



## **Sustainable Drainage Strategy**

Change of Use  
at  
122-124 Station Road  
Ratby LE6 0JP  
for  
Design Studio Architects

Prepared by  
Shaw Savage Ltd  
Civil and Environmental Consultants  
12<sup>th</sup> February 2026  
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## Appendix A

Severn Trent Water sewer records

## Appendix B

Drg 2552-550 - Contributing areas

Drg 2552-500 - SuDS Strategy

Issue 01

Checked by

William Savage CEng MICE

12<sup>th</sup> February 2026



## I Summary

Shaw Savage Ltd has been instructed by Design Studio Architects to prepare a Sustainable Drainage Strategy to support a proposed change of use at 122-124 Station Road, Ratby LE6 0JP. The change of use will convert the existing surgery into two residential units, with modifications to the existing car park to increase permeable landscape and reduce the car park size.

The site lies within flood zone I and is not considered to be at risk from fluvial or pluvial flooding during the 1 in 100 year event. A site-specific Flood Risk Assessment is not required.

Peak discharge from the previous development has been calculated as 14.6 l/s during the 1 in 100 (+40%) event. As the contributing impermeable area will decrease through the change of use, the proposed discharge will reduce to 10.2 l/s, or 70% of existing. The use of flow controls and below ground attenuation to further reduce the rate of discharge is not considered practicable in this instance. Betterment to water quality is proposed through the introduction of SuDS to provide pollution prevention at source.

The use of SuDS has been incorporated into the development proposals through the introduction of the following components;

- Permeable paving to parking spaces
- Increased permeable landscape

Further survey will be required to determine the location of existing lateral connections to the public surface water sewer. It is envisaged that the site will continue to utilise the existing connection(s) at the reduced peak rate. Details of the connection will need to be agreed via a Water Industry S106 application prior to works commencing.

Foul flows from the new development will discharge by gravity to the existing public foul sewer. Further survey will be required to determine the location of existing lateral connection and details will need to be agreed via a Water Industry S106 application prior to works commencing.

A drainage strategy is included within Appendix B.

## 2 Surface Water Drainage

### 2.1 Contributing area

The site is currently a surgery with car parking to the rear. The site is assumed to be positively drained.

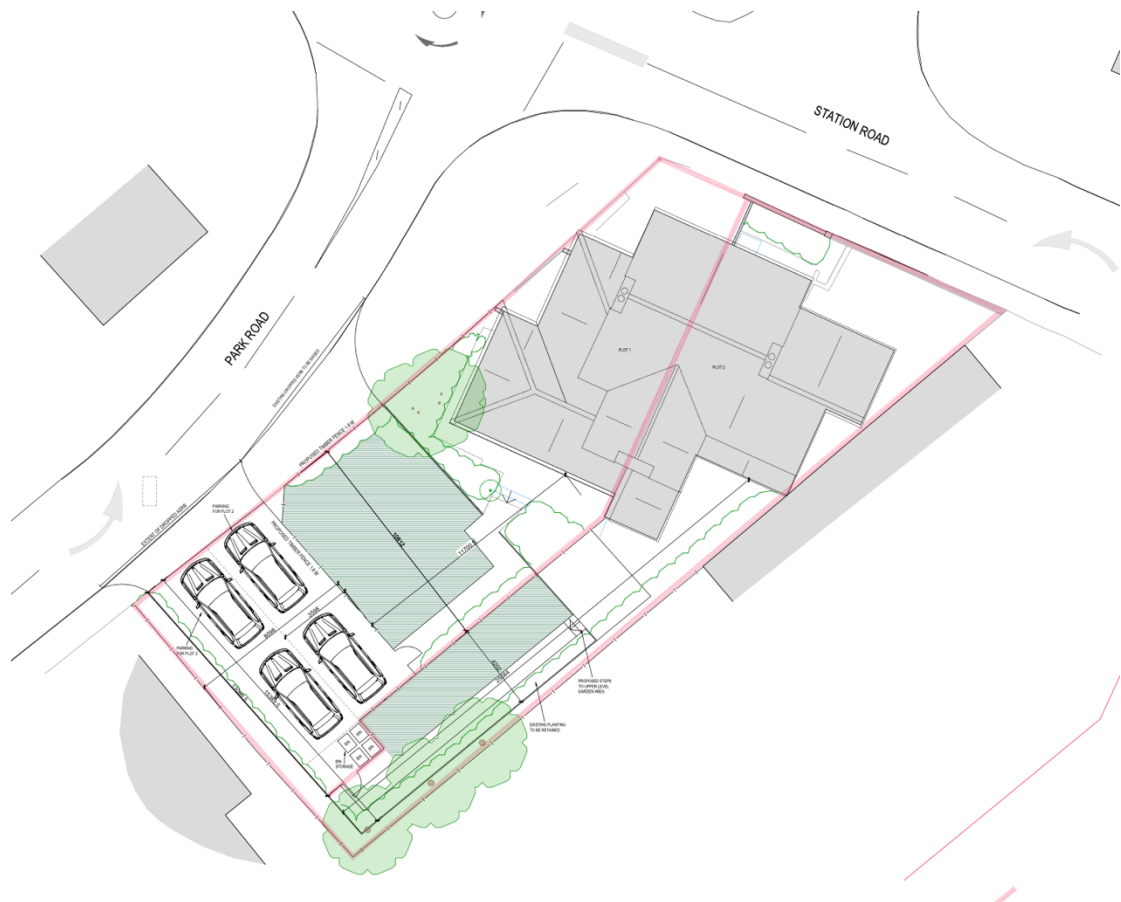
|                  |                      |
|------------------|----------------------|
| Total site area  | = 590 m <sup>2</sup> |
| Impermeable area | = 416 m <sup>2</sup> |
| Permeable area   | = 174 m <sup>2</sup> |



