North West Office
38 Padgate Lane
Padgate
Warrington
WA1 3RU
Tel: 01925 491011

Lancaster Office
2nd Floor, Gordon
Manley Building
Lancaster Environment
Centre
Lancaster University
Lancaster
LA1 4YQ
Tel: 01524 510475

INVESTOR IN PEOPLE

PEAK ASSOCIATES
ENVIRONMENTAL CONSULTANTS LTD

Flood Risk Assessment for Formulated Polymer Products Ltd at 8 Garden Street, Ramsbottom, Bury, BL0 9BQ

Author: Sam Sheron, MSc, BSc (Hons)
QA Auditor: Lily Hall, MEnvSc, BSc, MCIWEM;
QA Auditor: Mike Matthews, MSc, BSc Hons, C.WEM
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1.0 Introduction

1.1 Background

Peak Associates Environmental Consultants Limited (Peak Associates) was commissioned by Michael Howarth of Formulated Polymer Products Ltd to conduct a Flood Risk Assessment (FRA) to support the planning application for 8 Garden Street, Ramsbottom, Bury, BL0 9BQ

This report is based upon observations made on site during a walkover undertaken on the 23rd of October 2024 and upon data driven research. This FRA includes the analysis of historical maps, geological, hydrogeological, and hydrological data, and other relevant Third-Party environmental information, including the Environment Agency's (EA) Product 4 data. Product 4 data includes detailed FRA maps which show: flood zones, defences and storage areas, areas benefitting from defences, statutory main river designations, historic flood event outlines and more detailed information from the EA's river models. Product 4 data is freely available and can be requested from GOV.UK.

Peak Associates can accept no liability for any inaccuracies contained within the Third-Party information referenced. It should be noted that where screenshots of online mapping tools have been used, these contain public sector information licensed under the Open Government License v3.0.

1.2 Existing Site and Proposed Development

The proposed development at 8 Garden Street is the construction of a storage shed, the demolition of the existing lean-to structure to be replaced with a factory extension and the installation of an additional silo. The plans in full can be seen in Plan 1.

Based on Lidar data, the property resides between 127.25 mAOD to 125 mAOD (see Appendix 2). It is worth noting that finished floor levels will be required in developing the design measures proposed.

The property is accessed via Garden Street off Bridge Street, Ramsbottom. The River Irwell is located approximately 35 m east of the property (Appendix 2), with a railway running alongside the site. It is worth noting that the site and its surrounding area are located in a naturally low point of topography, directing any overland flow, particularly from west of the Irwell, towards the site.

1.3 Geology

The geology of the area was investigated using the Geology of Britain Viewer from the British Geological Survey (Ref 1) and Soilscapes (Ref 2). The bedrock geology of the site is composed of Marsden Formation mudstone and siltstone. This sedimentary bedrock was formed between 321.5 – 320 million years ago during the Carboniferous period.

In terms of superficial geology, the site is underlain by Alluvium. This superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period, and consists of clay, silt, sand and gravel.

According to Soilscapes (Ref 2), the soil found in the area is a loamy and clayey floodplain soil, with a naturally high level of groundwater.

1.4 River Catchment and Climate Change Allowances

The river Irwell, which is located approximately 35 m east of the site is a significant watercourse that flows from Bacup in Lancashire to Manchester before joining the Manchester Ship Canal. There have been three recorded flood events in the area since 1995 (Appendix 3), with the Boxing Day 2015 flood impacting the site. The east bank of the river Irwell was most recently subjected to flooding in 2020.

There are two flood defence structures located in the area, with a flood wall running alongside the River Irwell for 260 m or so, extending down past the site and onto Bridge Street.

The River Irwell is part of the Irwell catchment area and the Croal Irwell Operational Catchment, with the Irwell catchment area totalling over 777 km² (Ref 3). The climate change allowances (CCA) for the Irwell Management Catchment are presented in Table 1. Given the site resides in Flood Zone 3 and is considered less vulnerable, the central allowances have been utilised (Ref 4).

Because the Irwell is a heavily urbanised catchment, consideration of how to adequately manage flood risk and/or prepare for increased incidents and severity of flooding due to climate change is a matter all local development stakeholders such as the LPA, the Environment Agency and the Lead Local Flood Authority (LLFA) should take into account when considering planning applications.

Table 1: Irwell Management Catchment peak river flow allowances (Ref 5).

1% annual exceedance event			
Timeframe	Central	Higher	Upper
2020s	12%	15%	24%
2050s	19%	26%	43%
2080s	35%	46%	75%

1.5 Data Limitations

Product 4 Data was created by the EA's automated system on 17/09/2024 (see Appendix 3). The Product 4 data includes the modelled 1 in 100-year flood events across defended and undefended scenarios, alongside 30%, 35% and 70% increase in flow as a result of climate change in a defended scenario.

It is important to note that contemporaneous flooding records are often incomplete, and the EA's Product 4 data only supplies flood risk data relating to flooding from rivers and/or the sea, not other sources of flood risk.

Light Detection and Ranging (LiDAR) was used in order to determine the approximate topography of the area surrounding the proposed development. This technique is less accurate than a topographic survey, however reduces time spent in the field and therefore expenses in drafting an initial FRA.

It would, however, be prudent for the applicant to undertake a topographic survey of both the site and the flood defences located along the western bank of the river Irwell in order to validate the initial conclusions in this report.

2.0 Sources of Flooding

2.1 General Overview

Flooding can occur from a variety of sources, including fluvial, surface water (pluvial), groundwater and reservoirs. The site is located in Flood Zone 3 (see Figure 1) and as such has a Medium – High (greater than 1%) probability of fluvial flooding. Table 2 summarises the potential sources of flood risk at the site.

Table 2: Sources of potential flood risk to the proposed development

Flood Source	Potential Risk					Description
	High	Medium	Low	Very Low	None	
Surface Water	X					There is a High (greater than 3.3% chance) risk of pluvial flooding at the site.
Fluvial	X	X				The site has a Medium (between 1% and 3.3% chance) to High (greater than 3.3% chance) risk of fluvial flooding.
Groundwater		X	X			The site has a Medium-Low vulnerability to groundwater flooding. The site is located in an area with naturally wet soil and a high-water table according to Soilscapes (Ref 2)
Reservoirs			X			Scout Moor High Level Reservoir is located approximately 4.2 km northeast of the site, with Ashworth reservoir located approximately 3.32 km south east. However, with proper reservoir maintenance, the risk of reservoir flooding is reduced.
Tidal					X	There is no risk of tidal flooding at the site.

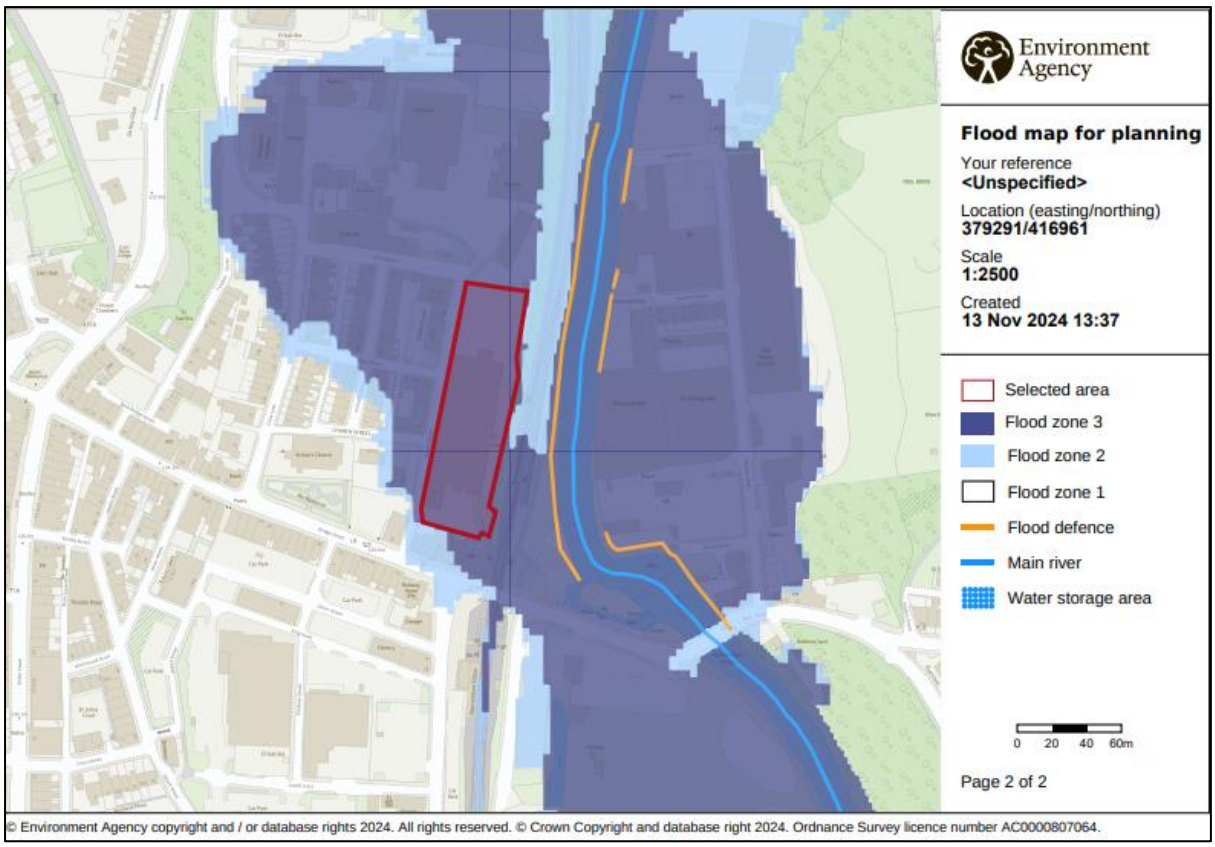

Figure 1: Flood Zone Map for Site (Ref 6)

2.2 Fluvial

Fluvial flooding occurs when the flow capacity of a watercourse is reached, causing water to flood nearby areas. As previously mentioned, the area south of the site operates as the functional floodplain, with the site itself located in Flood Zone 3.

The fluvial flood risk is variable across the site, having a Medium – High (greater than 1% chance) risk of fluvial flooding throughout. However, it is likely the parking area, which is approximately 2m above the eastern boundary of the site, is reduced in fluvial risk compared to the areas of lower elevation.

The main source of fluvial flood risk to the site is from the River Irwell, which is located approximately 30 m east of the site. The site is, to some extent protected from this fluvial risk due to the presence of a well-constructed flood wall and engineered high ground (EA assets 01313IRWE06) (Ref 7).

In the EA's Product 4 data (Appendix 3), the site is located closest to node point 2, located approximately 35 m east of the site. The development is shown at being at a current risk of flooding in around a 1 in 75-year flood event alongside the eastern boundary of the site. This

is due to the elevation of the land between the site and the River Irwell reaching elevations of between 127.25 mAOD and 127.5 mAOD, thereby preventing flood waters from accessing the site until flood waters held behind the defences reach this level. After a flood reaches this level the risk becomes more pronounced and when climate change is taken into account the 1:100 year flood level (plus climate change) and becomes similar to the current 1 in 1000-year flood scenarios in both the defended and undefended models.

2D node points 5 and 6 show the depth of flooding on site, with node point 6 located closest to the development area.

Figure 2: Fluvial Flood Risk Map (Ref 8)

Table 3: Estimated water depths from fluvial flooding at the proposed development site.

Note: Elevations highlighted red are above the assumed FFLs of the property, those in orange are within a margin of error when using Lidars (below elevation of land between the site and the river Irwell) (all 2D node elevations are highlighted red as this is the modelled depth on site).

Flood Scenario	Predicted Flood Water Level (mAOD)					
	Node Point 2		2D Node Point 5		2D Node Point 6	
	Undefended	Defended	Undefended	Defended	Undefended	Defended
1 in 50-year	127.07	127.2	-	-	-	-
1 in 75-year	127.2	127.32	126.11	127.28	126.11	127.28
1 in 100-year	127.37	127.36	126.79	127.54	126.79	127.54
1 in 200-year	127.4	127.56	-	-	-	-
1 in 1000-year	127.7	127.85	-	-	-	-
1 in 100-year + 30%	127.6	127.65	-	127.93	-	127.88
1 in 100-year + 35%	127.65	127.67	-	127.99	-	127.92
1 in 100-year + 70%	127.9	127.91	-	128.14	-	128.01

Whilst the site as a whole has estimated ground levels acquired from the LiDAR topographic survey between 125 mAOD and 127.5 mAOD, the area in which the proposed developments are to take place, the eastern boundary of the site, is located between 125 mAOD and 125.5 mAOD.

Table 3 shows the majority of flood events likely to result in flooding on site, with flood levels predicted to reach circa 127.92 mAOD in the defended 1 in 100-year plus 35% climate change factor (the required climate change allowance) at Node point 6. This is a flood depth of approximately 2.42 m in some areas.

However, Table 3 also demonstrates that despite the level of flood water predicted at node point 2 in the 1 in 75-year flood scenario reaching 127.32 mAOD in the defended scenario, the estimated level of high ground of 127.25 mAOD to 127.5 mAOD between the site and the River Irwell, 2D node points 5 and 6 suggests during these events there will be flooding on site.

