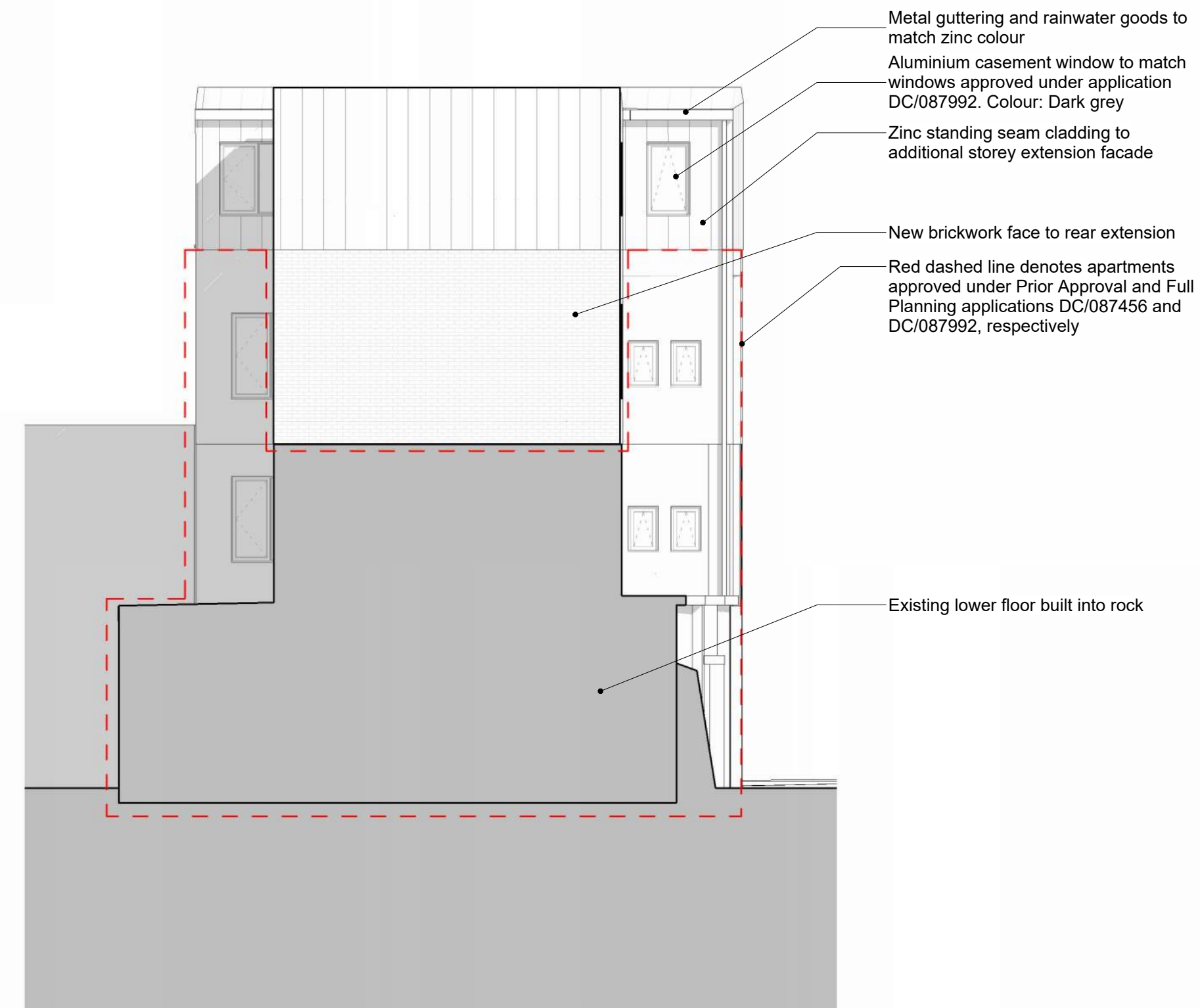
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Drawn	Checked	Approved	Date
SAA	PCK		17.01.24

0091-KA-XX-ZZ-DR-A-0118 **1**

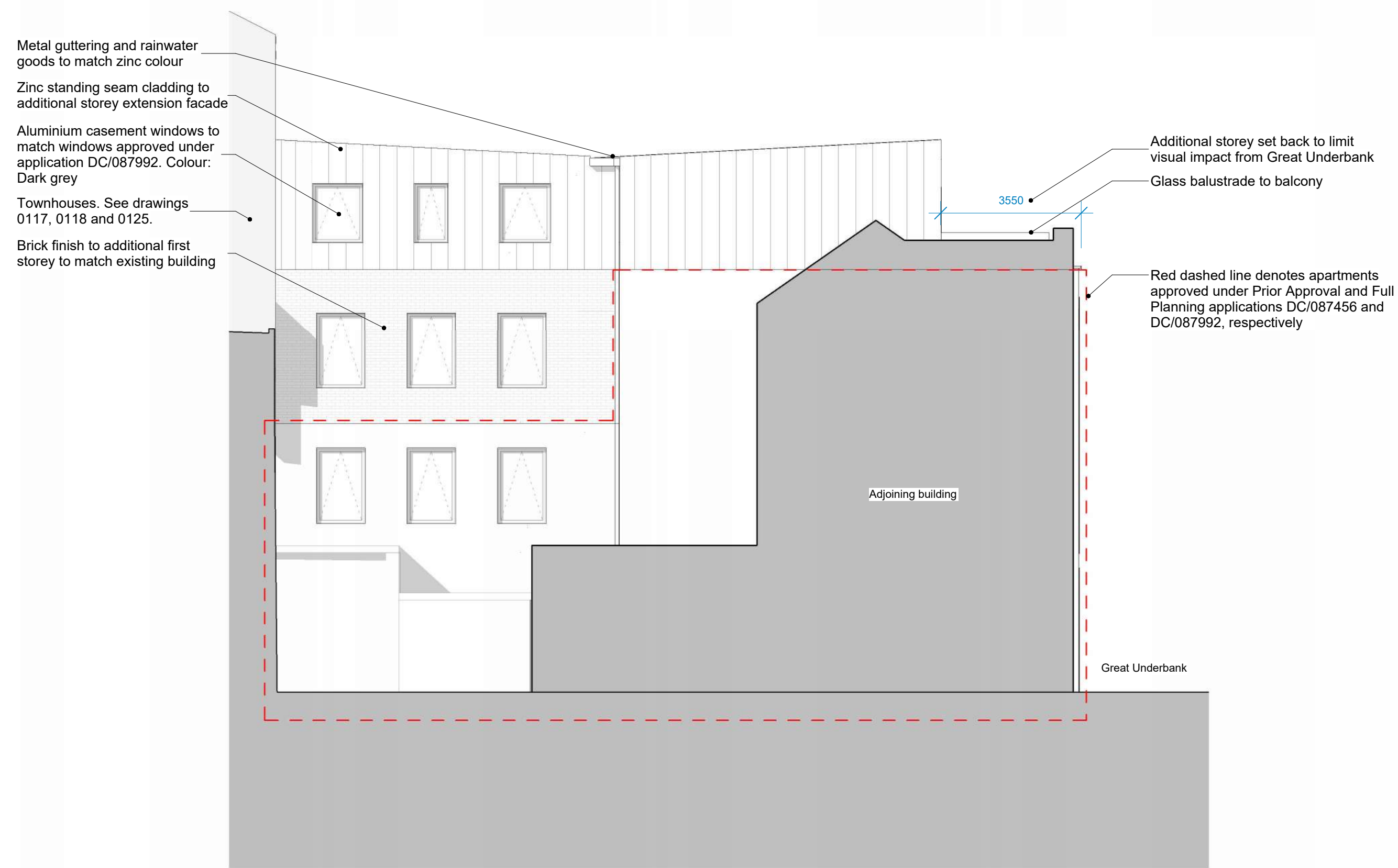
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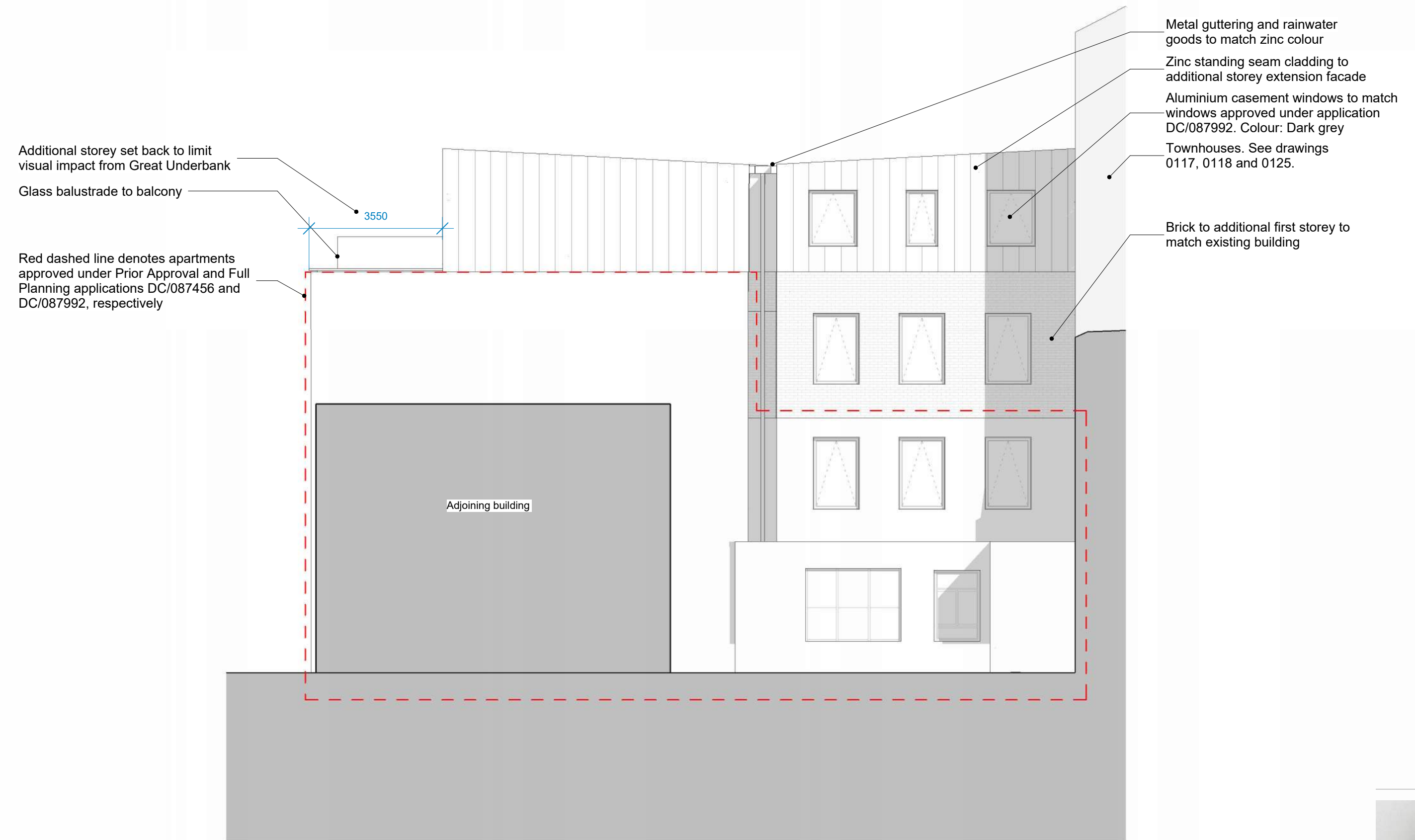
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2 ELV - Proposed Apartments South East Elevation
scale: 1 : 100