*Fig 1 - Existing site*

The change of use will include a reduction in the size of the car parking area, to introduce permeable landscape for amenity/gardens. The contributing impermeable area will reduce to 70% of existing.

|                  |                      |
|------------------|----------------------|
| Total site area  | = 590 m <sup>2</sup> |
| Impermeable area | = 292 m <sup>2</sup> |
| Permeable area   | = 298 m <sup>2</sup> |



*Fig 2 - Proposed site*

## 2.2 Existing sewer connections

Severn Trent Water sewer records are included within Appendix A. Separate foul and surface water sewers are located to the north of the site within Station Road. It is assumed that the existing site is positively drained and benefits from sewer connections. A full survey of any existing outfall pipework will be required to determine condition and level.

## 2.3 Operation lifetime and rainfall allowance

The proposed change of use is residential and is therefore considered to have an operational lifetime of 100 years.

An upper end peak rainfall allowance of 40% has been chosen for the 1 in 100 year storm event, based on output from the Environment Agency's Hydrology Data Explorer as illustrated in figure 3.

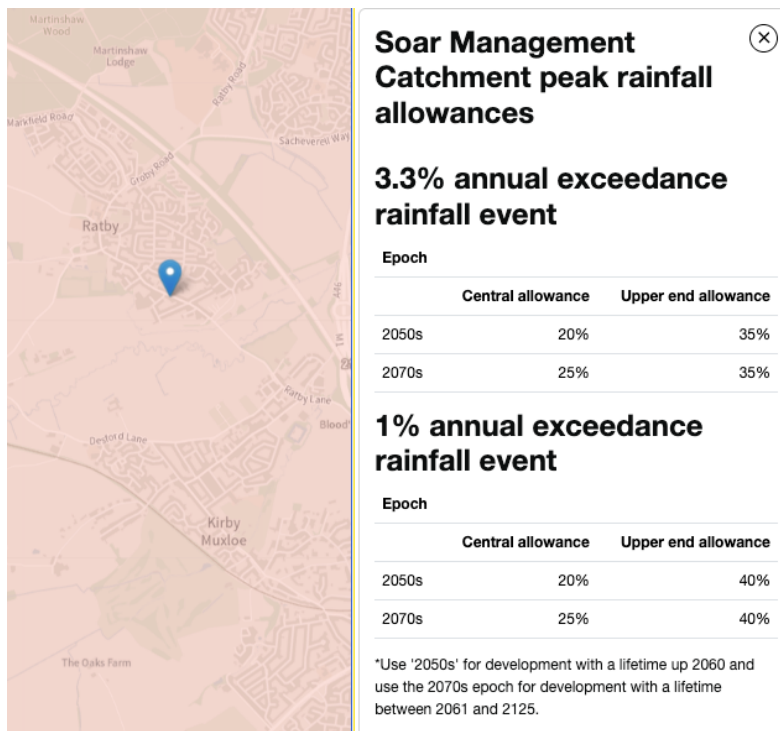


Fig 3 – Peak rainfall allowance

## 2.4 Soil conditions

Geotechnical testing has yet to be undertaken on site. It is reasonable to assume that the underlying subsoil will be of a cohesive nature, given similar conditions encountered across the area.