There is also a possibility of a dip or gap in this protection leading to flood waters accessing the site through alternative pathways, although it is worth noting that the flood elevations at node point 2 would change and reduce as the river moves downstream.

2.2.1 Fluvial risk and flood defences

According to the product 4 data (Appendix 3) and the EA asset register (Ref 7), the flood wall (Asset ID 64080) at its most upstream point is at an elevation of 130.55 mAOD, with the most downstream point at an elevation of 126.86 mAOD. This asset is demonstrated in Figure 1, running along the western bank of the River Irwell.

Not seen in Figure 1 are the engineered and natural high ground (Asset IDs 69705 and 92017) (Ref 7) flood defences. These defences are located downstream of the flood wall, with the engineered high ground's most upstream point beginning at the termination of the flood wall.

The upstream elevations of these defences are 124.3 mAOD and 123.6 mAOD respectively, with their downstream elevations increasing to 125.34 mAOD and 127.12 mAOD. This helps to demonstrate that as the river passes the flood wall, in certain flood events, such as the 1 in 75-year event, flood waters may well be able to breach the engineered and natural high ground and begin flooding on Bridge Street.

Furthermore, with Bridge Street being a relative low point in elevation, between 126 mAOD and 126.5 mAOD, flood waters may not be directed away from this area. Whilst Garden Street is located at approximately 128.25 mAOD and descending as it moves north, the pooling water may be able to find preferential pathways towards the site. It is likely that flood waters are able to access the eastern boundary of the site, where the topography sharply reduces due to the railway embankment, before flowing north and resulting in flooding on site. Flooding of the site once the defences are overtopped could be relatively rapid.

Figures 1 and 2 help show this potential risk, with the areas located directly behind the flood wall starting from its most upstream point have a reduced risk of flooding, with the land behind the most downstream areas of the flood wall shown to be at an increased likelihood of flooding.

In all 1 in 100-year plus climate change scenarios, it is expected that the flood defences would be breached. In these scenarios, it is likely that the site would begin to flood rapidly after this. With modelled depths of up to 128.14 mAOD, the lowest areas of site would be inundated with between 2.5 and 3 metres of water.

This would therefore result in the storage building, which is approximately 4 m tall, being almost entirely submerged. During the site visit, it was mentioned that the storage building will be housing expensive materials, and as such it may be important to raise the floor level, and building, in order to limit damage to the materials from flooding.

However, due to the depth of flooding, raising the floor level would not provide much protection in extreme breach scenarios. Due to this, the applicant should consider tanking the shed in waterproofing in order to protect the materials.

With the risk of fluvial flooding on site, it is important that site operators are aware of any flood warnings, to allow for evacuation to higher ground. Due to this, site operators should implement flood risk procedures in order to protect the site staff, such as training on evacuation routes and flood warning drills.

An audible flood alarm (linked to a sensor that would detect the start of an event on site) could also be introduced. A level sensor in a drained sump such as a manhole could be used to house such a sensor which once triggered activates an alarm through the site.

2.3 Surface Water

Surface water flooding arises during heavy rainfall events where water accumulates on the surface in low lying or obstructed areas. The risk of surface water flooding increases with the amount of urban area and the creation of impermeable hard surfaces. According to the Greater Manchester SFRA (Ref 9), Bury, in which Ramsbottom is located, is listed as an area at risk of surface water flooding (Figure 3) with opportunity areas for critical drainage management (OAFCDM).

The site has a ‘High’ risk of flooding from surface water, which means the area has a chance of flooding of greater than 3.3% each year (see Figure 4). The EA’s flood maps (based on levels taken from LiDAR data) have identified low-lying points where surface water accumulates. With the site residing between 125-127.5 mAOD, and the surrounding areas at higher elevations than Garden Street, surface water accumulates on site and along Garden Street.

In the Low-risk scenario (Figure 5), surface water depths of at least 900mm alongside the eastern boundary of the site (the development area) are seen, alongside the northern most areas of the site. Garden Street is also expected to have depths of at least 900mm.

Figure 5 demonstrates the flood water depth in a High-risk scenario (an increased likelihood of occurring), with areas of Garden Street and the development area simulated to have surface water depths of 900 mm, although the extent of area at this depth is reduced in comparison to the low-risk scenario.

Figures 7 and 8 show the velocity of the flood water in the area, with both the Low and High-risk events demonstrating flow on site is likely to be below 0.25 m/s. However, flow on Garden Street in both scenarios is likely to be greater than 0.25 m/s, with the flow on Bridge Street also greater than 0.25 m/s. This is due to the topography of Bridge Street directing surface water flow towards the site.

During the site visit, it was suggested that the flood event seen on site in 2015 (Appendix 3) which resulted in approximately 1 m of flood depth was caused as a result ponds west of the site on Bridge Street overtopping and flowing down towards the site and Garden Street.

Surface water flooding through overtopping of these local ponds would restrict the potential evacuation routes for site occupants, with fluvial flooding occurring from east of the site, and both pluvial and fluvial floods accumulating on garden street and to the areas north of the site.

It is important that Bury council and/or the Highways Authority maintain the surface water drains in the area to ensure they remain unblocked to allow for the free flow of surface water.

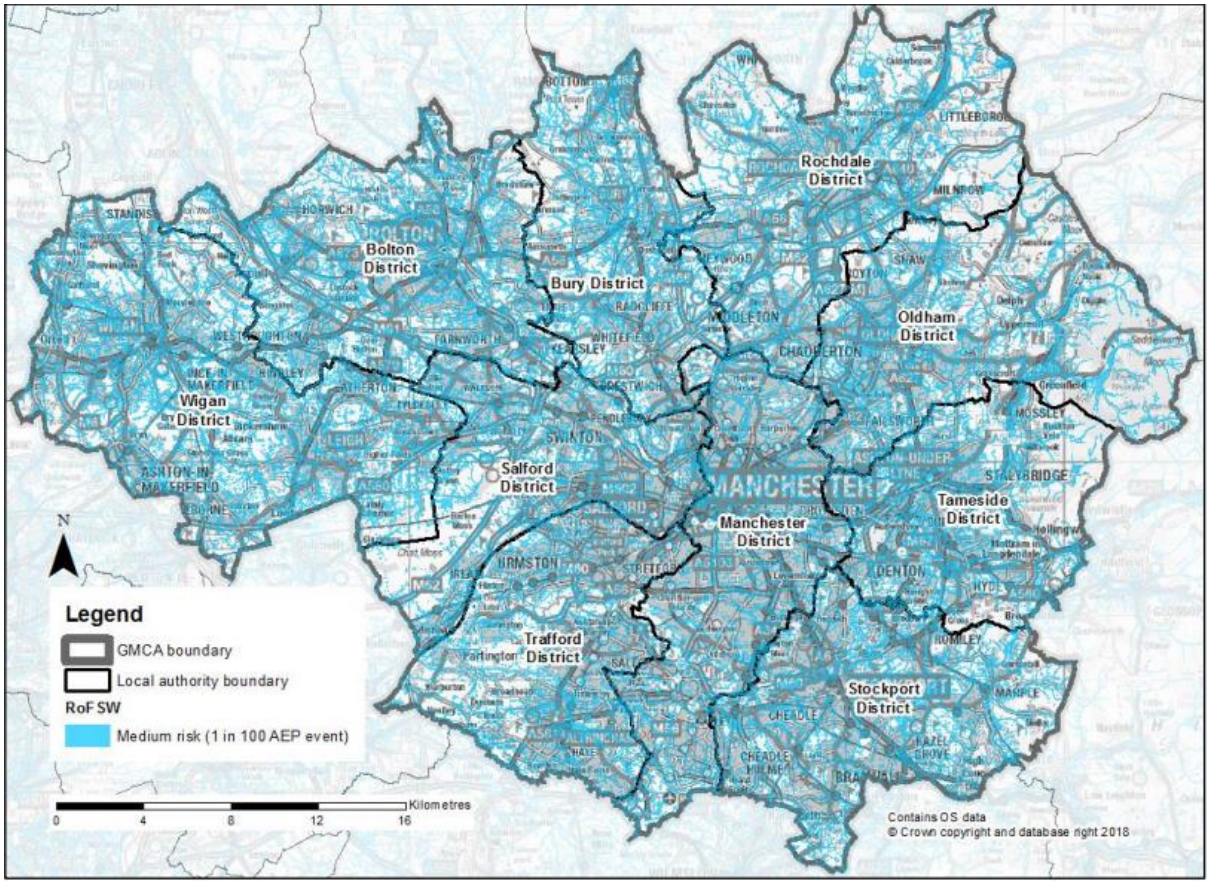

Figure 3: Greater Manchester Surface Water Flood Risk (Ref 9)

Figure 4: Extent of Surface Water Flooding (Ref 8)

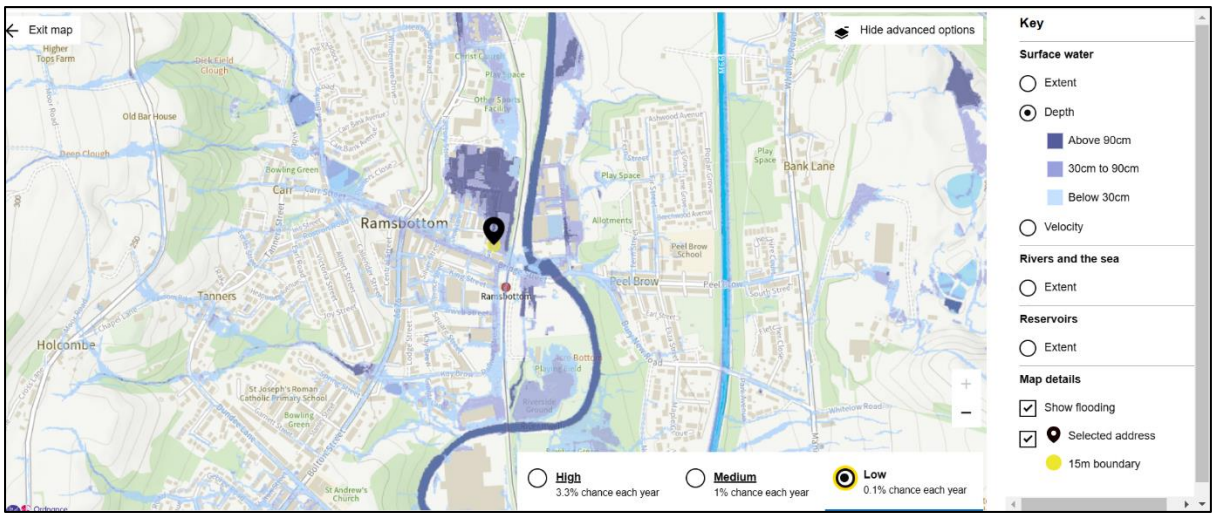

Figure 5: Low Risk Surface Water Depth Map (Ref 8)

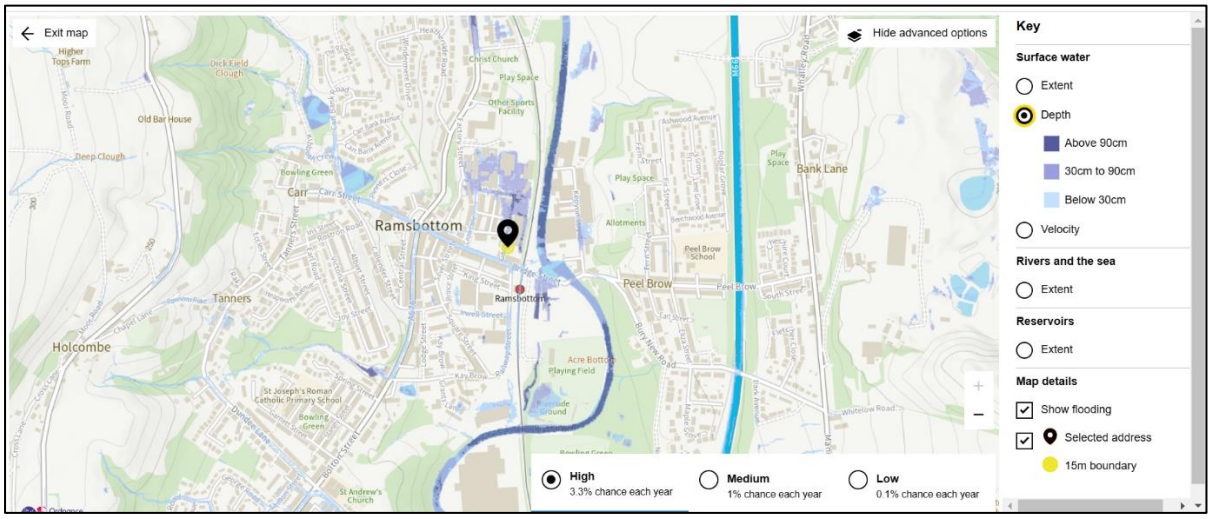

Figure 6: High Risk Surface Water Depth Map (Ref 8)