3 ELV - Proposed Apartments North East Elevation
scale: 1 : 100



4 ELV - Proposed Apartments South West Elevation
scale: 1 : 100



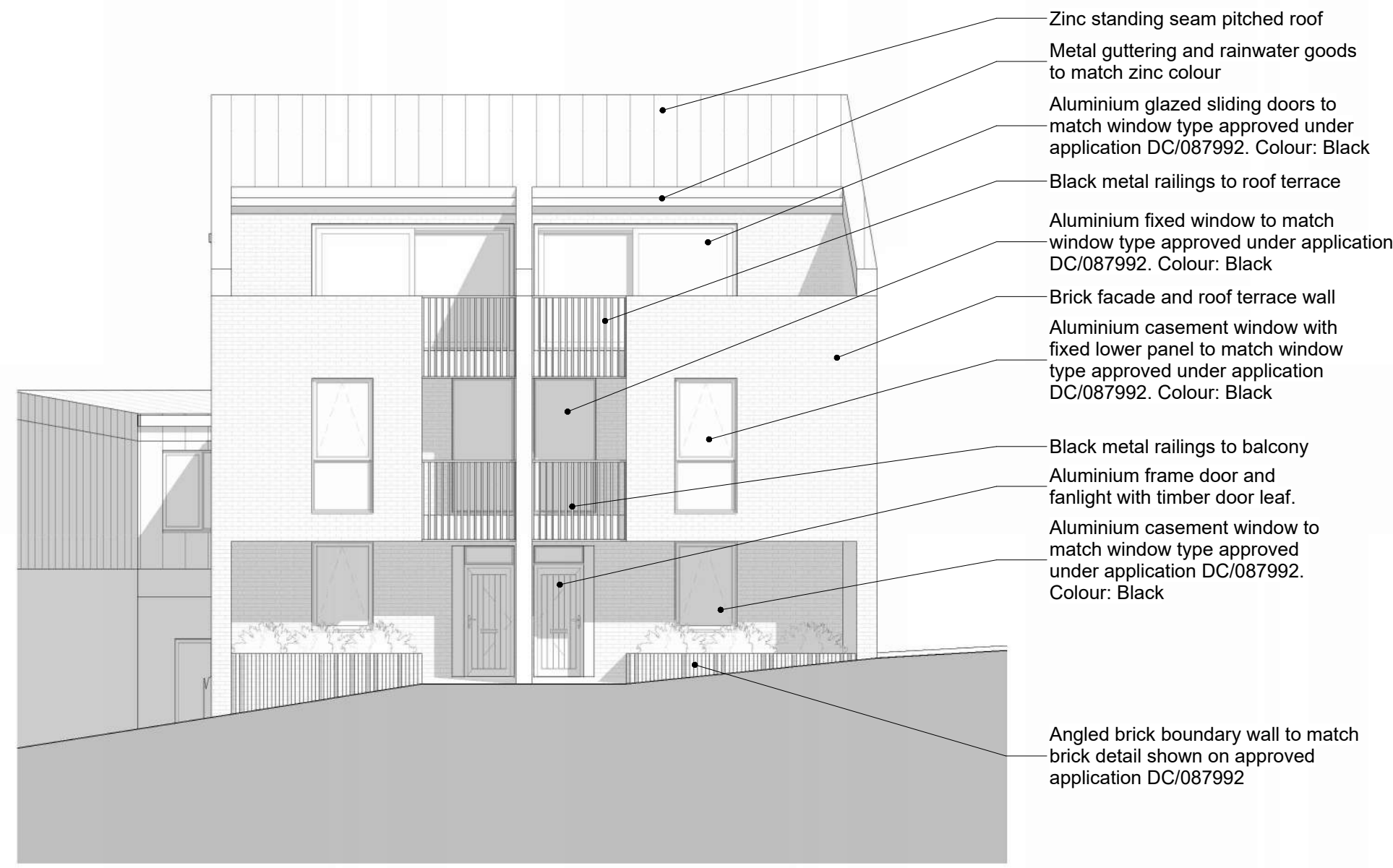
51 Great Underbank Phase 2 **DRAFT**

GA Elevation
Proposed Apartment Elevations

Client Name	Project Address	Project Status	Scale
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		SAA PCK	17.01.24

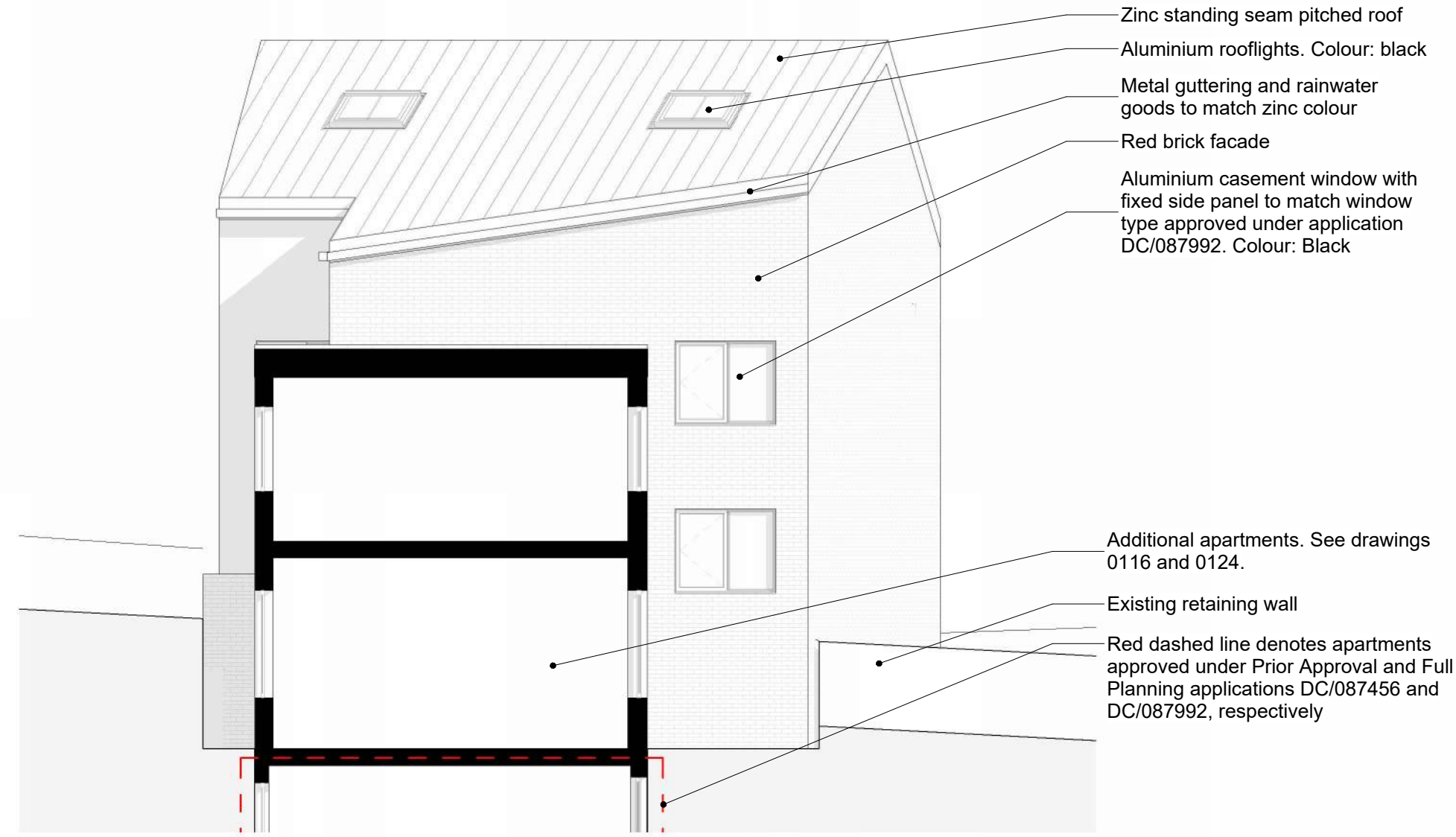
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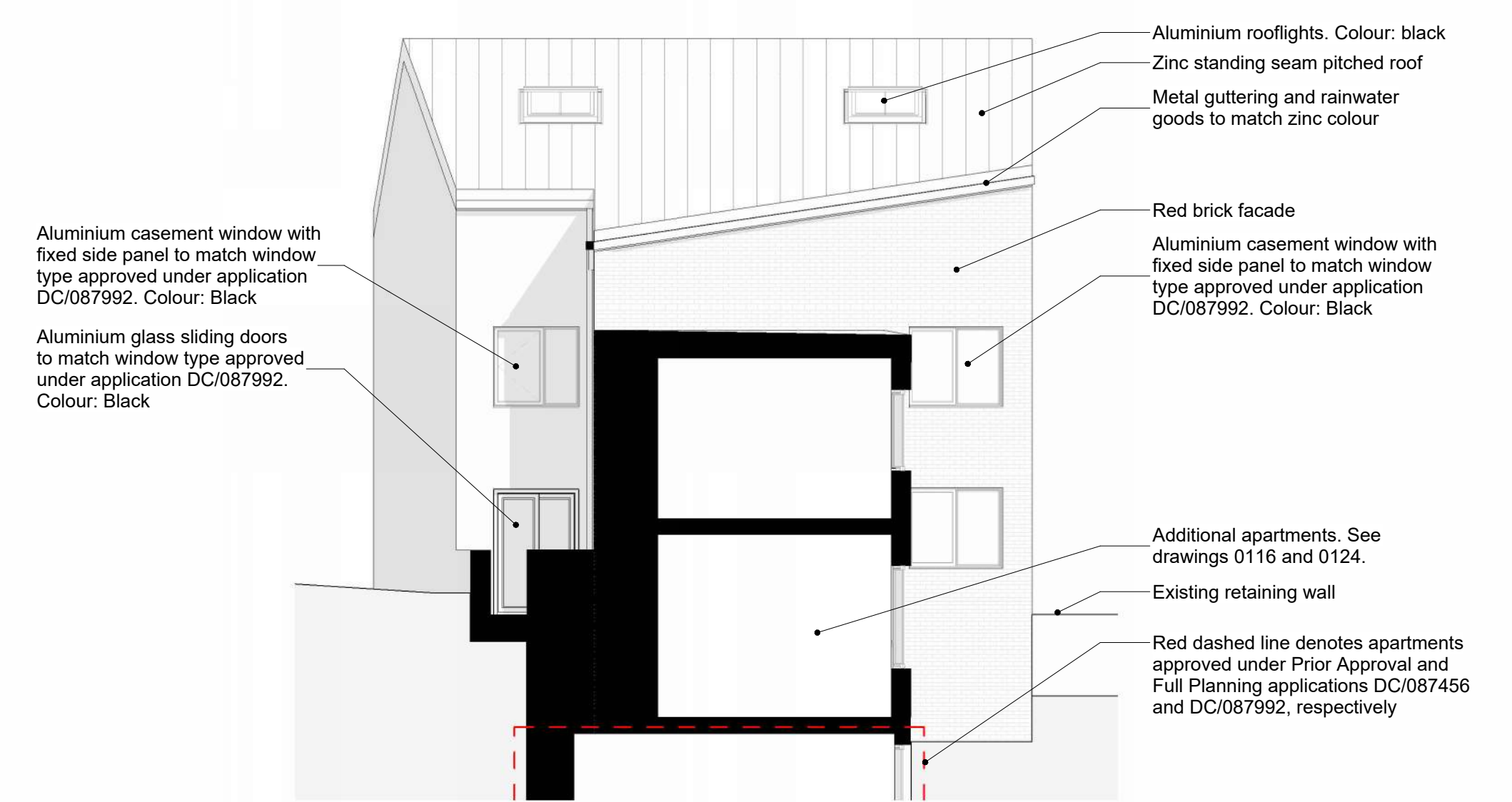
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scale: 1 : 100