## 2.5 Flood risk

The site lies within flood zone 1 and is at very low risk of fluvial or pluvial flooding.

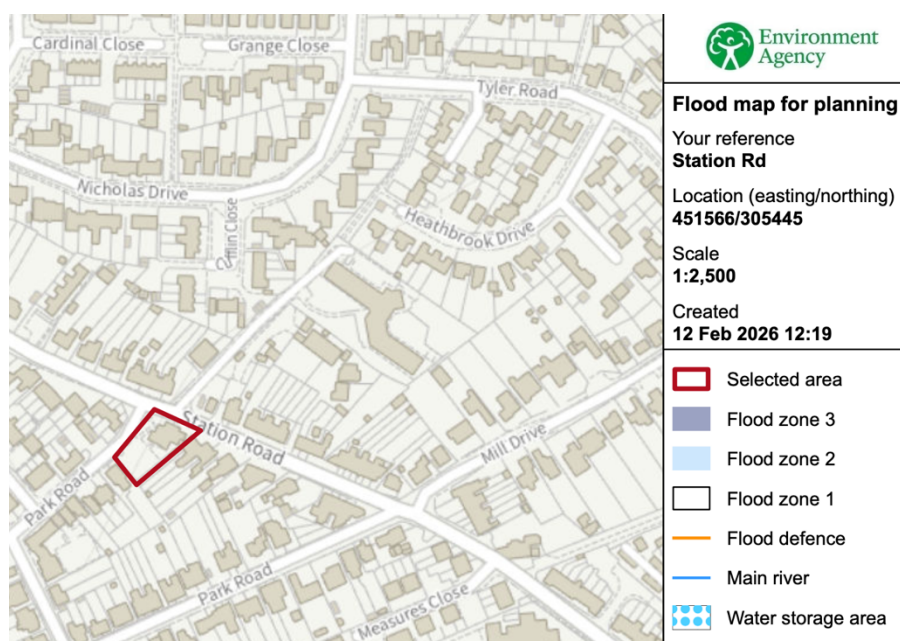


Fig 4 - The site lies within flood zone 1

## 2.6 Discharge rates - existing

The contributing impermeable area of the existing site has been calculated as 416m<sup>2</sup> as illustrated within drawing 2552-550 within Appendix B. The peak surface water discharge has been calculated as 14.5 l/s during the M100-15 storm, as per figure 5;

| D<br>mins | Z1   | M5-D<br>(mm) | Z2<br>(M100) | M100-D<br>(mm) | 40% CC<br>(mm) | M100-D calculation (+40%CC) |            |
|-----------|------|--------------|--------------|----------------|----------------|-----------------------------|------------|
|           |      |              |              |                |                | Inflow lit                  | Inflow l/s |
| 15        | 0.58 | 11.6         | 1.93         | 22.4           | 31.3           | 13038.8                     | 14.5       |
| 30        | 0.8  | 16           | 1.96         | 31.4           | 43.9           | 18264.1                     | 10.1       |
| 60        | 1    | 20           | 2            | 40.0           | 56.0           | 23296.0                     | 6.5        |
| 120       | 1.21 | 24.2         | 2.03         | 49.1           | 68.8           | 28611.0                     | 4.0        |
| 240       | 1.46 | 29.2         | 2.01         | 58.7           | 82.2           | 34182.2                     | 2.4        |
| 360       | 1.62 | 32.4         | 2            | 64.8           | 90.7           | 37739.5                     | 1.7        |
| 600       | 1.82 | 36.4         | 1.98         | 72.1           | 100.9          | 41974.7                     | 1.2        |
| 1440      | 2.28 | 45.6         | 1.96         | 89.4           | 125.1          | 52052.6                     | 0.6        |