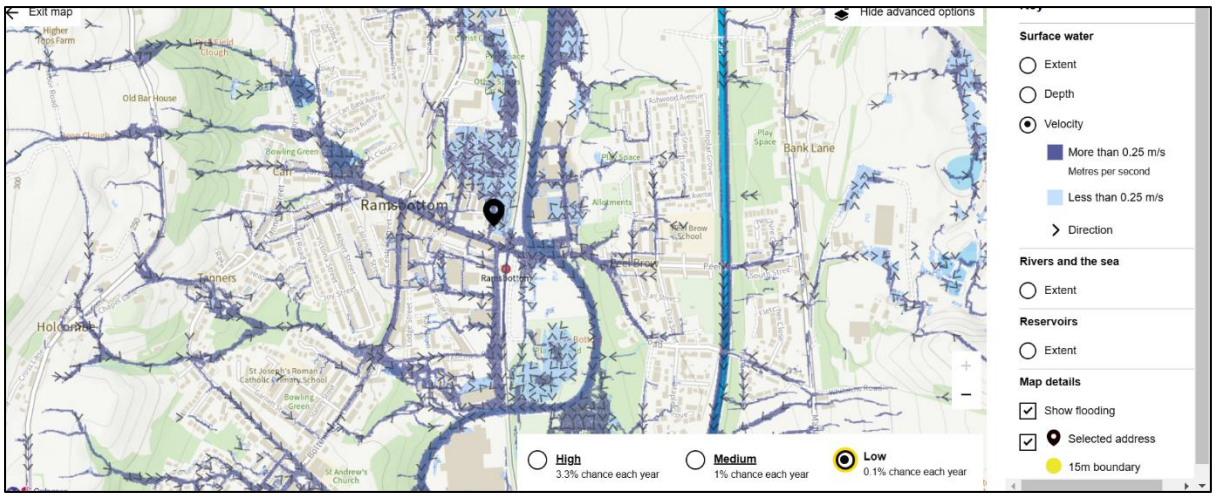

Figure 7: Low Risk Surface Water Velocity Map (Ref 8)

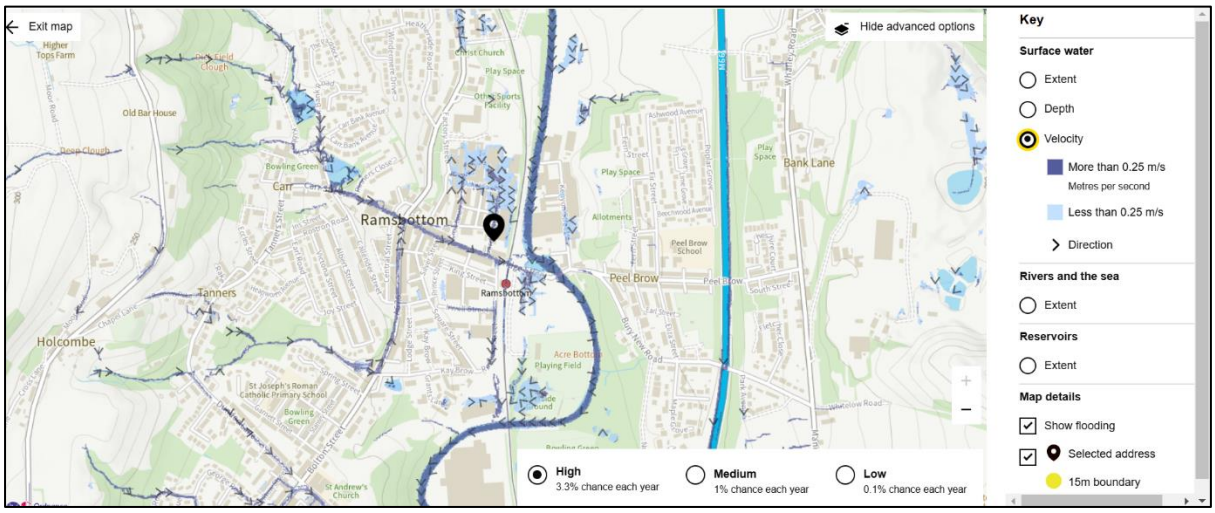

Figure 8: High Risk Surface Water Velocity Map (Ref 8)

2.4 Groundwater

Groundwater flooding occurs when water stored beneath ground level rises to breach the surface. According to the Greater Manchester SFRA (Ref 9) Bury and its surrounding areas are not listed as at risk of groundwater flooding.

DEFRA's groundwater vulnerability map shows (Figure 9) the site as being designated a Medium-Low risk. This is likely due to the site's proximity to the River Irwell, alongside being a low-lying point within the local area.

As mentioned in sub-section 1.3, the site resides on a bedrock composed of Mudstone and Siltstone. Mudstone is relatively impermeable, which would increase the risk of flooding, alongside a naturally wet floodplain soil with high groundwater levels. However, with the River Irwell being just 30 m east of the site, it is likely that groundwater flows away from the site in the direction of the Irwell, reducing the risk of groundwater flooding.

Figure 9: DEFRA's Groundwater vulnerability map shows a Medium-Low risk of groundwater flooding (Ref 10)

2.5 Reservoirs

The EA's 'Long-Term Flood Risk Map' (Ref 8) identifies the site as at risk of flooding from reservoirs (see Figure 10). Ashworth Reservoir is located approximately 3.3 km southeast of the site, with Scout Moor High Level Reservoir located approximately 4.2 km northeast of the site. There are also numerous small ponds/reservoirs which may have an impact.

Flooding from reservoirs may come from overtopping due to greater inflows than outflows, or from full or partial failure of the dam walls. The site's relative proximity to reservoirs means there is a risk of reservoir flooding from dam failure or overtopping of the reservoir. The reservoir undertaker is responsible for providing emergency flood and evacuation plans to the relevant persons interested in the reservoir. Furthermore, inspections are to be undertaken by an independent qualified civil engineer, and a report is completed, including any maintenance works required, the time of the next inspection, and any safety measures that must be completed in a designated timeframe.

Hence, the risk of flooding from reservoirs is low. Reservoirs are regularly inspected by engineers and are typically safe in the UK. For this reason, this FRA has classified the risk of reservoir flooding as Low, although it is important to note that the EA's flood maps do not categorise reservoir flooding in terms of High to Low risk.

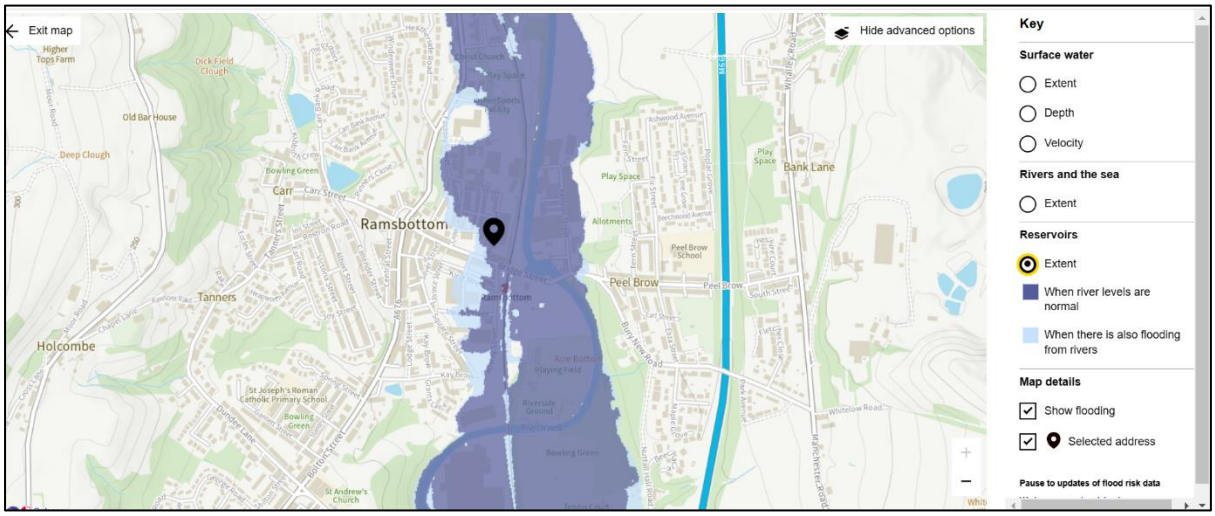

Figure 10: Extent of Flood Risk from Reservoirs (Ref 8)

2.6 Tidal

There is no risk of tidal flooding at the site.

3.0 Accounting for Flooding Within the Proposed Development

The NPPF classifies the property as a 'Less Vulnerable' development (Ref 11) given the commercial/industrial usage.

Given the extension and proposed developments are site specific, the sequential test is not required.

Despite being located in Flood Zone 3, it is the view of this report that the risks associated with flooding can be adequately managed through robust emergency planning.

As outlined in Section 2.5, the site has a Medium (between 1% and 3.3% chance) to High (greater than 3.3% chance) risk of flooding each year for both surface water and fluvial flooding, with surface water accumulating on site and the areas to the north (Ref 8).

In the 1 in 100-year plus climate change events, the site is likely to suffer flood waters with depths of over 2 m, with flooding expected on site in all scenarios from the 1 in 75-year event and greater.

Due to this risk, this FRA recommends protecting site operators through the introduction of robust emergency planning, such as flood drills and training operators on evacuation routes. It may also be useful for the site to look to implement a high level 'catwalk' type egress route across the road as an option for evacuation, alongside providing roof access for rescue operations, with Garden Street likely to be submerged in extreme flood events.

A site flood alarm could also be introduced, in which a sump with a manhole cover above it would have a level alarm, which once triggered activates an alarm through the site.
In scenarios where the River Irwell overtops the flood walls located to the east of the site, the site is likely to rapidly flood. Due to this risk, site operators should continually check for flood warnings and evacuate the areas of greatest risk as soon as possible.

Surface water flooding accumulates on Garden Street, flowing down from the west of site with velocity of greater than 0.25 m/s and depths over 900 mm in the low-risk scenario. Surface water flooding is also expected on the eastern area of site, the development area, showing that the site is at risk of flooding from both the east and west of site. This would result in flooding of all proposed developments from both fluvial and pluvial sources.

Due to the depth of flooding in the low risk (1% chance) scenarios for both fluvial and pluvial flooding, raising floor levels is unlikely to mitigate the associated risk, and as such evacuation should be prioritised. It may be useful to reprofile the development area in order to direct flood waters away, and add drainage to direct water that would otherwise be trapped on site by the train embankment to the River Irwell.

The site has a Medium-Low risk of groundwater flooding, with Ramsbottom not listed in the Greater Manchester SFRA as an area at risk.

Ashworth reservoir is located approximately 5 km to the southeast of the site and Scout Moor High Level Reservoir located approximately 4.2 km northeast of the site. There are also numerous small ponds/reservoirs which may have an impact.

Due to the site's proximity to reservoirs, the EA's maps have identified the site as being at risk of reservoir flooding. That being said, it is important to note that reservoir failure is unlikely given engineers should be regularly working on and monitoring the UK's reservoirs. Hence, this FRA has classified the risk of reservoir flooding the property as Low.

It is the view of this FRA that it is appropriate for the proposed development to proceed as planned, providing the site has external evacuation or rescue routes, and considers the implementation of a 'catwalk' for evacuation when Garden Street becomes flooded.

Nonetheless, due to the likelihood of both fluvial and pluvial flooding, it would be appropriate for the site's occupiers to monitor the flood warnings of the nearby area, even after installing a level sensor to trigger a flood alarm. Similarly, the site's operators and other residents in the local area should be encouraged to monitor the River Irwell and report any debris and obstructions to the EA. A flood forum in the area could be a method of liaising with the LLFA and EA if, for example, siltation or debris build up started to cause an increase in flooding in the area.

4.0 Conclusions and Recommendations

As a 'Less Vulnerable' development (REF X), it is appropriate for development on Flood Zone 3, but as depths could be significant and as such large mitigation and safeguarding measures are appropriate. To summarise, this FRA makes the following recommendations to mitigate flood risks at the property:

1. The site should implement rigorous flood emergency planning procedures, such as through the use of a 'catwalk' providing availability for safe rescue operations, alongside the recommendation for flood drills for all site operators.
2. Flood alerts and warning systems for the wider River Irwell area should be routinely monitored by site operators in order to allow for evacuation.
3. A flood alarm could also be introduced, in which a sump with a manhole cover above it would have a level alarm, which once triggered activates an alarm through the site.
4. Surface water drains on the property should be maintained by the site operators. It is the responsibility of the property owners to remove any drain blockages on their property. Working drains can help to reduce the accumulation of surface water on site.
5. The site operators should monitor roadside drains and inform the appropriate authorities in the event of a roadside drain blockage. It is the responsibility of the Council and/or United Utilities to maintain the roadside drains.
6. Site operators should consider the installation of additional drainage on site in the development area.
7. The site's operators and others in the local area might wish to monitor the River Irwell and report any debris and obstructions to the EA. A flood forum in the area could be a method of liaising with the LLFA and EA if, for example, siltation or debris build up started to cause an increase in flooding in the area.
8. The applicant should consider re-grading the ground level in the development area to direct water away. This may result in the requirement of flood compensatory storage.
9. In the case of an extreme flood event, the occupiers should evacuate to higher ground with the area to the south of the site the most reasonable point.

The NPPF classifies the site as 'Less Vulnerable' due to the use being industrial. The site resides in Flood Zone 3.

Surface water flooding accumulates on site, on Garden Street and along Bridge Street. Due to the railway embankment on the eastern boundary of the site, surface water would be prevented from entering the Irwell and accumulate in this area of site.

In all scenarios above the 1 in 75-year event, fluvial flooding is expected on site, with the standing advice being FFLs being located at an elevation 600 mm (Ref 12) above the modelled flood levels, alongside any electrical equipment. However, given the nature of the development, a significant rise in floor levels is not feasible.