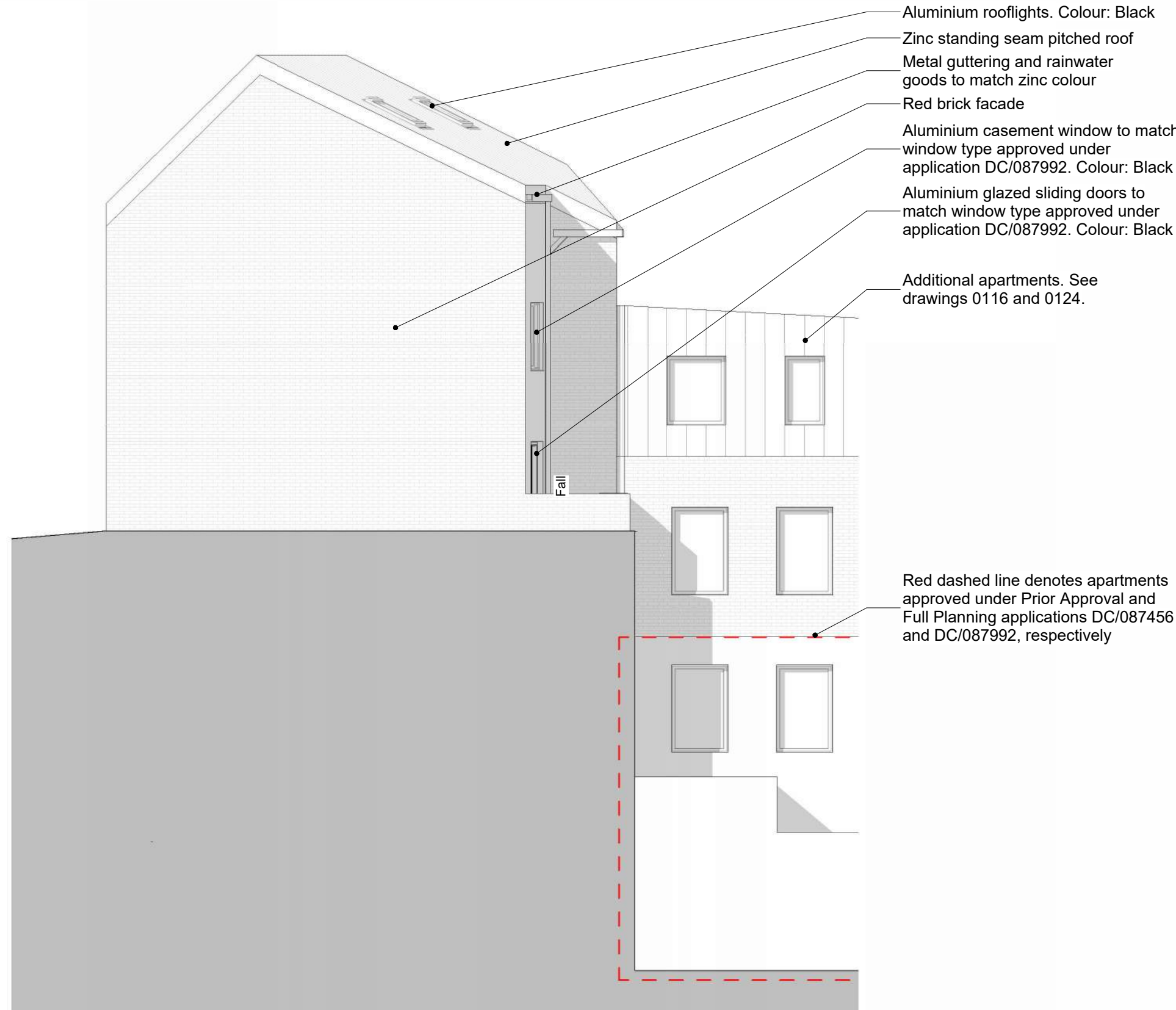
2 Phase 2 - Proposed Townhouses North West Elevation

scale: 1 : 100



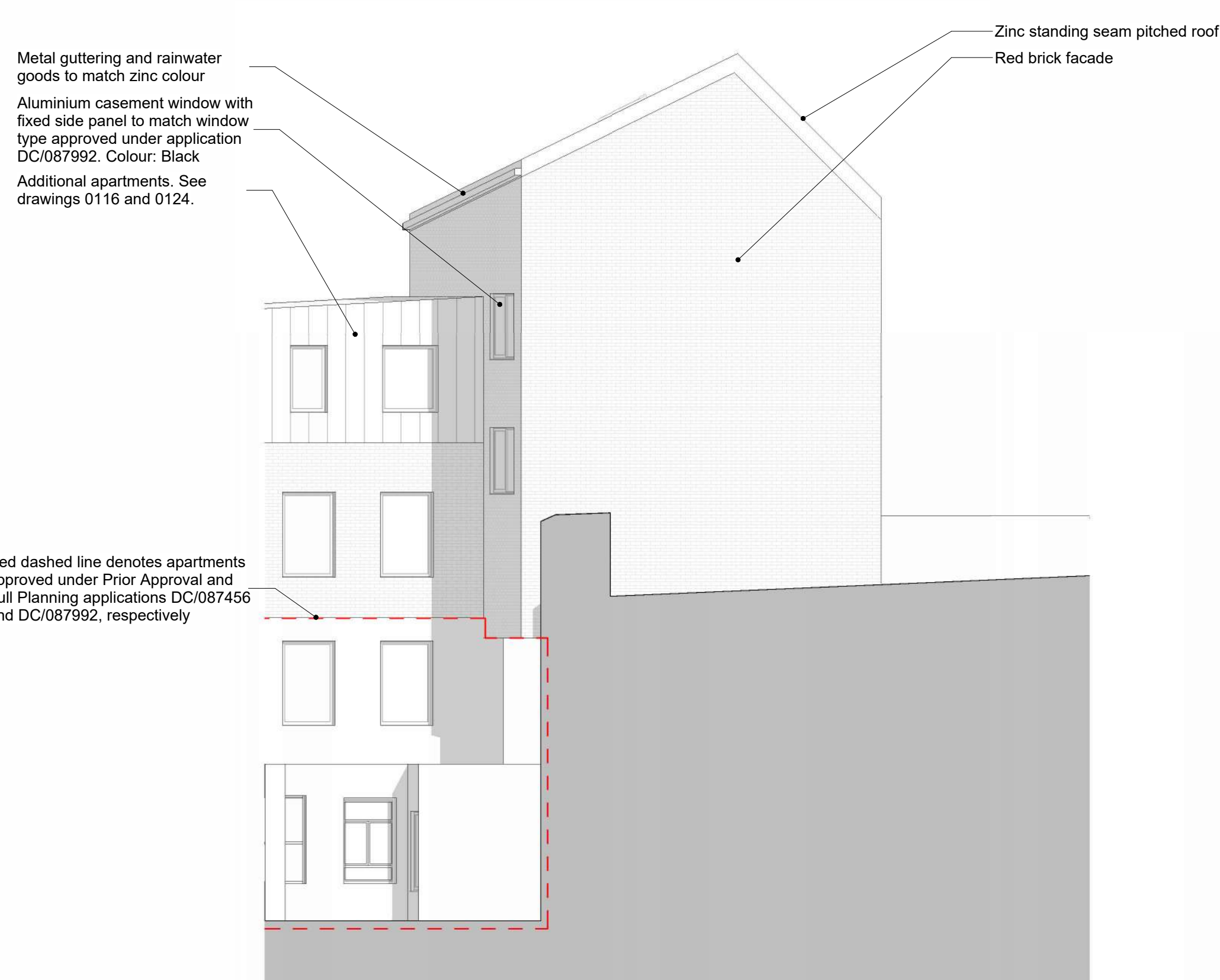
3 Phase 2 - Proposed Townhouse North Elevation

scale: 1 : 100



4 Phase 2 - Proposed Townhouses North East Elevation

scale: 1 : 100



5 Phase 2 - Proposed Townhouses South West Elevation

scale: 1 : 100



51 Great Underbank Phase 2 **DRAFT**

GA Elevation
Proposed Townhouse Elevations

Client Name	Project Name	Project Status	Scale
Kion Developments	51/51A Great Underbank Skipton SK1 1NE	PLANNING	1:100 @ A1
		SAA PCK	17.01.24