Given these concerns, it is recommended that evacuation and flood emergency planning is prioritised. This may be utilised in the form of a 'catwalk', or other potential methods which, in the instance evacuation is not possible, enables safe rescue of site operators. Flood drills should be implemented and alerts monitored at all times.

The site has a Medium-Low risk of groundwater flooding, being located in an area with a high water table. The site's risk of reservoir flooding is directly related to reservoir maintenance and upkeep. It is the responsibility of reservoir engineers to ensure that reservoir safety is maintained at all times.

There is no risk of Tidal flooding associated with the development.

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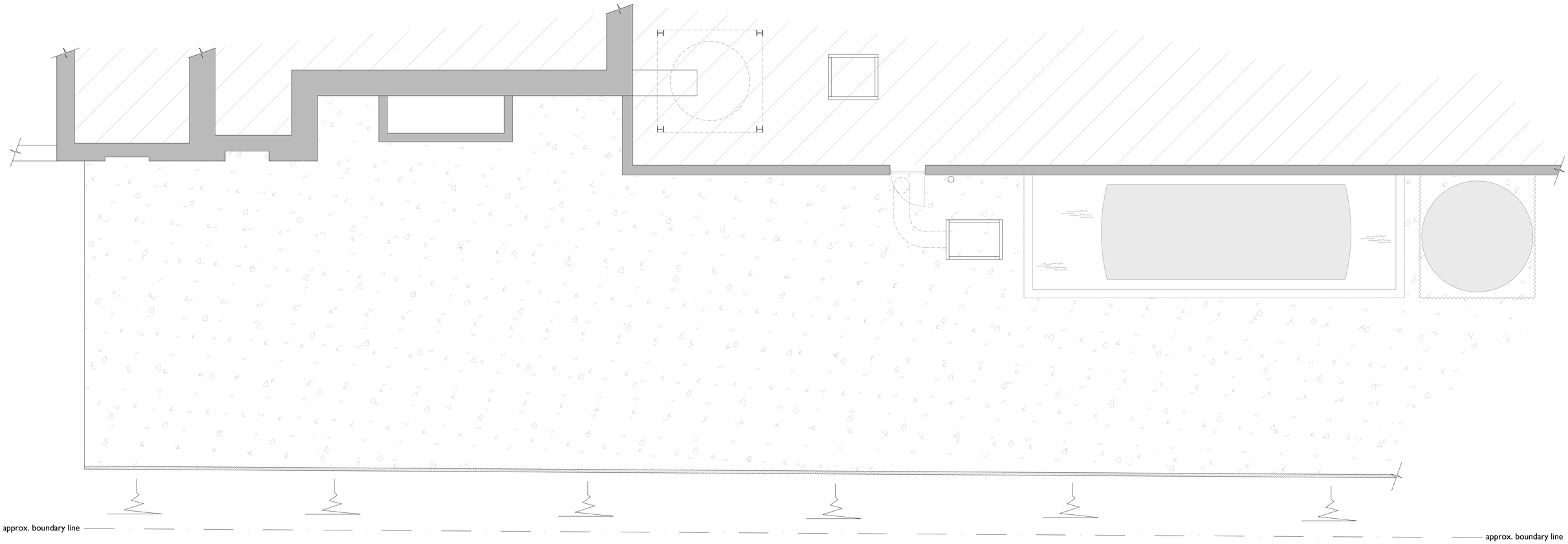
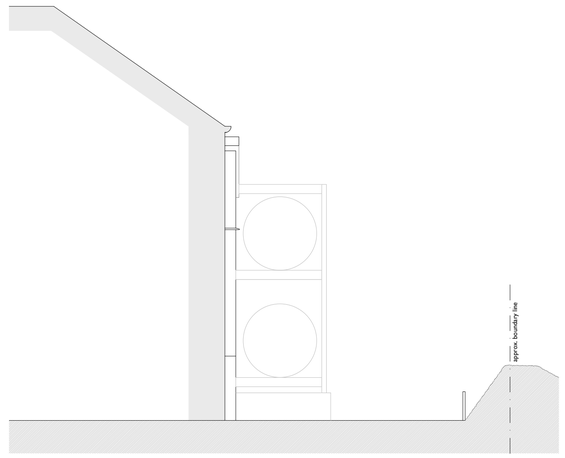
8. Government website. *Check the long term flood risk for an area in England.* Online at: https://www.gov.uk/check-long-term-flood-risk
9. Greater Manchester Level 2 SFRA (2011) (Accessed at: https://www.manchester.gov.uk/downloads/download/3871/strategic_flood_risk_assessment_sfra)
10. Magic Map: DEFRA's Groundwater Vulnerability Map (accessed at: https://magic.defra.gov.uk/MagicMap.aspx)
11. Government Website: National Planning Policy Framework - Annex 3: Flood risk vulnerability classification (accessed at: https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification)
12. Government Website: Preparing a flood risk assessment: standing advice (accessed at: https://www.gov.uk/guidance/flood-risk-assessment-standing-advice#advice-for-minor-extensions)

Plan 1: Existing and Proposed Development



existing ground floor / site plan extract
scale 1:50 @ A1

existing rear elevation
scale 1:100 @ A1



existing sectional side elevation
scale 1:100 @ A1

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t: 07743644720
w: www.skyarchitecture.co.uk

Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Existing Floor Plan & Elevation Extracts	24015	May 2024	A1	
Site Address		Drawing Number	Stage	Scale	
Garden Street, Ramsbottom, BL0 9BQ		001	Existing	1:50	

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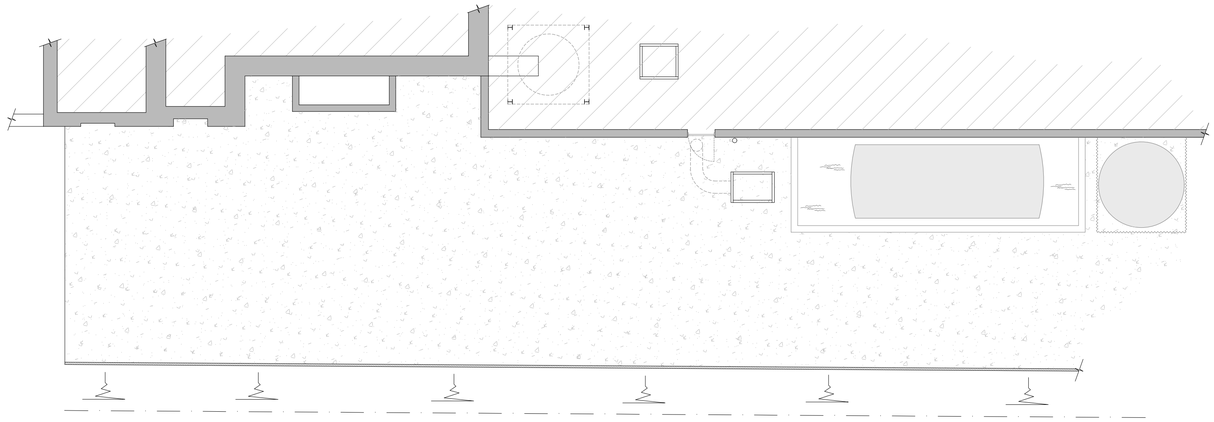
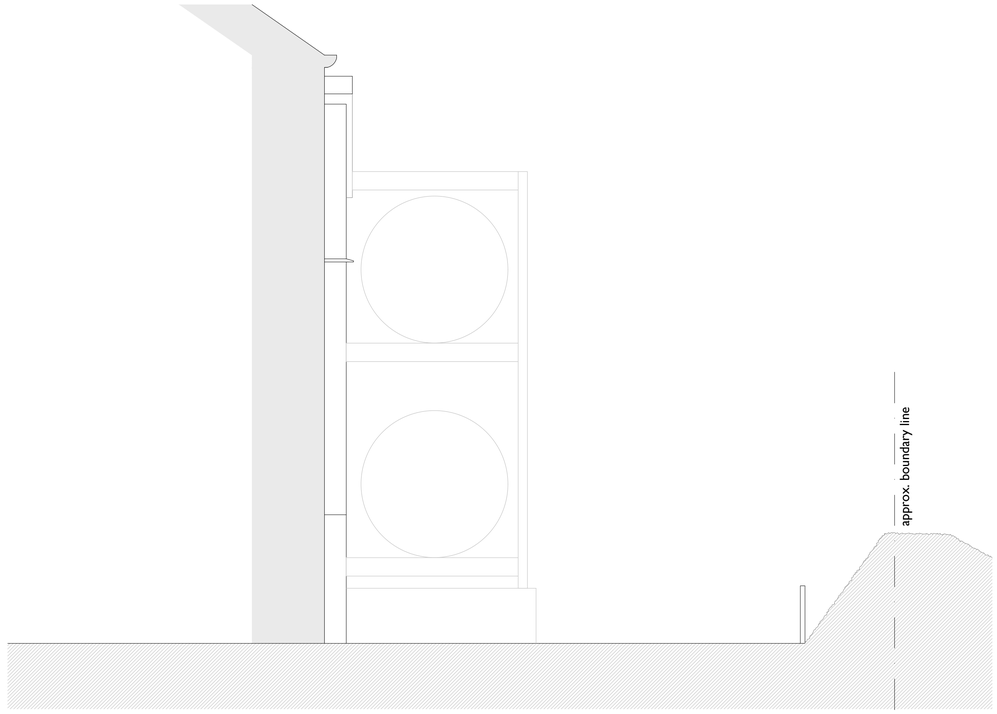


existing ground floor / site plan extract
scale 1:100 @ A1



existing sectional side elevation
scale 1:50 @ A1

existing rear elevation
scale 1:50 @ A1

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t: 07743644720
w: www.skyarchitecture.co.uk

Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Existing Rear and Side Elevations	24015	May 2024	A1	
Site Address		**Drawing Number**	**Stage**	**Scale**	
Garden Street, Ramsbottom, BL0 9BQ		002	Existing	1:50	

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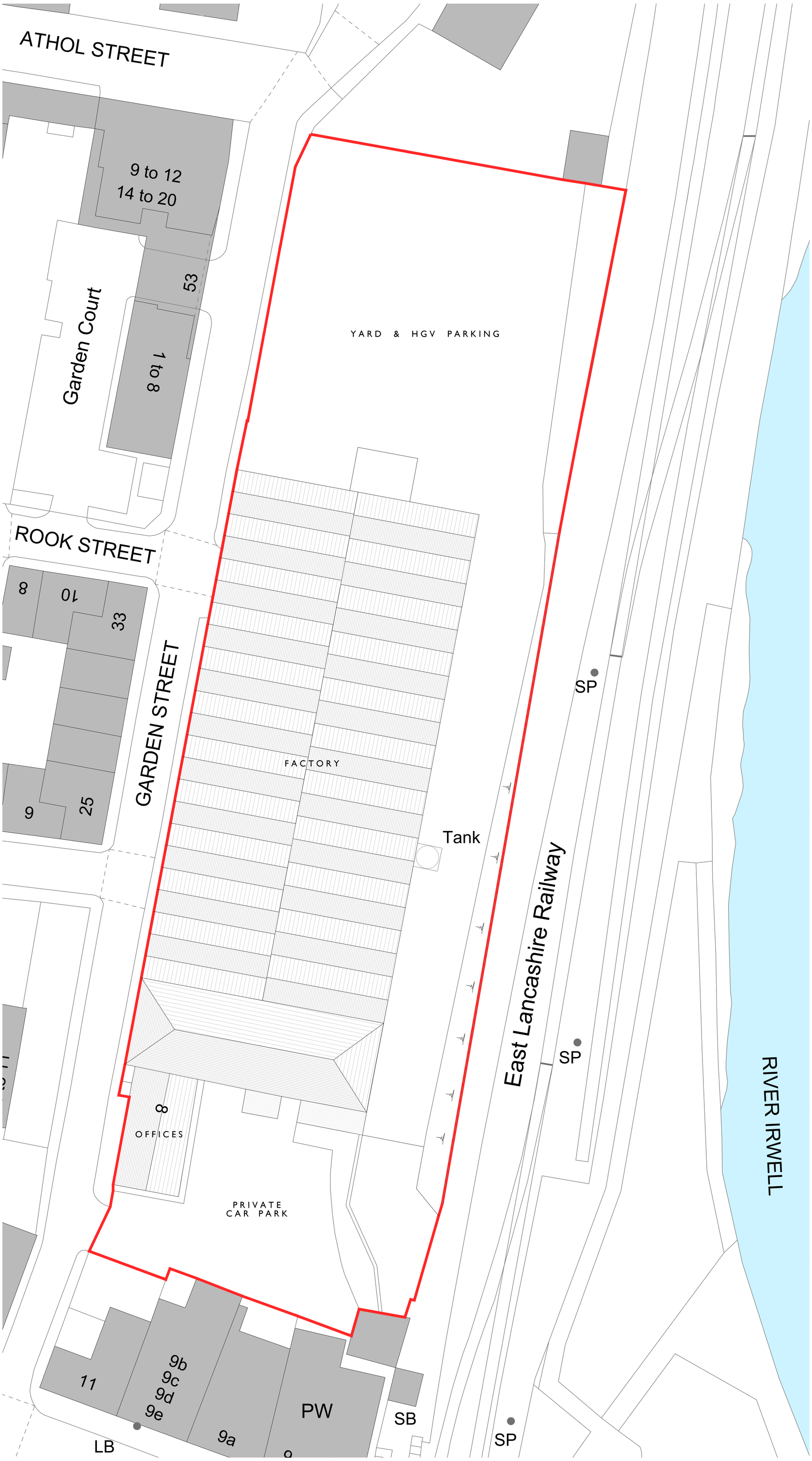