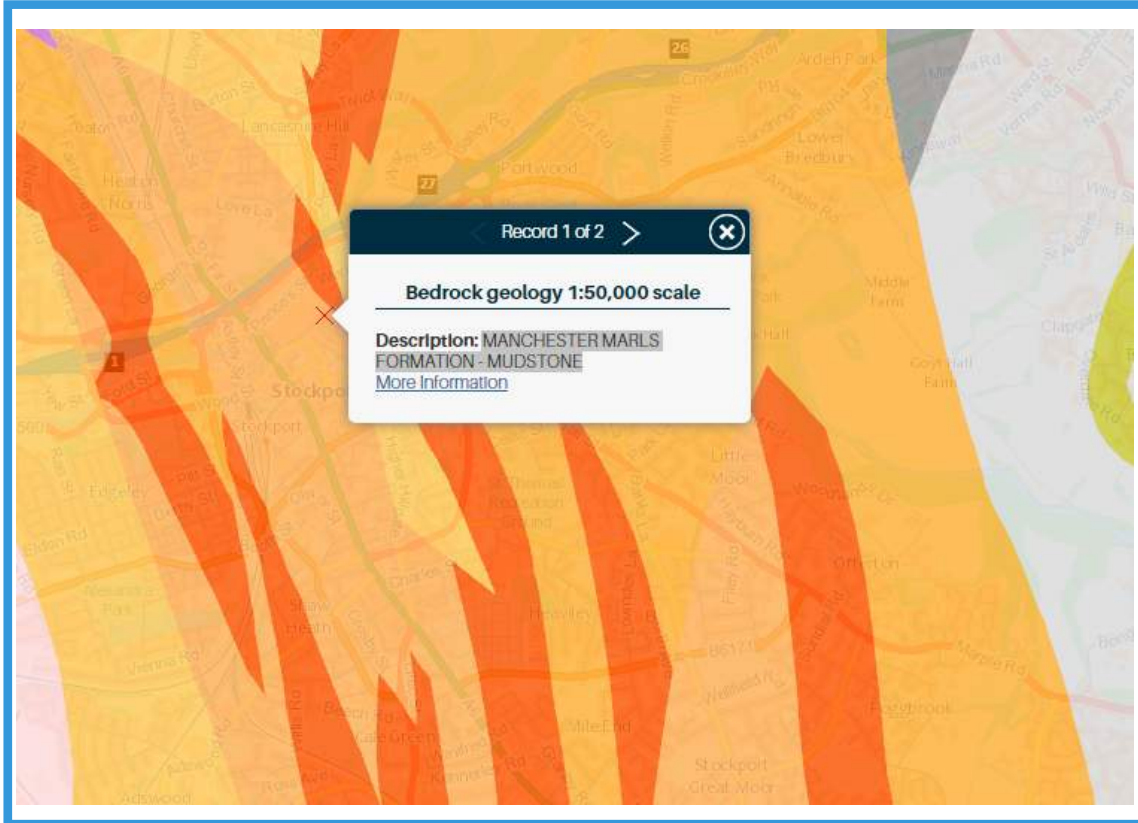
0091-KA-XX-ZZ-DR-A-0125 **1**

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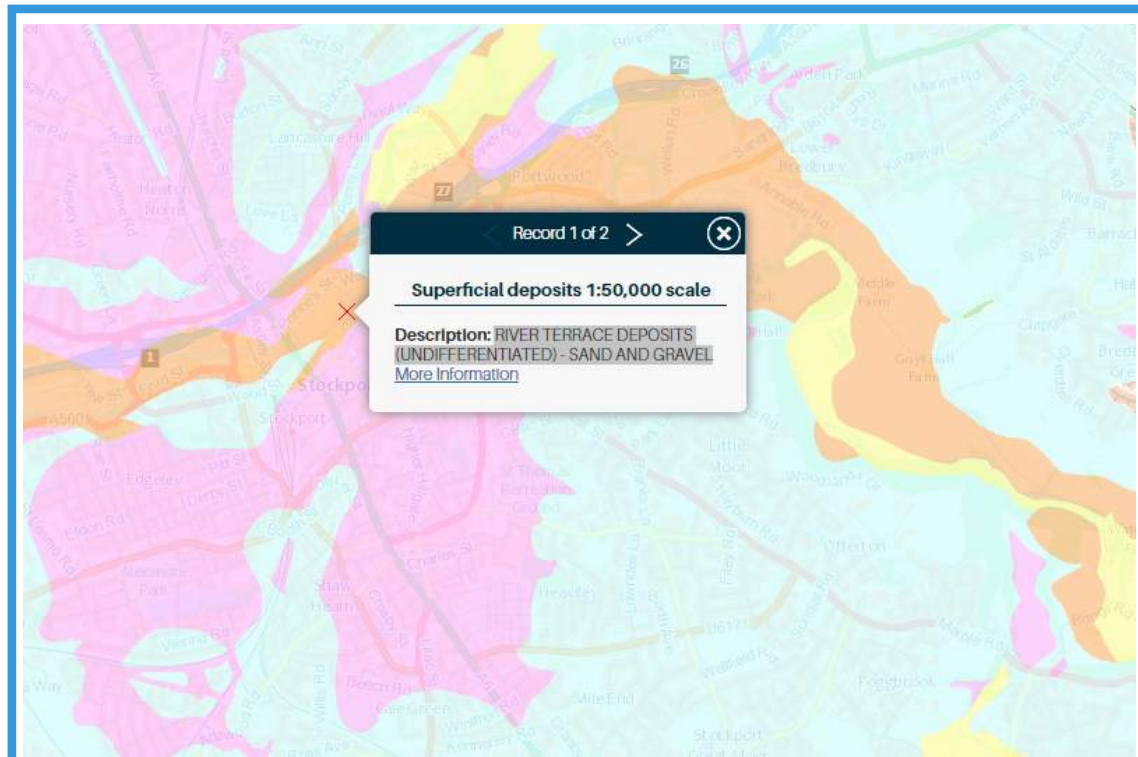
Appendix C