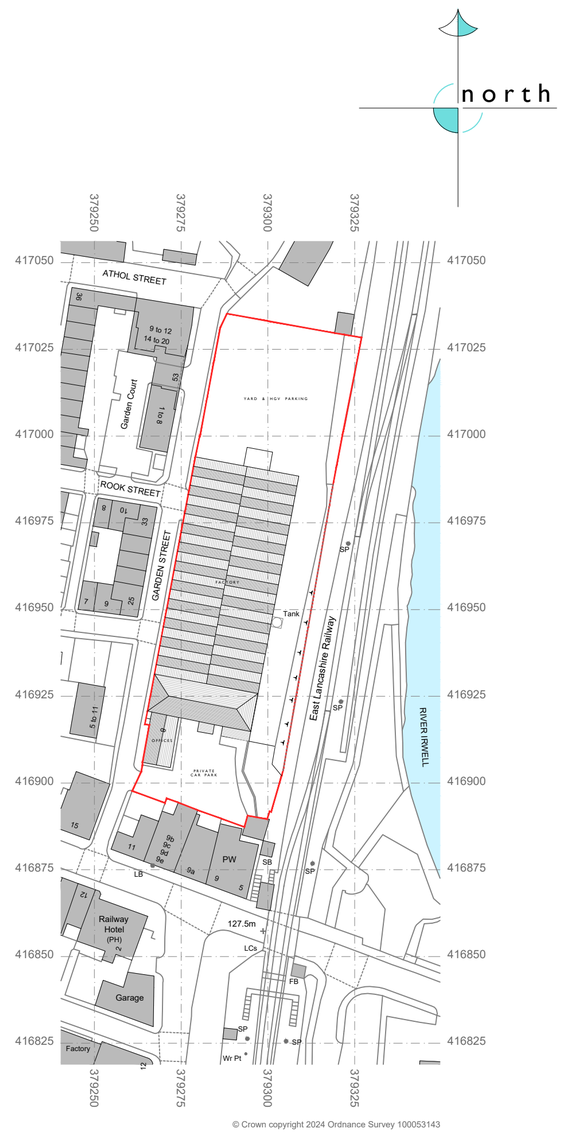

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location plan

scale 1:1250

0 10 20 30 40 50 60 70 80 90 100
m

site plan

scale 1:250

site areas

total = 5,775m² | 61,140ft² | 1.427ac

SKY architecture, design & consulting	Client: Formulated Polymer Products	Drawing Title: Existing Site and Location Plans	Job Number: 24015	Date: May 2024	Paper Size: A1	Revision
	Site Address: Garden Street, Ramsbottom, BL0 9BQ		Drawing Number: 003	Stage: Existing	Scale: 1:250 / 1250	

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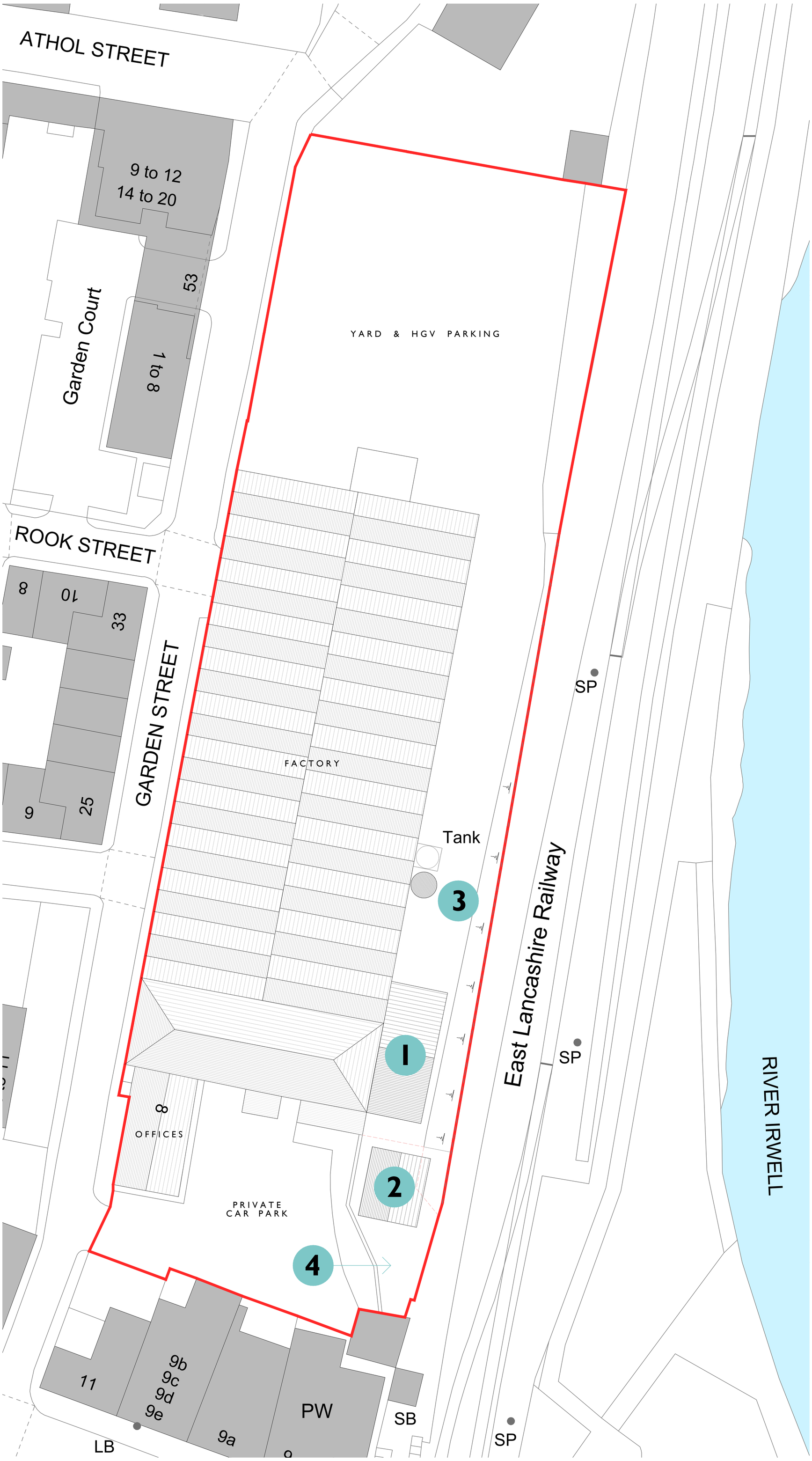

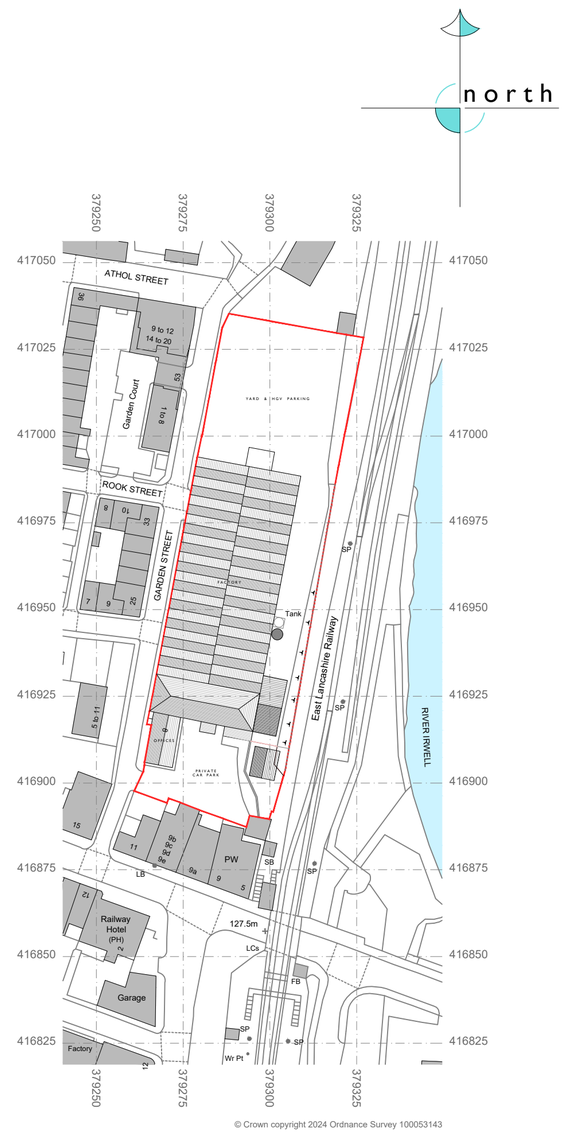

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location plan

scale 1:1250

0 10 20 30 40 50 60 70 80 90 100
m

1 denotes proposed extension to factory - see dwg no's: 101; 102 & 103

2 denotes proposed detached storage shed - see dwg no: 104

3 denotes proposed silo - see dwg no's: 101; 102 & 103

4 denotes proposed soakaway loction

site plan

scale 1:250

site areas

total = 5,775m² | 61,140ft² | 1.427ac

SKY architecture, design & consulting

Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Proposed Site and Location Plans	24015	July 2024	A1	
Site Address: Garden Street, Ramsbottom, BL0 9BQ		Drawing Number: 100	Stage: Planning	Scale: 1:250 / 1250	

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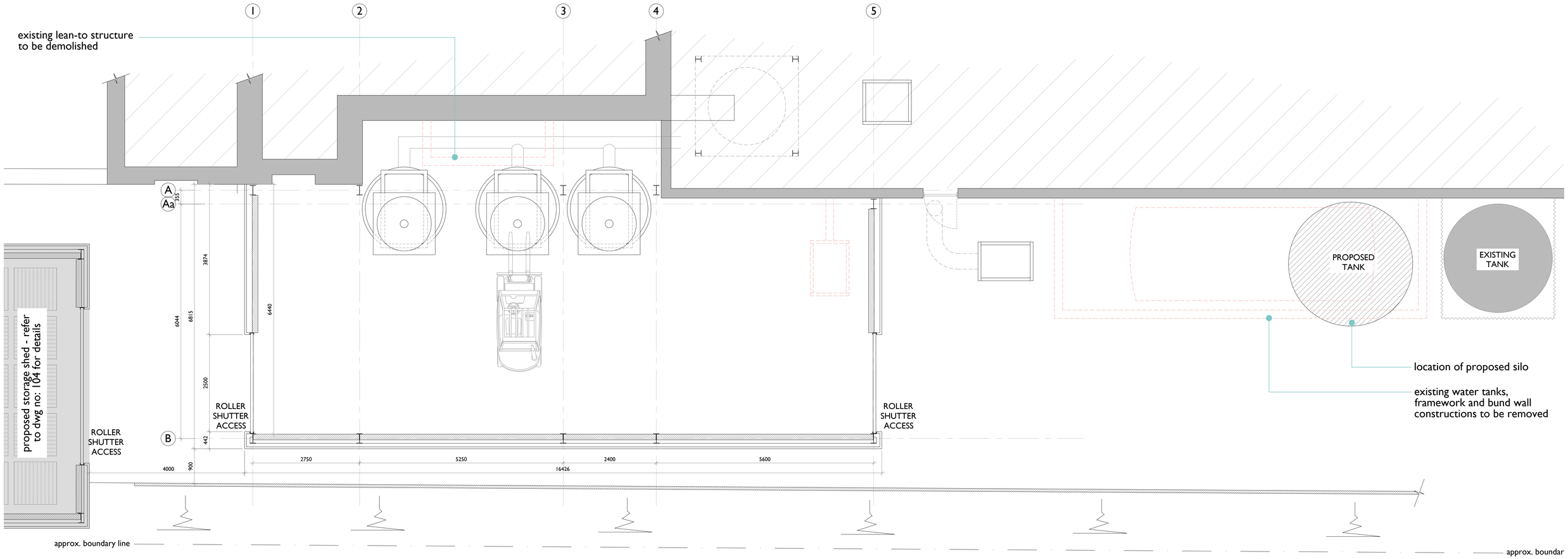
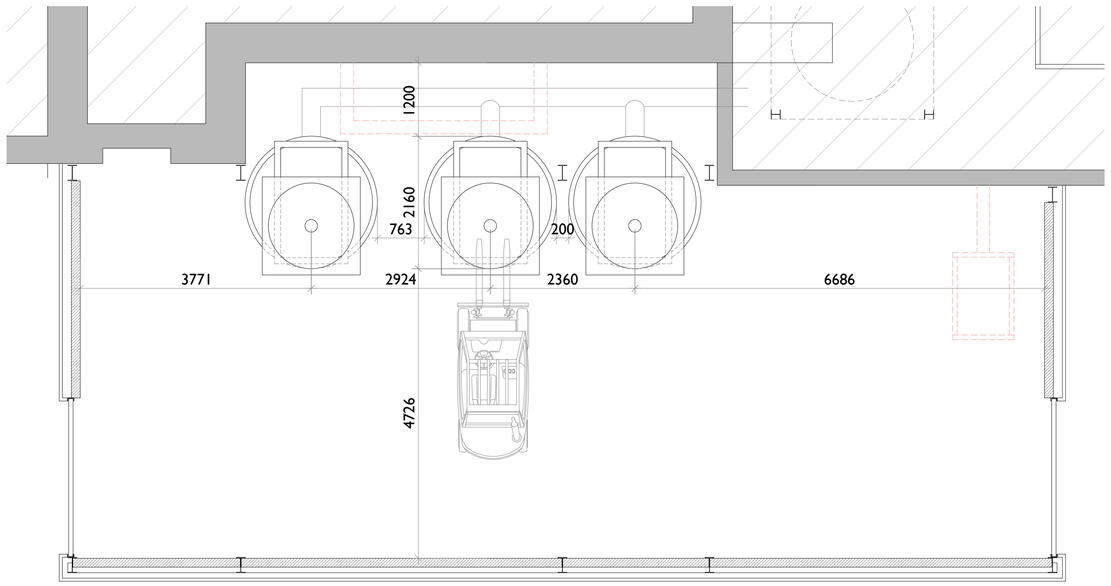


proposed ground floor / site plan extract

scale 1:50 @ A1



proposed tank setting out

scale 1:50 @ A1

notes:

- red dashed lines indicate extent of existing construction to be removed
- shaded areas indicate extent of existing construction to be retained

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e: james@skyarchitecture.co.uk

t: 07743644720

w: www.skyarchitecture.co.uk

Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Proposed Floor Plan FACTORY EXTENSION	24015	July 2024	A1	
Site Address: Garden Street, Ramsbottom, BL0 9BQ		Drawing Number: 101	Stage: Planning	Scale: 1:50	

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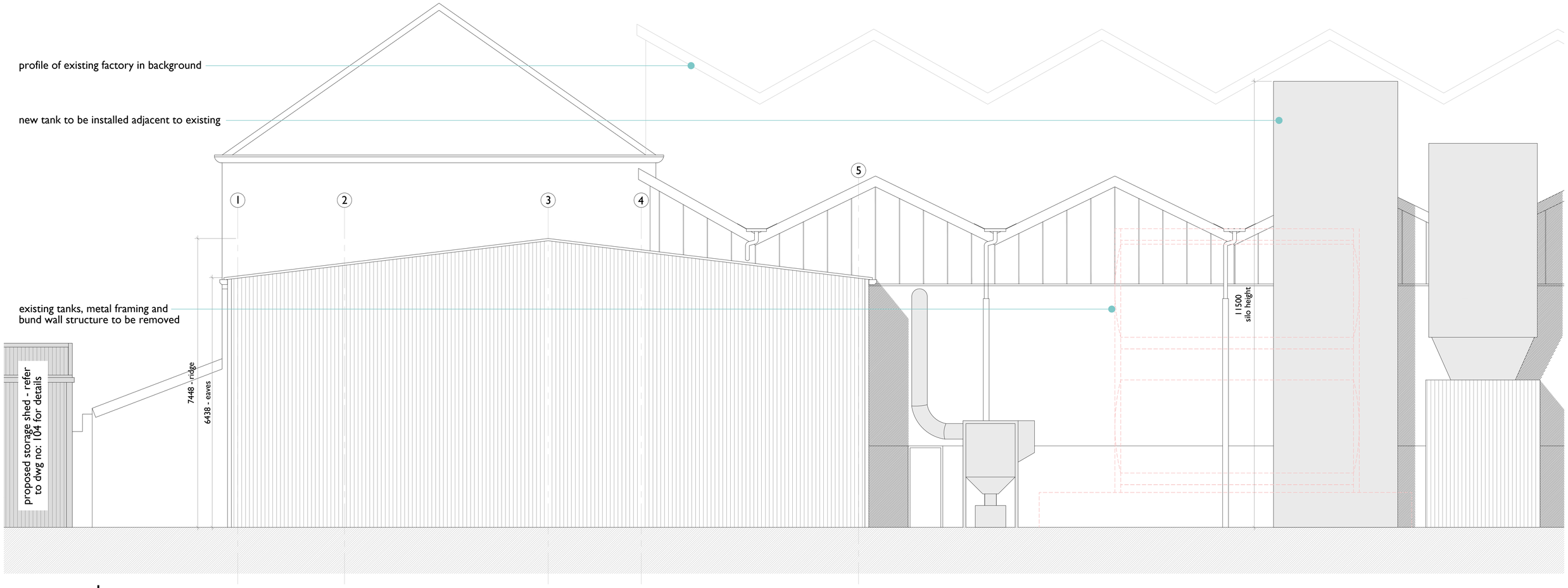
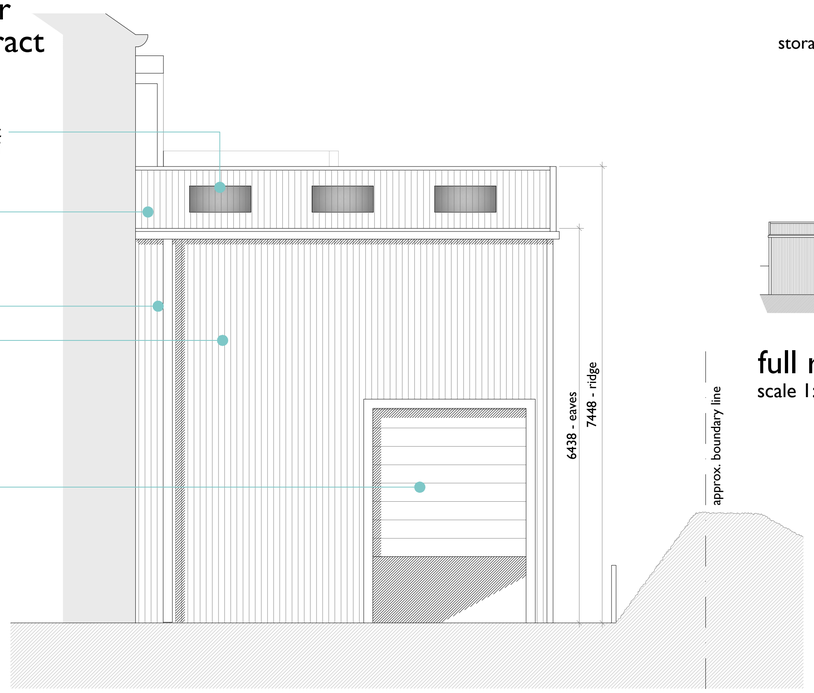


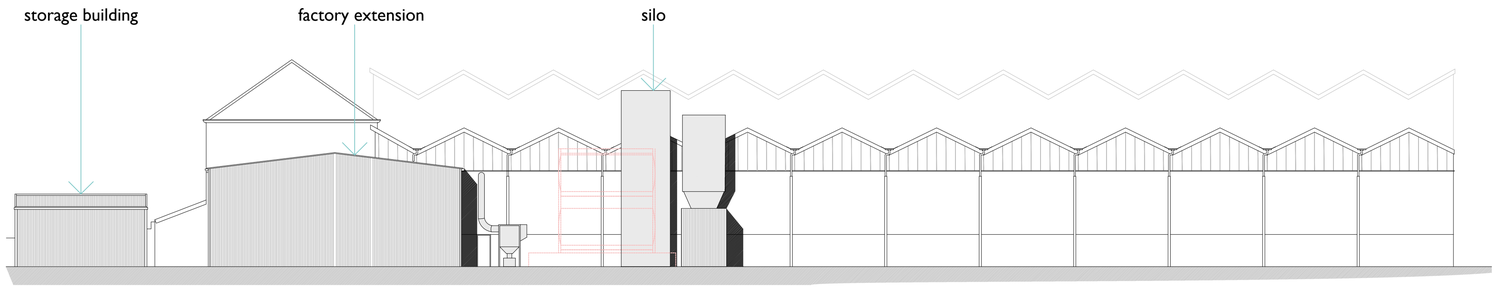
proposed rear elevation extract

scale 1:50 @ A1



side elevation

scale 1:50 @ A1



full rear elevation

scale 1:200 @ A1

note: full elevation has been included to provide context of massing to proposed development elements compared with existing structures

notes:

- red dashed lines indicate extent of existing construction to be removed
- shaded areas indicate extent of existing construction to be retained

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e: james@skyarchitecture.co.uk
t: 07743644720
w: www.skyarchitecture.co.uk

Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Proposed Rear & Side Elevations FACTORY EXTENSION	24015	July 2024	A1	
Site Address: Garden Street, Ramsbottom, BL0 9BQ		Drawing Number: 102	Stage: Planning	Scale: 1:50	

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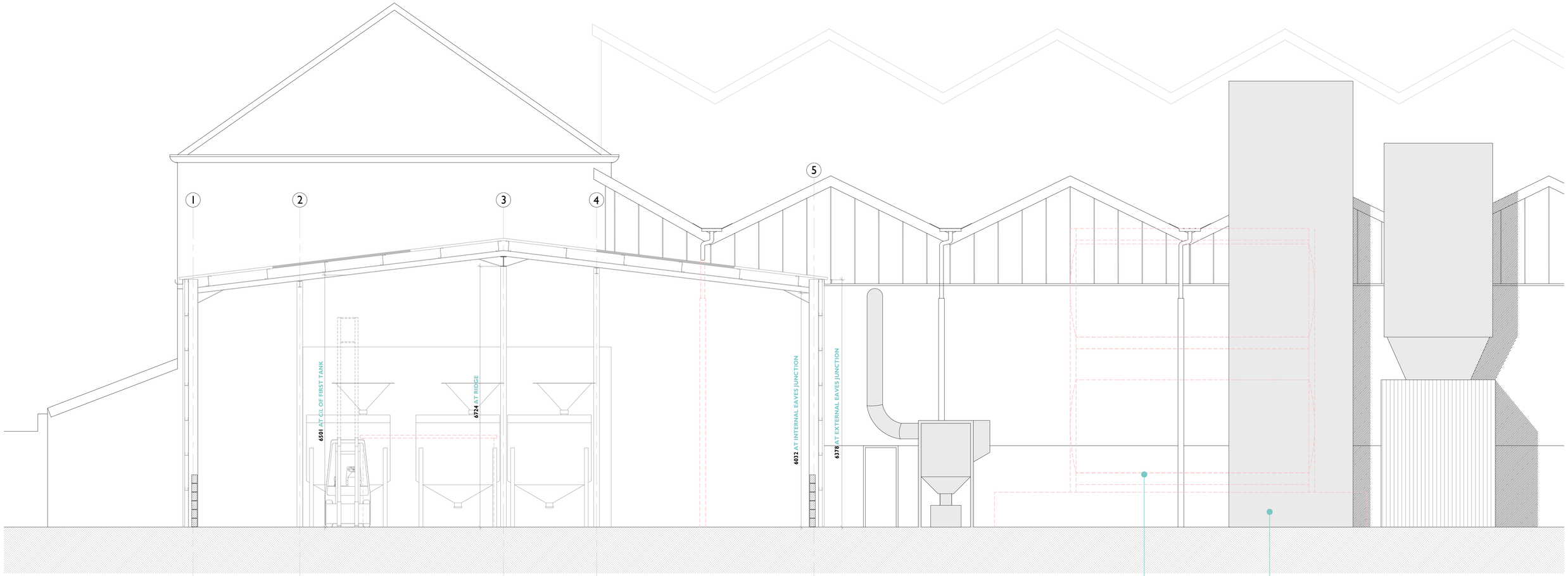
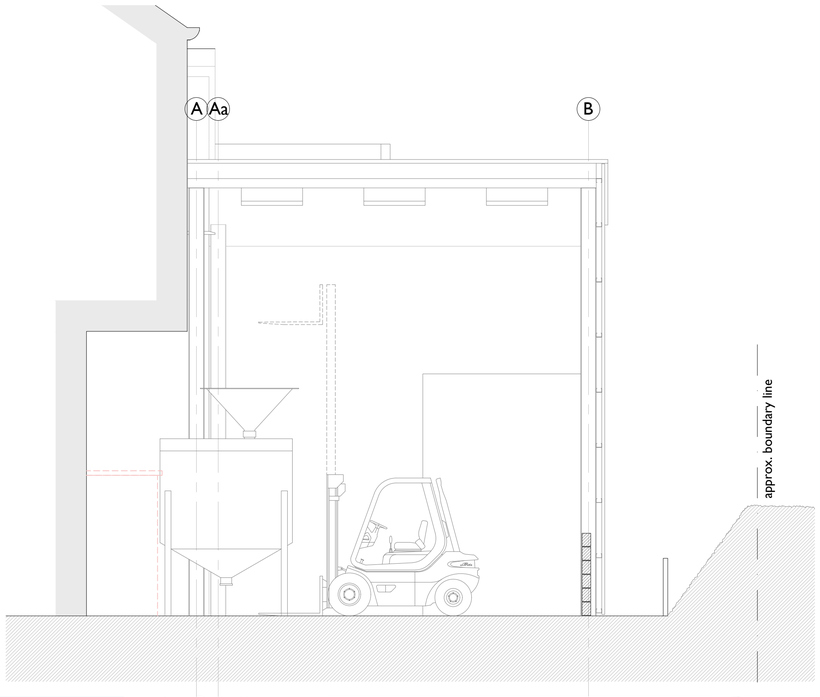


proposed section thru rear elevation

scale 1:50 @ A1



sectional section thru side elevation

scale 1:50 @ A1

notes:

- red dashed lines indicate extent of existing construction to be removed
- shaded areas indicate extent of existing construction to be retained

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t: 07743644720
w: www.skyarchitecture.co.uk

Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Proposed Sections FACTORY EXTENSION	24015	July 2024	A1	
Site Address: Garden Street, Ramsbottom, BL0 9BQ		Drawing Number: 103	Stage: Planning	Scale: 1:50	

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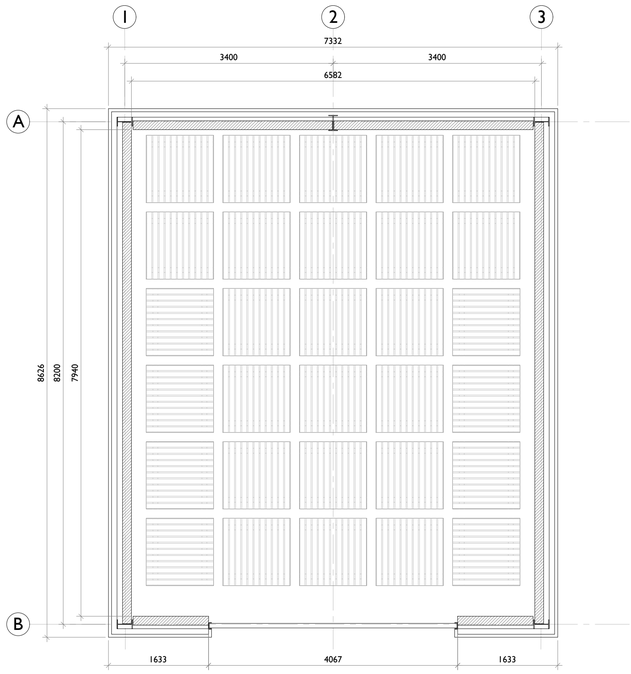
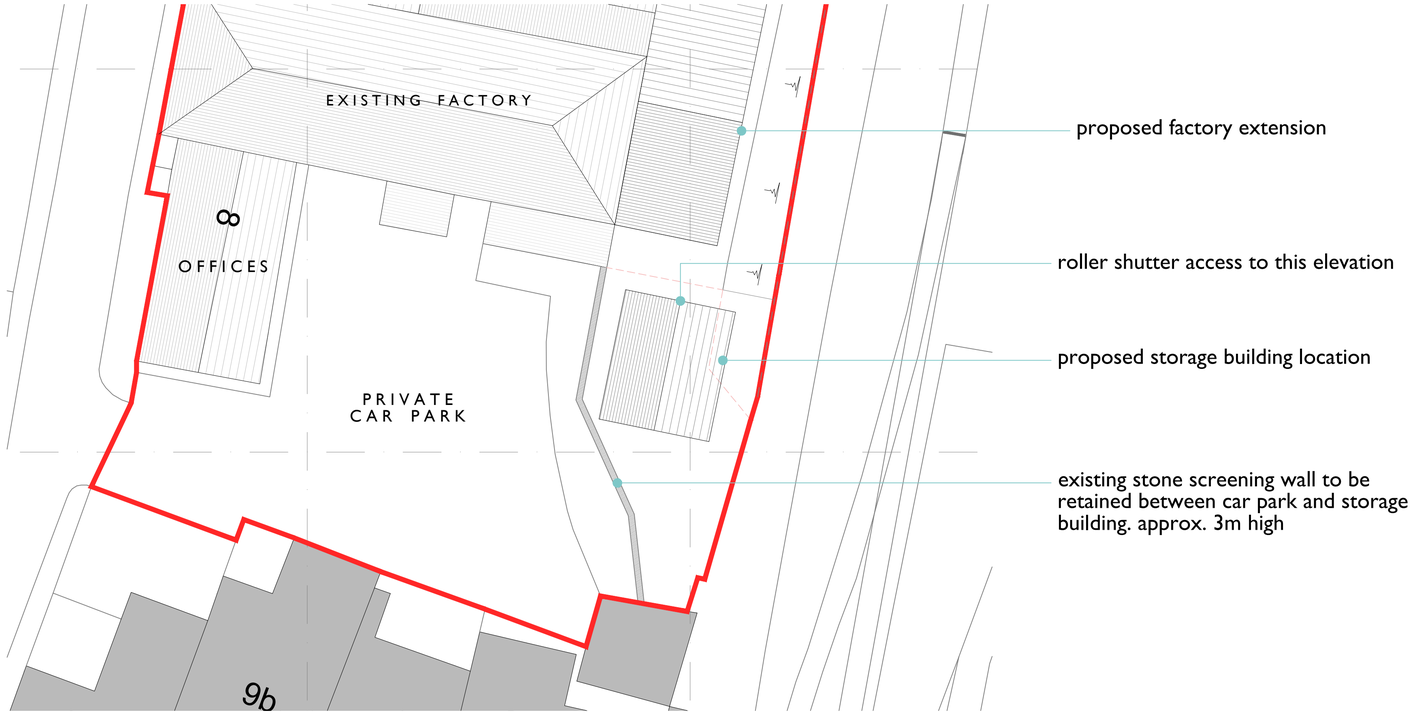


proposed plan
scale 1:50 @ A1



site plan extract
scale 1:200 @ A1

proposed elevations
scale 1:50 @ A1

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Client	Drawing Title	Job Number	Date	Paper Size	Revision
Formulated Polymer Products	Proposed Floor Plan and Elevations STORAGE BUILDING	24015	July 2024	A1	
Site Address: Garden Street, Ramsbottom, BL0 9BQ		Drawing Number: 104	Stage: Planning	Scale: 1:50	

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Appendix 1: Site Photographs

Photo 1: Area in which shed will be developed with soakaway located nearby.

Photo 2: Area of Development including silo and factory extension

Photo 3: Photo looking north at development area

Photo 4: Northern courtyard of the site

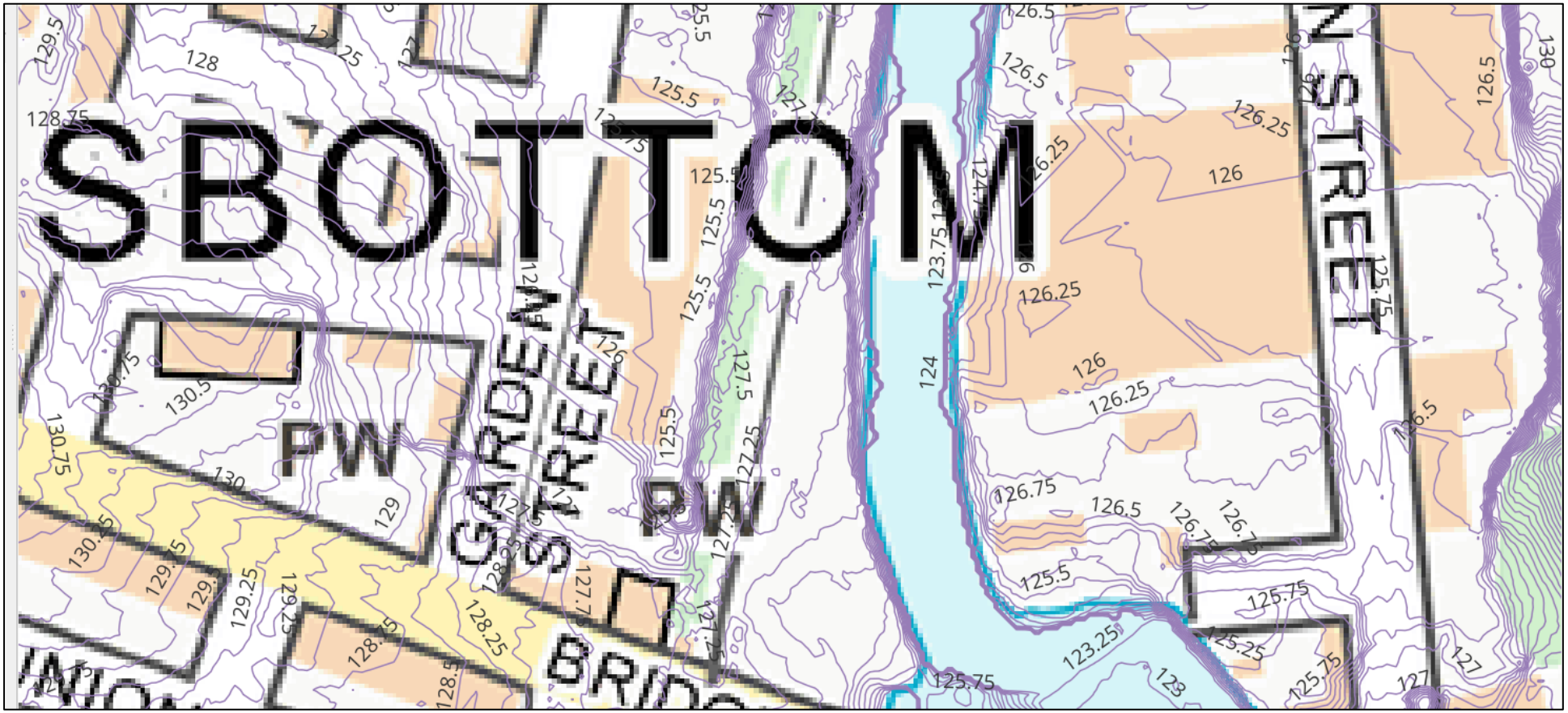
Photo 5: Wall separating the development area and car park for the site located approximately 2m above

Photo 6: Area of extension

Photo 7: Railway embankment on eastern boundary of site

Photo 8: River Irwell

Appendix 2: LiDAR Topographic Survey


SBOTTOM
PW
PW
GARDEN STREET
N STREET
BRID
INIO
130.5
130.75
130.25
129.5
129.75
129.25
129
130
128.75
128.5
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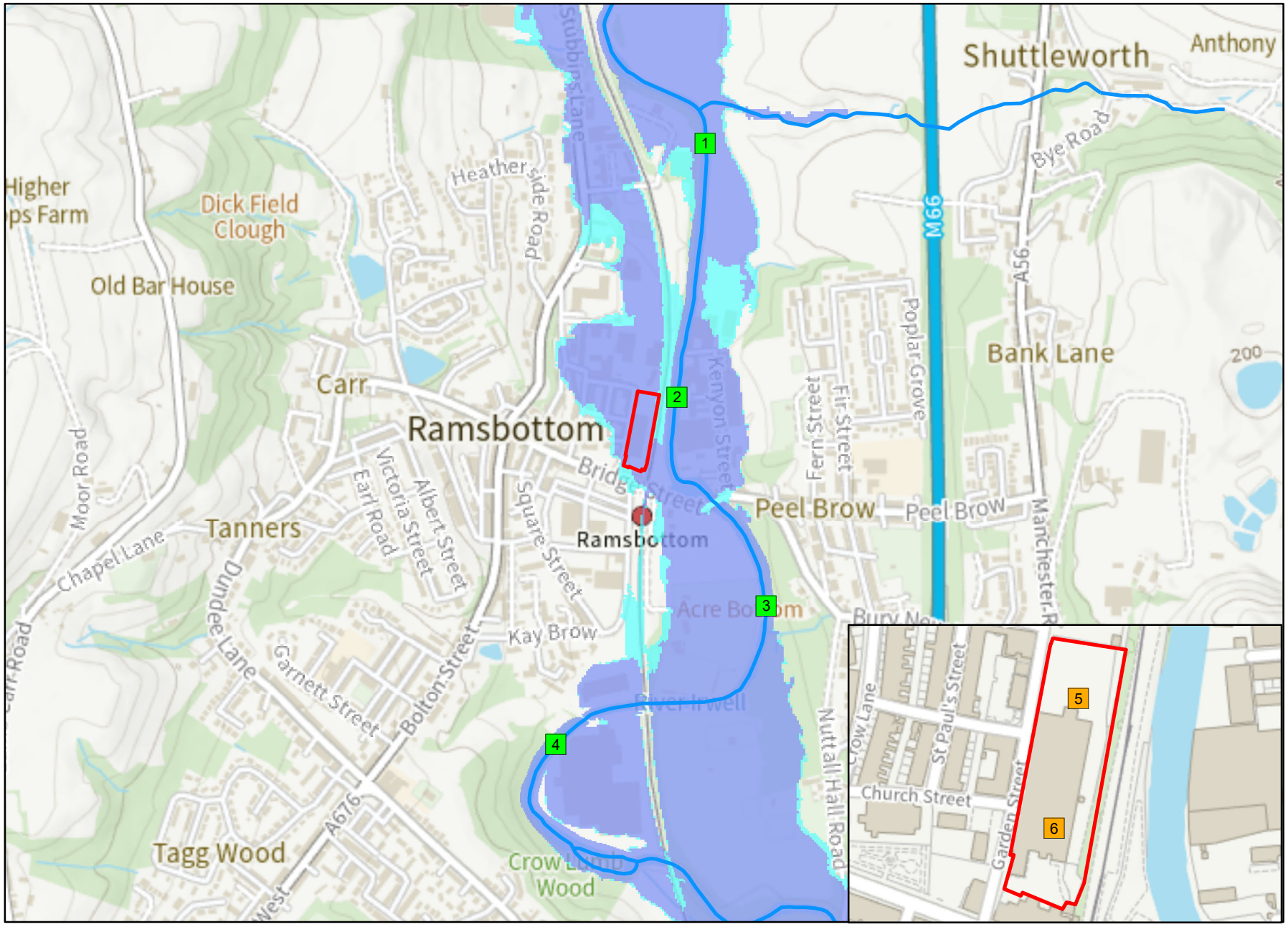
128
127.75
127.5
127.25
127
126.75
126.5
126.25
126
125.75
125.5
125.25
125
124
123.75
123.25
123