GEOLOGY - BEDROCK - MANCHESTER MARLS FORMATION - MUDSTONE

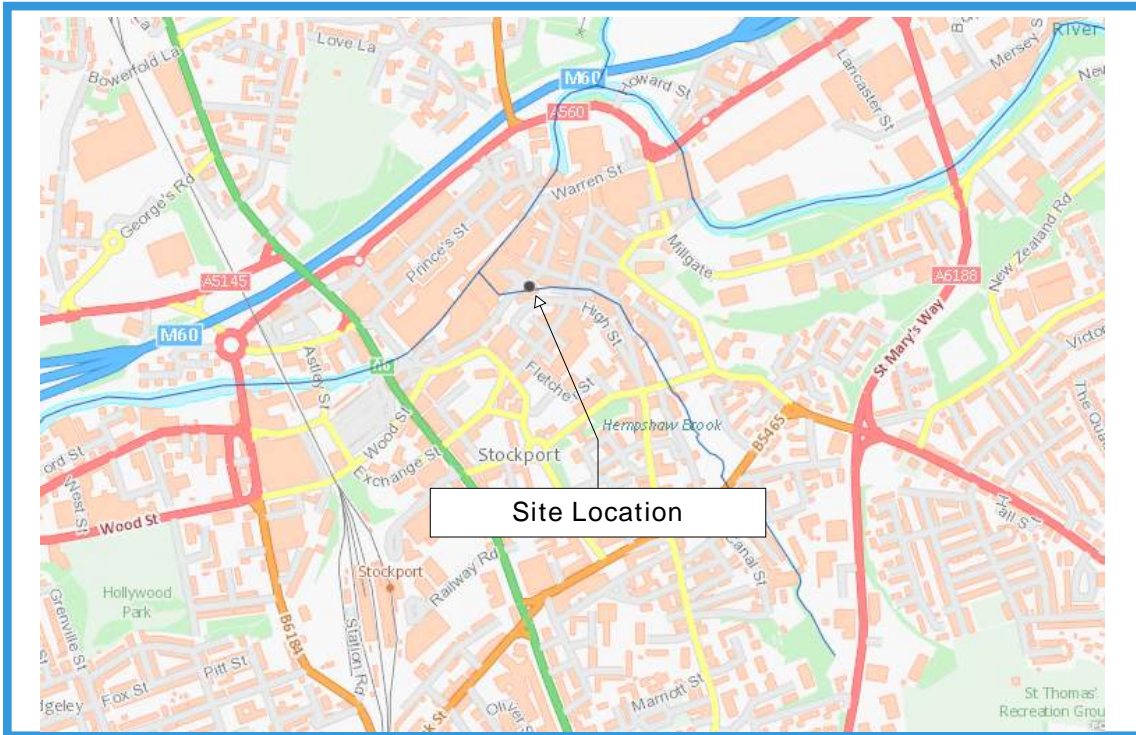



GEOLOGY - SUPERFICIAL DEPOSITS - RIVER TERRACE DEPOSITS (UNDIFFERENTIATED) - SAND AND GRAVEL






Main River Map



 Flood risk from reservoirs

 Extent of flooding



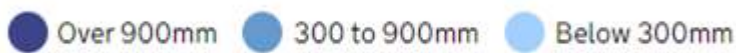
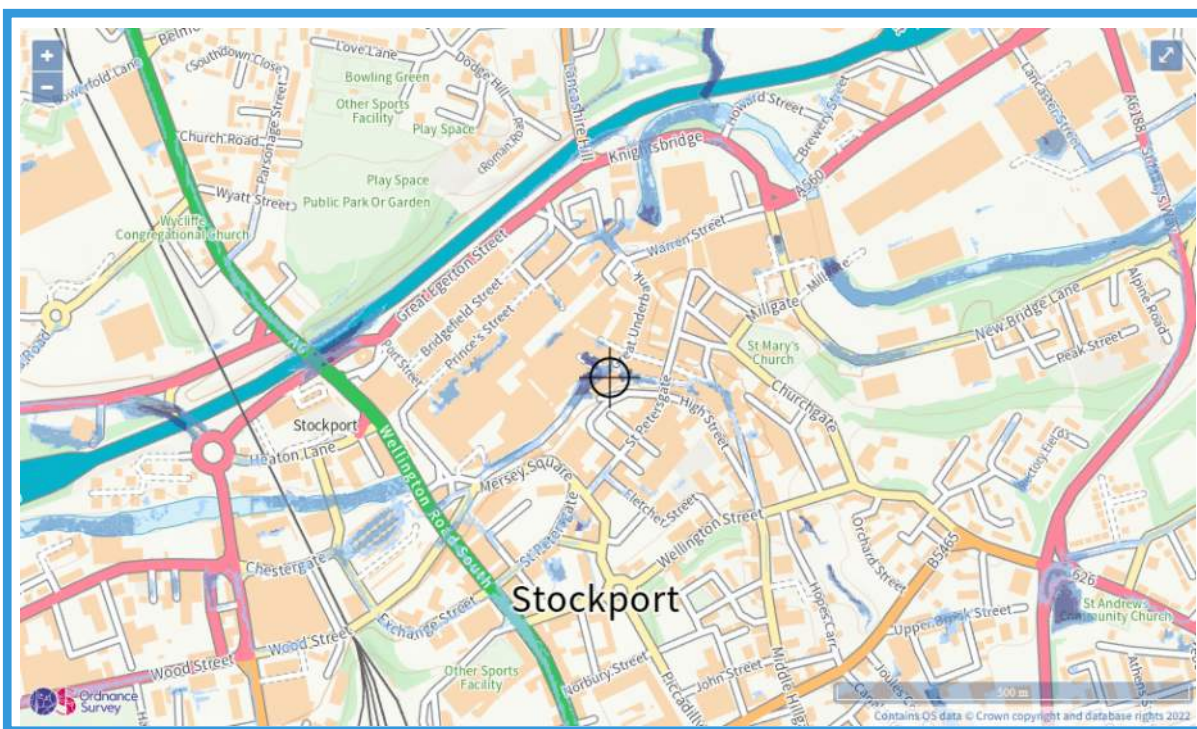
 when river levels are normal  when there is also flooding from rivers

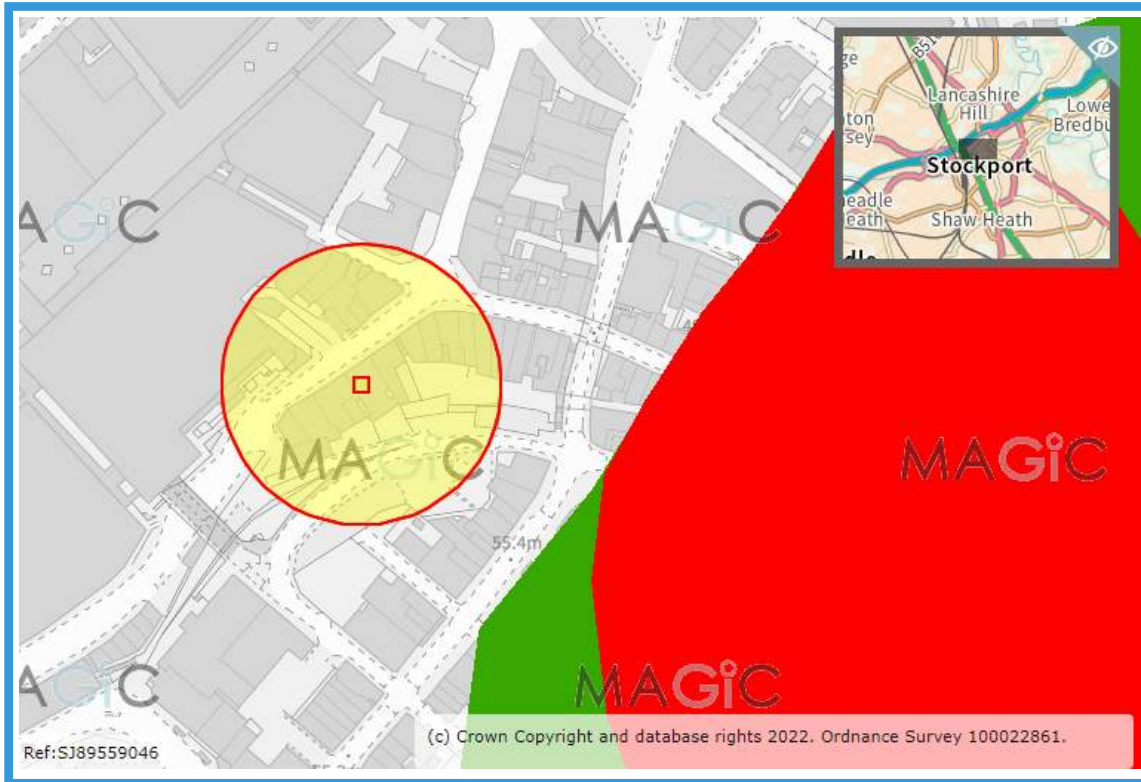
SITE SURFACE WATER FLOOD RISK

High risk means a chance of flooding greater than 3.3% (1:30)
 Medium risk means a chance of flooding of btw 1% (1:100) and 3.3%
 Low risk means a chance of flooding of btw 0.1% (1:1000) and 1%
 Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding

Flood risk from surface water

Extent of flooding





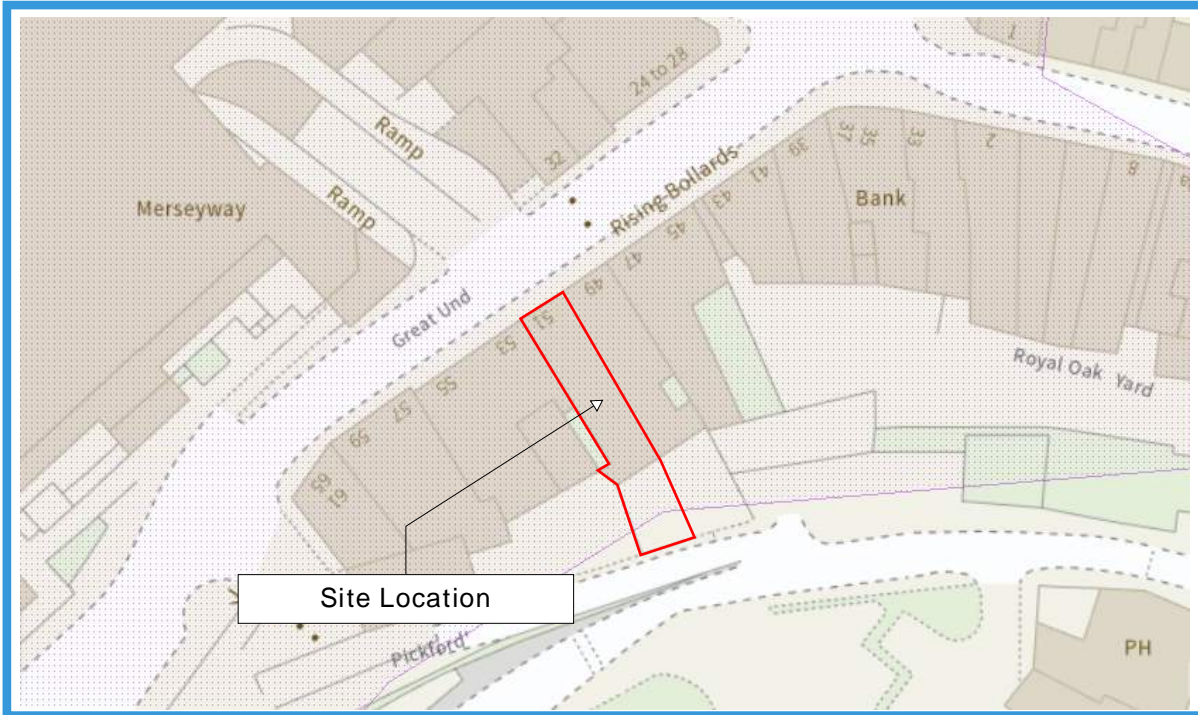
Site Check Results ✕

Site Check Report Report generated on Fri Nov 18 2022
You selected the location: Centroid Grid Ref: SJ89559046
 The following features have been found in your search area:

Aquifer Designation Map (Bedrock) (England)	
Typology	Principal
Typology	Secondary B
Aquifer Designation Map (Superficial Drift) (England)	
Typology	Secondary A
Source Protection Zones merged (England)	
No Features found	

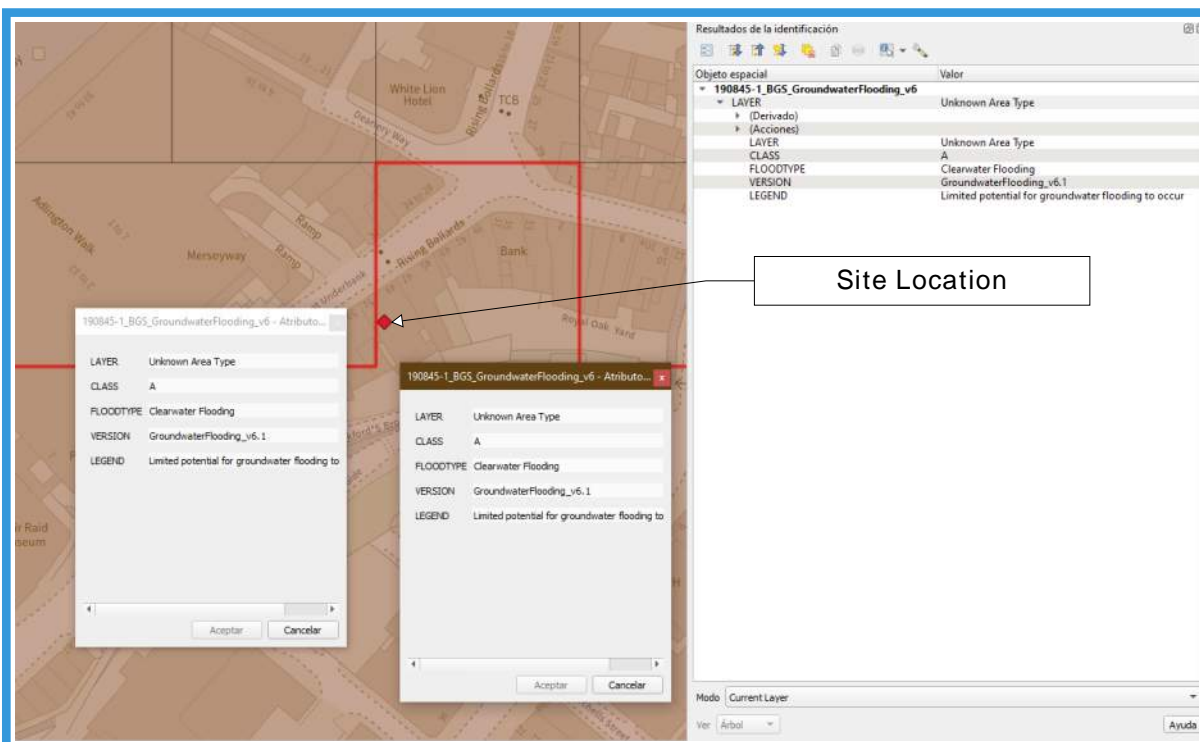
OK Cancel Export to CSV Print

FLOOD WARNING AREA

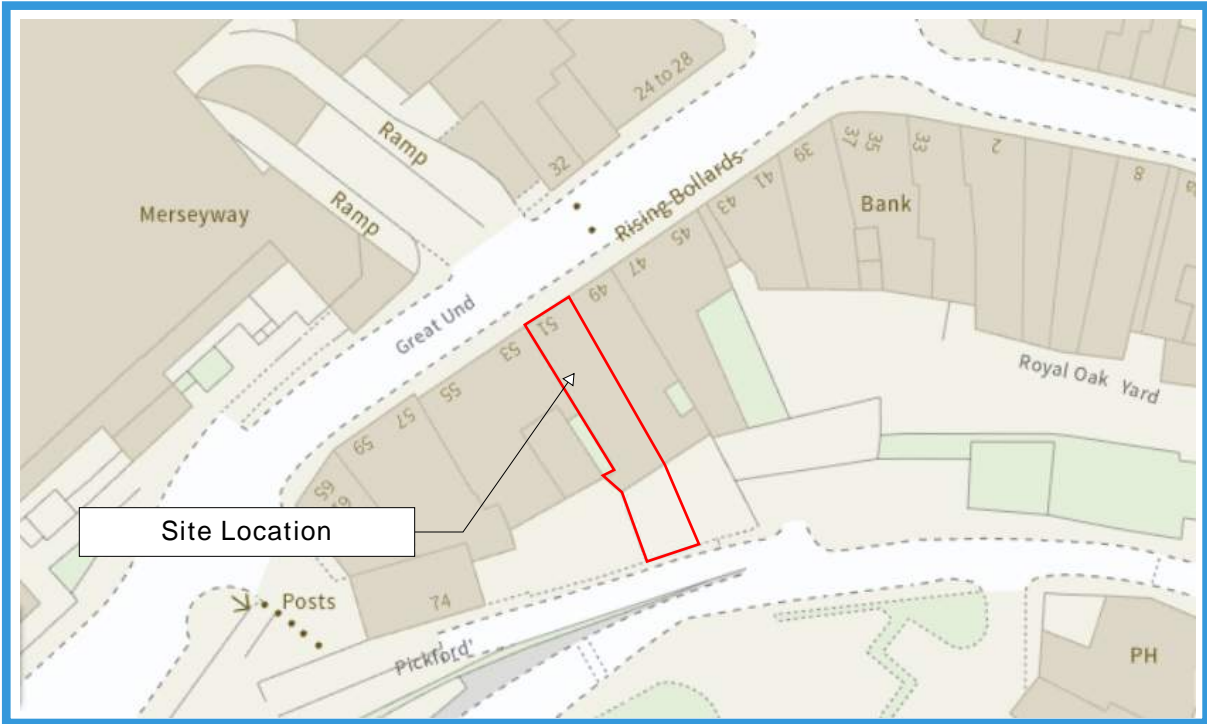


Flood Warning areas

GROUND WATER FLOOD RISK

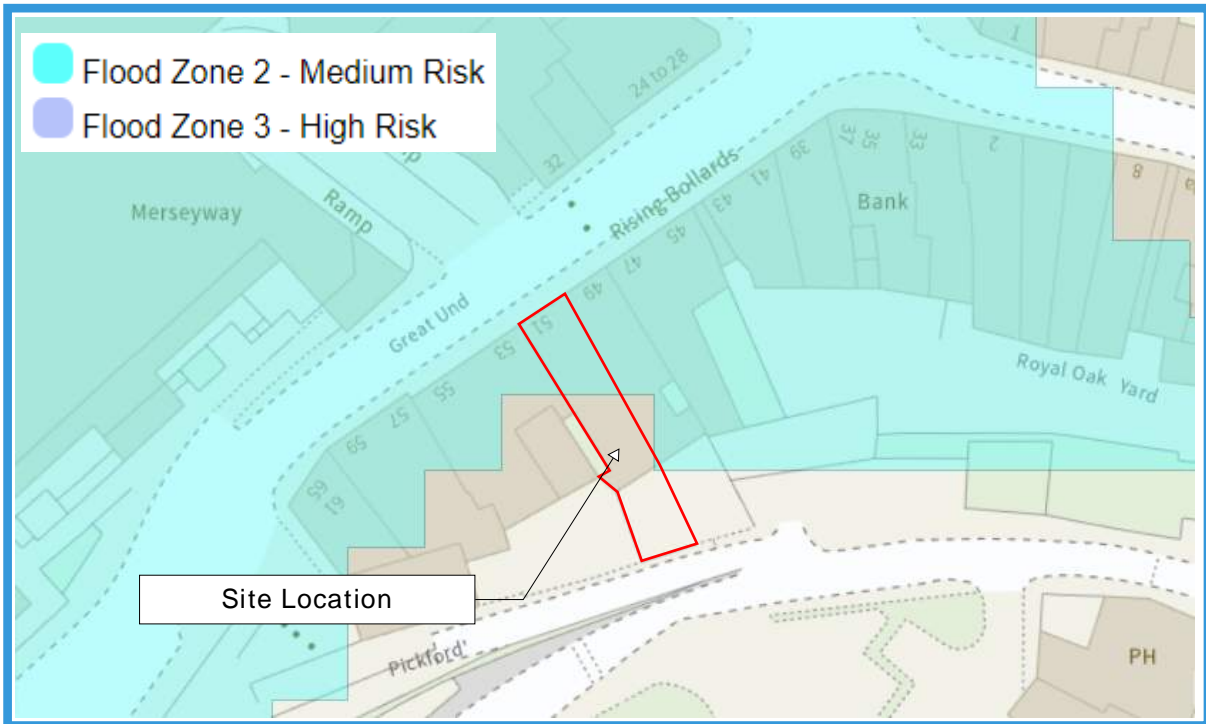


HISTORIC FLOOD MAP



● Historic Flood Outline

Flood Risk Rivers and Sea



Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
389555/390454

Created
18 Sep 2023 15:57

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

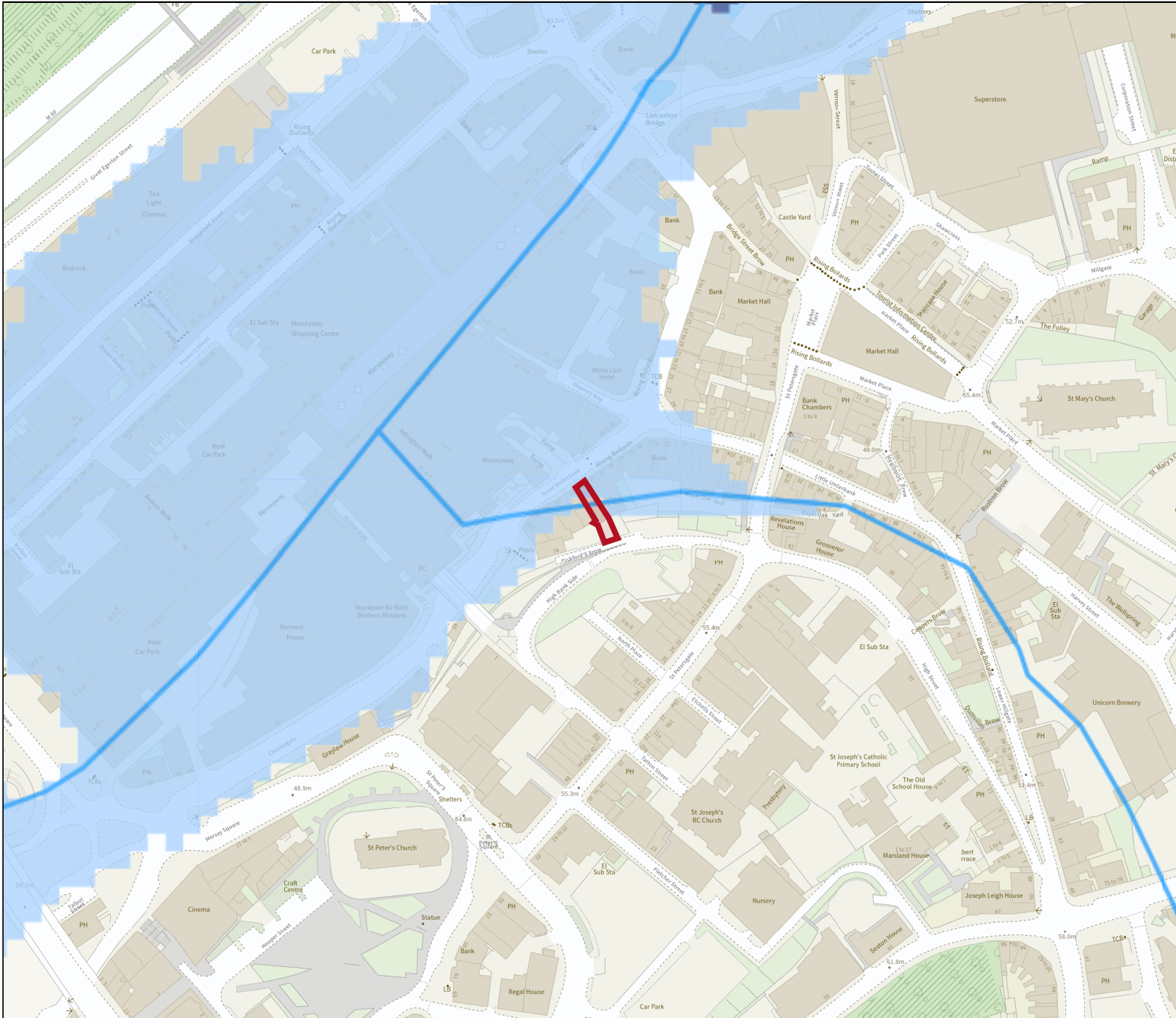
Flood map for planning

Your reference
<Unspecified>

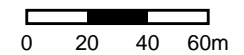
Location (easting/northing)
389555/390454