Appendix 3: Environment Agency Product 4 Data

Detailed Flood Map Centred on Garden Street, Ramsbottom, Bury, BL0 9BG.
Created 17/09/2024 [GMMC376526SW]



Environment Agency

1:10,001

N

Legend

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

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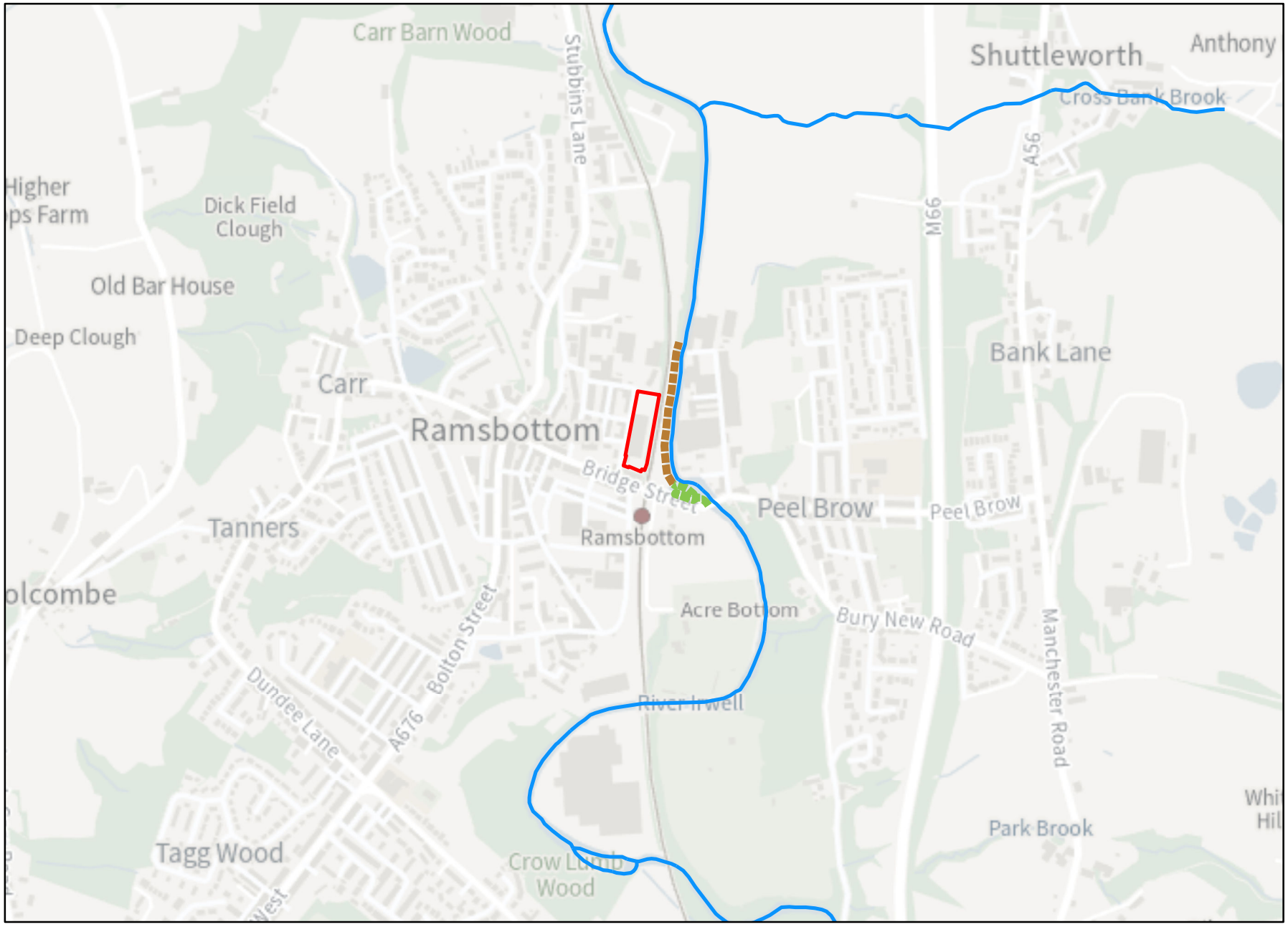
Flood Defence Map Centred on Garden Street, Ramsbottom, Bury, BL0 9BG.
Created 17/09/2024 [GMMC376526SW]



Environment Agency

1:10,001

N

Legend

Site Location

Main River

Defences

Asset ID

64080

92017

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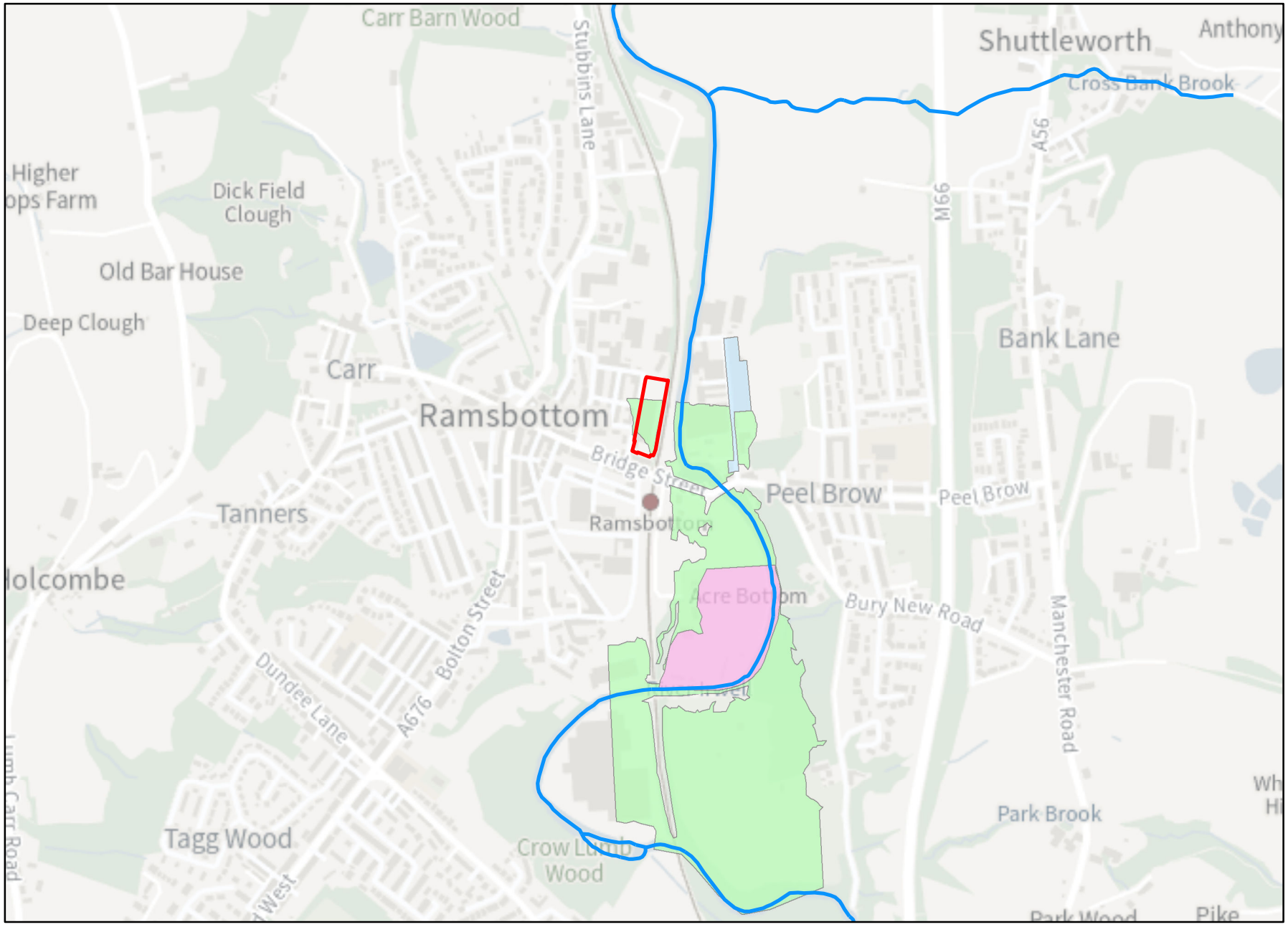
Recorded Flood Outline Map Centred on Garden Street, Ramsbottom, Bury, BL0 9BG.
Created 17/09/2024 [GMMC376526SW]



Environment Agency

1:10,001

N

Legend

Site Location

Main River

Recorded Flood Outlines

Start Date

09/02/2020

26/12/2015

28/01/1995

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					Undefended																																			
Map Reference	Model Node Reference	Easting	Northing	Date	50 % AEP (1 in 2 year)	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 50% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase in flow	50 % AEP (1 in 2 year)	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 50% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase in flow
1	wa013_0246_RM006_54955	379411	417484	Modelled Water Level (m ausNG)	127.20	127.50	127.79	128.06	128.16	128.52	128.77	128.88	129.13	129.15	129.42	129.58	129.42	129.44	127.20	127.50	127.79	128.10	128.19	128.58	128.77	128.85	129.13	129.19	129.41	129.39	129.27	129.42
				Modelled Flow (cumecs)	98.69	127.52	148.55	168.49	172.32	193.88	214.18	218.54	219.60	219.06	224.17	218.19	227.61	240.43	98.69	127.35	146.61	167.68	172.63	194.01	214.26	216.19	217.43	219.42	223.40	218.11	223.77	240.49
2	wa013_0246_RM006_54483	379355	417027	Modelled Water Level (m ausNG)	126.04	126.32	126.54	126.77	126.85	127.07	127.20	127.37	127.60	127.65	127.80	127.40	127.70	128.03	126.04	126.37	126.62	126.84	126.91	127.20	127.32	127.36	127.65	127.67	127.91	127.58	127.85	128.04
				Modelled Flow (cumecs)	96.71	131.05	154.41	172.88	179.62	207.43	228.40	234.52	265.07	266.03	281.09	253.66	284.39	294.51	96.71	131.23	154.38	177.39	184.76	213.47	233.88	236.19	263.85	265.76	280.62	251.69	284.51	294.64
3	wa013_0246_RM006_54024	379522	416639	Modelled Water Level (m ausNG)	124.41	124.60	124.69	124.75	124.77	124.81	124.83	124.83	124.92	124.95	125.13	124.85	125.01	125.24	124.41	124.59	124.69	124.75	124.77	124.82	124.83	124.83	124.92	124.95	125.13	124.87	125.04	126.24
				Modelled Flow (cumecs)	100.10	126.51	152.49	171.69	179.23	197.18	210.86	217.89	242.76	248.66	266.03	226.48	253.49	273.42	100.11	128.62	152.12	172.17	179.67	200.23	208.11	212.75	244.66	248.69	266.08	236.10	253.58	273.60
4	wa013_0246_RM006_53494	379137	416384	Modelled Water Level (m ausNG)	122.98	123.09	123.16	123.22	123.24	123.31	123.35	123.36	123.61	123.53	123.58	123.39	123.44	123.68	123.01	123.13	123.21	123.28	123.30	123.38	123.41	123.42	123.51	123.52	123.58	123.47	123.53	123.69
				Modelled Flow (cumecs)	84.93	91.83	96.55	100.45	101.79	108.52	109.07	110.09	120.91	122.09	125.96	112.34	118.12	124.23	86.51	94.14	96.54	104.22	105.60	111.28	113.38	114.52	120.82	121.95	126.00	118.38	122.57	124.27

					Undefended				Defended			
Map Reference	Model Node Reference	Easting	Northing	Date	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	0.5 % AEP (1 in 200 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 30% increase in flow	0.5 % AEP (1 in 200 year)
5	ZC Levels	378302	417000	Modelled Water Level (m ausNG)	126.11	126.79	127.83	127.28	127.54	127.80	127.92	128.14
6		378289	416930	Modelled Water Level (m ausNG)	126.11	126.79	127.81	127.28	127.54	127.88	127.92	128.01

Road Defences

Start Date	Asset Type	Asset ID	Standard of Protection†	Upstream Actual Crest Level (m ausNG)	Downstream Actual Crest Level (m ausNG)
01/01/2000	Wall	64080	100	130.55	129.88
01/01/2000	Engineered High Ground	92017	100	124.30	125.34

†Standard of Protection of the asset(s) are based on design estimates.

Recorded Flood Outlines

Flood Event Code	Name	Start Date	End Date	Source of Flooding	Cause of Flooding
18467	IRME	28/01/1995	29/01/1995	unknown	channel capacity exceeded (no raised defences)
58712	Ramsbottom (Kenyon Street)	26/12/2015	26/12/2015	unknown	unknown
79744	Ramsbottom	09/02/2020	09/02/2020	drainage	local drainage/surface water