Scale
1:2500

Created
18 Sep 2023 15:57

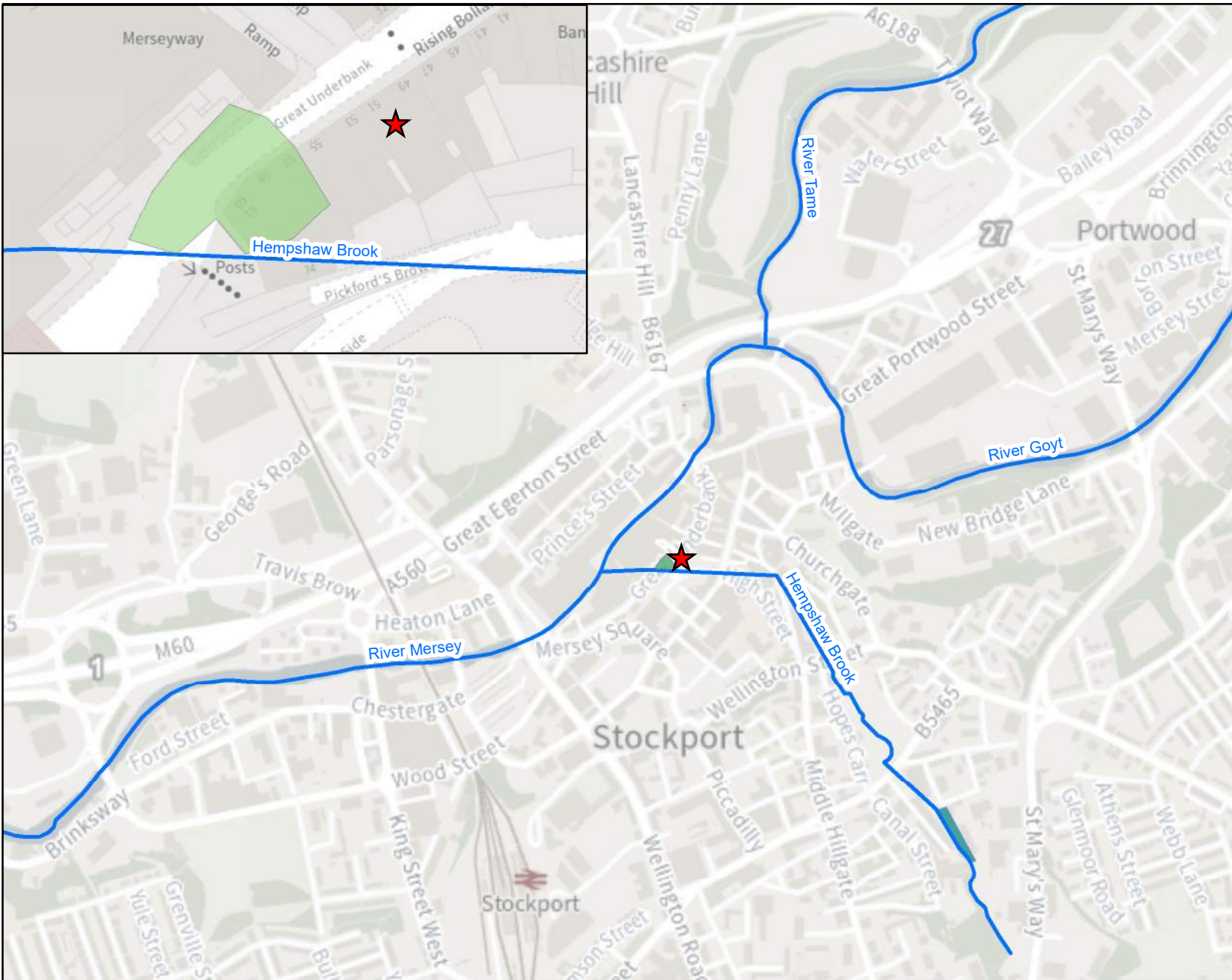


-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



Appendix D

Recorded Flood Outline Map centred on Great Underbank, Stockport, SK1 1NE. Created on 24/11/2022 [GMMC288604SW]



1:10,001



Legend

★ Site Location

— Main River

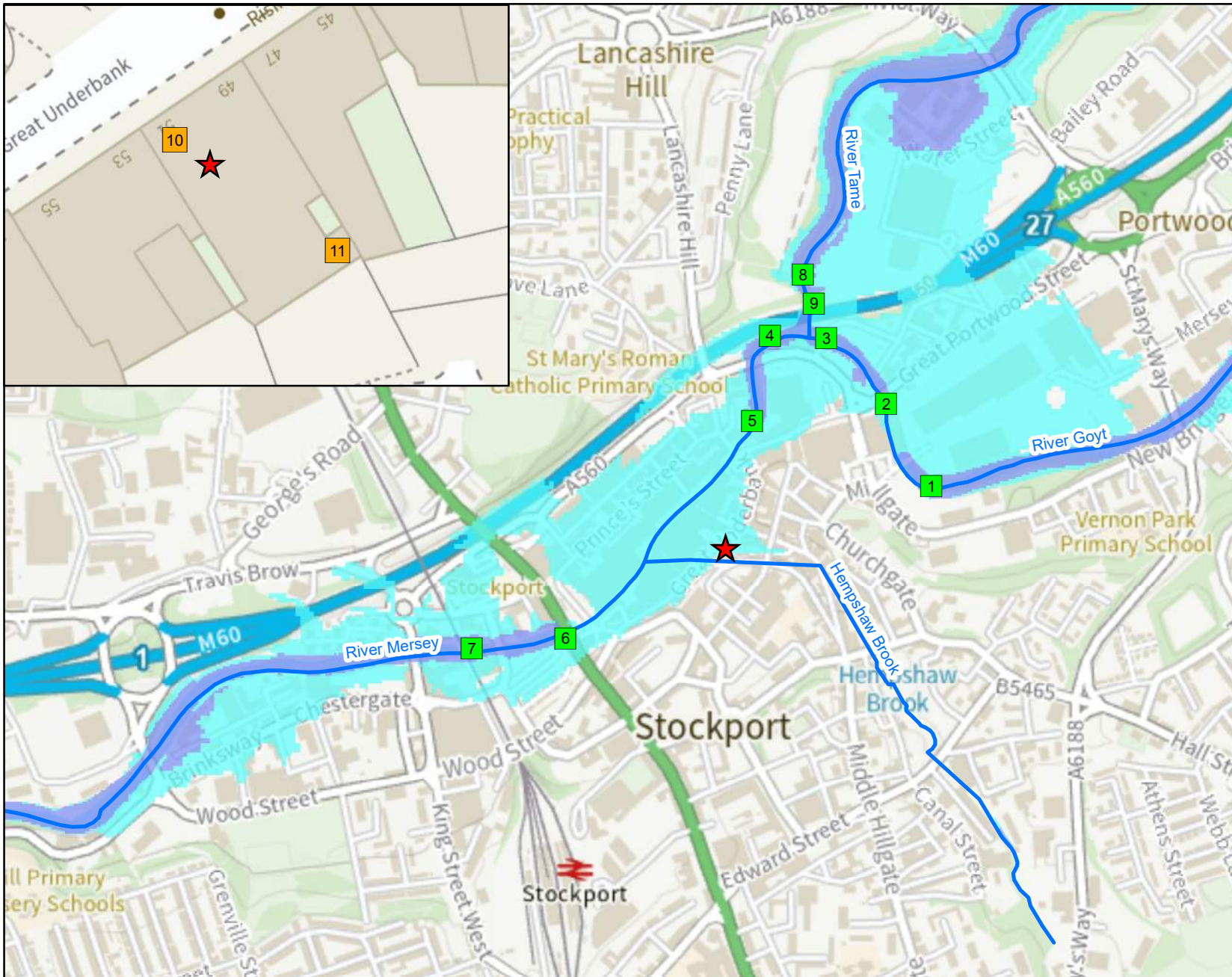
Recorded Flood Outline

START DATE

13/09/2016

Mkt Reference	Risk Profile Reference	Rating	Maturity	Date	USD LIBOR																USD Prime																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
					0.5% APRI (n 3 year)	1% APRI (n 3 year)	1.5% APRI (n 3 year)	2% APRI (n 3 year)	2.5% APRI (n 3 year)	3% APRI (n 3 year)	1.5% APRI (n 3 year)	2% APRI (n 3 year)	2.5% APRI (n 3 year)	3% APRI (n 3 year)	3.5% APRI (n 3 year)	4% APRI (n 3 year)	4.5% APRI (n 3 year)	5% APRI (n 3 year)	5.5% APRI (n 3 year)	6% APRI (n 3 year)	6.5% APRI (n 3 year)	7% APRI (n 3 year)	7.5% APRI (n 3 year)	8% APRI (n 3 year)	8.5% APRI (n 3 year)	9% APRI (n 3 year)	9.5% APRI (n 3 year)	10% APRI (n 3 year)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
1	44071_SLAJ_DSO700001	360A	360D	Master Note (Standard)	38.43	40.08	41.52	42.85	44.10	45.31	46.51	47.68	48.83	49.98	51.14	52.29	53.44	54.60	55.75	56.91	58.06	59.22	60.37	61.52	62.68	63.83	64.98	66.14	67.29	68.44	69.59	70.75	71.90	73.05	74.21	75.36	76.51	77.67	78.82	79.97	81.13	82.28	83.43	84.58	85.74	86.89	88.04	89.19	90.35	91.50	92.65	93.80	94.96	96.11	97.26	98.41	99.57	100.72	101.87	103.02	104.18	105.33	106.48	107.63	108.79	109.94	111.09	112.24	113.39	114.54	115.69	116.84	118.00	119.15	120.30	121.45	122.60	123.76	124.91	126.06	127.21	128.36	129.51	130.66	131.81	132.96	134.11	135.27	136.42	137.57	138.72	139.87	141.02	142.17	143.32	144.47	145.63	146.78	147.93	149.08	150.23	151.38	152.53	153.68	154.83	155.98	157.14	158.29	159.44	160.59	161.74	162.89	164.04	165.19	166.34	167.49	168.64	169.79	170.94	172.09	173.24	174.39	175.54	176.69	177.84	179.00	180.15	181.30	182.45	183.60	184.75	185.90	187.05	188.20	189.35	190.50	191.65	192.80	193.95	195.10	196.25	197.40	198.55	199.70	200.85	202.00	203.15	204.30	205.45	206.60	207.75	208.90	210.05	211.20	212.35	213.50	214.65	215.80	216.95	218.10	219.25	220.40	221.55	222.70	223.85	225.00	226.15	227.30	228.45	229.60	230.75	231.90	233.05	234.20	235.35	236.50	237.65	238.80	240.00	241.15	242.30	243.45	244.60	245.75	246.90	248.05	249.20	250.35	251.50	252.65	253.80	254.95	256.10	257.25	258.40	259.55	260.70	261.85	263.00	264.15	265.30	266.45	267.60	268.75	269.90	271.05	272.20	273.35	274.50	275.65	276.80	277.95	279.10	280.25	281.40	282.55	283.70	284.85	286.00	287.15	288.30	289.45	290.60	291.75	292.90	294.05	295.20	296.35	297.50	298.65	299.80	300.95	302.10	303.25	304.40	305.55	306.70	307.85	309.00	310.15	311.30	312.45	313.60	314.75	315.90	317.05	318.20	319.35	320.50	321.65	322.80	323.95	325.10	326.25	327.40	328.55	329.70	330.85	332.00	333.15	334.30	335.45	336.60	337.75	338.90	340.05	341.20	342.35	343.50	344.65	345.80	346.95	348.10	349.25	350.40	351.55	352.70	353.85	355.00	356.15	357.30	358.45	359.60	360.75	361.90	363.05	364.20	365.35	366.50	367.65	368.80	369.95	371.10	372.25	373.40	374.55	375.70	376.85	378.00	379.15	380.30	381.45	382.60	383.75	384.90	386.05	387.20	388.35	389.50	390.65	391.80	392.95	394.10	395.25	396.40	397.55	398.70	399.85	401.00	402.15	403.30	404.45	405.60	406.75	407.90	409.05	410.20	411.35	412.50	413.65	414.80	415.95	417.10	418.25	419.40	420.55	421.70	422.85	424.00	425.15	426.30	427.45	428.60	429.75	430.90	432.05	433.20	434.35	435.50	436.65	437.80	438.95	440.10	441.25	442.40	443.55	444.70	445.85	447.00	448.15	449.30	450.45	451.60	452.75	453.90	455.05	456.20	457.35	458.50	459.65	460.80	461.95	463.10	464.25	465.40	466.55	467.70	468.85	470.00	471.15	472.30	473.45	474.60	475.75	476.90	478.05	479.20	480.35	481.50	482.65	483.80	484.95	486.10	487.25	488.40	489.55	490.70	491.85	493.00	494.15	495.30	496.45	497.60	498.75	499.90	501.05	502.20	503.35	504.50	505.65	506.80	507.95	509.10	510.25	511.40	512.55	513.70	514.85	516.00	517.15	518.30	519.45	520.60	521.75	522.90	524.05	525.20	526.35	527.50	528.65	529.80	530.95	532.10	533.25	534.40	535.55	536.70	537.85	539.00	540.15	541.30	542.45	543.60	544.75	545.90	547.05	548.20	549.35	550.50	551.65	552.80	553.95	555.10	556.25	557.40	558.55	559.70	560.85	562.00	563.15	564.30	565.45	566.60	567.75	568.90	570.05	571.20	572.35	573.50	574.65	575.80	576.95	578.10	579.25	580.40	581.55	582.70	583.85	585.00	586.15	587.30	588.45	589.60	590.75	591.90	593.05	594.20	595.35	596.50	597.65	598.80	599.95	601.10	602.25	603.40	604.55	605.70	606.85	608.00	609.15	610.30	611.45	612.60	613.75	614.90	616.05	617.20	618.35	619.50	620.65	621.80	622.95	624.10	625.25	626.40	627.55	628.70	629.85	631.00	632.15	633.30	634.45	635.60	636.75	637.90	639.05	640.20	641.35	642.50	643.65	644.80	645.95	647.10	648.25	649.40	650.55	651.70	652.85	654.00	655.15	656.30	657.45	658.60	659.75	660.90	662.05	663.20	664.35	665.50	666.65	667.80	668.95	670.10	671.25	672.40	673.55	674.70	675.85	677.00	678.15	679.30	680.45	681.60	682.75	683.90	685.05	686.20	687.35	688.50	689.65	690.80	691.95	693.10	694.25	695.40	696.55	697.70	698.85	700.00	701.15	702.30	703.45	704.60	705.75	706.90	708.05	709.20	710.35	711.50	712.65	713.80	714.95	716.10	717.25	718.40	719.55	720.70	721.85	723.00	724.15	725.30	726.45	727.60	728.75	729.90	731.05	732.20	733.35	734.50	735.65	736.80	737.95	739.10	740.25	741.40	742.55	743.70	744.85	746.00	747.15	748.30	749.45	750.60	751.75	752.90	754.05	755.20	756.35	757.50	758.65	759.80	760.95	762.10	763.25	764.40	765.55	766.70	767.85	769.00	770.15	771.30	772.45	773.60	774.75	775.90	777.05	778.20	779.35	780.50	781.65	782.80	783.95	785.10	786.25	787.40	788.55	789.70	790.85	792.00	793.15	794.30	795.45	796.60	797.75	798.90	800.05	801.20	802.35	803.50	804.65	805.80	806.95	808.10	809.25	810.40	811.55	812.70	813.85	815.00	816.15	817.30	818.45	819.60	820.75	821.90	823.05	824.20	825.35	826.50	827.65	828.80	829.95	831.10	832.25	833.40	834.55	835.70	836.85	838.00	839.15	840.30	841.45	842.60	843.75	844.90	846.05	847.20	848.35	849.50	850.65	851.80	852.95	854.10	855.25	856.40	857.55	858.70	859.85	861.00	862.15	863.30	864.45	865.60	866.75	867.90	869.05	870.20	871.35	872.50	873.65	874.80	875.95	877.10	878.25	879.40	880.55	881.70	882.85	884.00	885.15	886.30	887.45	888.60	889.75	890.90	892.05	893.20	894.35	895.50	896.65	897.80	898.95	900.10	901.25	902.40	903.55	904.70	905.85	907.00	908.15	909.30	910.45	911.60	912.75	913.90	915.05	916.20	917.35	918.50	919.65	920.80	921.95	923.10	924.25	925.40	926.55	927.70	928.85	929.00	930.15	931.30	932.45	933.60	934.75	935.90	937.05	938.20	939.35	940.50	941.65	942.80	943.95	945.10	946.25	947.40	948.55	949.70	950.85	952.00	953.15	954.30	955.45	956.60	957.75	958.90	960.05	961.20	962.35	963.50	964.65	965.80	966.95	968.10	969.25	970.40	971.55	972.70	973.85	975.00	976.15	977.30	978.45	979.60	980.75	981.90	983.05	984.20	985.35	986.50	987.65	988.80	989.95	991.10	992.25	993.40	994.55	995.70	996.85	998.00	999.15	1000.30	1001.45	1002.60	1003.75	1004.90	1006.05	1007.20	1008.35	1009.50	1010.65	1011.80	1012.95	1014.10	1015.25	1016.40	1017.55	1018.70	1019.85	1021.00	1022.15	1023.30	1024.45	1025.60	1026.75	1027.90	1029.05	1030.20	1031.35	1032.50	1033.65	1034.80	1035.95	1037.10	1038.25	1039.40	1040.55	1041.70	1042.85	1044.00	1045.15	1046.30	1047.45	1048.60	1049.75	1050.90	1052.05	1053.20	1054.35	1055.50	1056.65	1057.80	1058.95	1060.10	1061.25	1062.40	1063.55	1064.70	1065.85	1067.00	1068.15	1069.30	1070.45	1071.60	1072.75	1073.90	1075.05	1076.20	1077.35	1078.50	1079.65	1080.80	1081.95	1083.10	1084.25	1085.40	1086.55	1087.70	1088.85	1090.00	1091.15	1092.30	1093.45	1094.60	1095.75	1096.90	1098.05	1099.20	1100.35	1101.50	1102.65	1103.80	1104.95	1106.10	1107.25	1108.40	1109.55	1110.70	1111.85	1113.00	1114.15	1115.30	1116.45	1117.60	1118.75	1119.90	1121.05	1122.20	1123.35	1124.50	1125.65	1126.80	1127.95	1129.10	1130.25	1131.40	1132.55	1133.70	1134.85	1136.00	1137.15	1138.30	1139.45	1140.60	1141.75	1142.90	1144.05	1145.20	1146.35	1147.50	1148.65	1149.80	1150.95	1152.10

Detailed Flood Map centred on Great Underbank, Stockport, SK1 1NE. Created on 24/11/2022 [GMMC288604SW]



1:10,001



Legend

- ★ Site Location
- 2D Measurements
- Model Measurements
- Main River
- Flood Zone 3
- Flood Zone 2