Fig 5 - Calculation of existing runoff

## 2.7 Discharge rates - proposed

The change of use offers opportunity to reduce the contributing impermeable area and hence the rate of discharge off-site. Based on a reduced area of 292m<sup>2</sup> the peak surface water discharge has been calculated as 10.2 l/s during the M100-15 storm, as per figure 6;

| D<br>mins | Z1   | M5-D<br>(mm) | Z2<br>(M100) | M100-D<br>(mm) | 40% CC<br>(mm) | M100-D calculation (+40%CC) |            |
|-----------|------|--------------|--------------|----------------|----------------|-----------------------------|------------|
|           |      |              |              |                |                | Inflow lit                  | Inflow l/s |
| 15        | 0.58 | 11.6         | 1.93         | 22.4           | 31.3           | 9152.2                      | 10.2       |
| 30        | 0.8  | 16           | 1.96         | 31.4           | 43.9           | 12820.0                     | 7.1        |
| 60        | 1    | 20           | 2            | 40.0           | 56.0           | 16352.0                     | 4.5        |
| 120       | 1.21 | 24.2         | 2.03         | 49.1           | 68.8           | 20082.7                     | 2.8        |
| 240       | 1.46 | 29.2         | 2.01         | 58.7           | 82.2           | 23993.3                     | 1.7        |
| 360       | 1.62 | 32.4         | 2            | 64.8           | 90.7           | 26490.2                     | 1.2        |
| 600       | 1.82 | 36.4         | 1.98         | 72.1           | 100.9          | 29463.0                     | 0.8        |
| 1440      | 2.28 | 45.6         | 1.96         | 89.4           | 125.1          | 36536.9                     | 0.4        |

Fig 6 - Calculation of proposed runoff

The use of flow controls and below ground attenuation to further reduce the rate of discharge is not considered practicable in this instance. Betterment to water quality is proposed through the introduction of SuDS to provide pollution prevention at source.

## 2.8 Outfall

The following options have been considered for the disposal of surface water from the proposed development, in accordance with SuDS hierarchy;

- *Infiltration*  
Cannot be recommend due to likely characteristics of cohesive subsoil.
- *Watercourse*  
Cannot be recommended as no watercourse within close proximity to development.
- *Surface water sewer*  
Recommend discharge to public surface water sewer,
- *Combined sewer*  
Not applicable

It is assumed that the existing site benefits from a connection to the public surface water sewer within Station Road. Further survey will be necessary to confirm the location and invert of the connection, to enable it to be maintained for redevelopment at the reduced peak flow rate.

## 2.9 Consideration of SuDS

| SuDS system                          | Applicable | Justification                                                                             |
|--------------------------------------|------------|-------------------------------------------------------------------------------------------|
| SuDS basin                           | No         | Insufficient space within the site plan                                                   |
| Swale                                | No         | Insufficient space within the site plan                                                   |
| Green roof                           | No         | Not suitable for existing building                                                        |
| Permeable soft landscape             | Yes        | Increased areas of green landscape proposed to reduce impermeable area to 70% of existing |
| Permeable paving                     | Yes        | To provide water quality benefit                                                          |
| Below ground geocellular attenuation | No         | Not considered practicable                                                                |

### 2.10 SuDS design – Permeable paving

Permeable paving has been chosen for the vehicle parking areas, to provide the following benefits;

- Permeable sub-base material provides treatment at source to reduce potential transmission of hydrocarbons,
- First 5mm of rainfall will be absorbed through the wetting of sub-base materials,
- Integrated into landscape design

The permeable paving is to be either blocks or permeable asphalt, constructed on a 300mm thick open-graded granular sub-base, with minimum void ratio of 30%. Whilst the use of infiltration cannot be recommended due to the cohesive nature of the subsoil, the sub-base is not to be tanked, to allow opportunity for minor infiltration during shorter rainfall events.

A 100mm diameter perforated overflow pipe is to be laid within the sub-base to collect excess flows and discharge to the drainage system. A gravity outfall is provided via an indirect connection to the surface water sewer.

## 2.11 Exceedance

Finished floor levels are to remain a minimum of 150mm above surrounding ground levels to mitigate the impact of storm flows in excess of the 1 in 100 (+40%).

## 2.12 Implementation

The SuDS measures will be implemented as part of the modifications to the existing building. Occupation of the residential units will be conditional on the completion of the building and hence the implementation of the SuDS is assured.

## 2.13 Management and Maintenance

The following maintenance schedule is recommended;

| Feature             | Required Action                  | Frequency |
|---------------------|----------------------------------|-----------|
| Permeable paving    | Sweep vegetation after leaf fall | Annually  |
|                     |                                  |           |
| Inspection chambers | Clean silt traps and inspect     | 6 monthly |

*Fig 7 – Maintenance schedule*

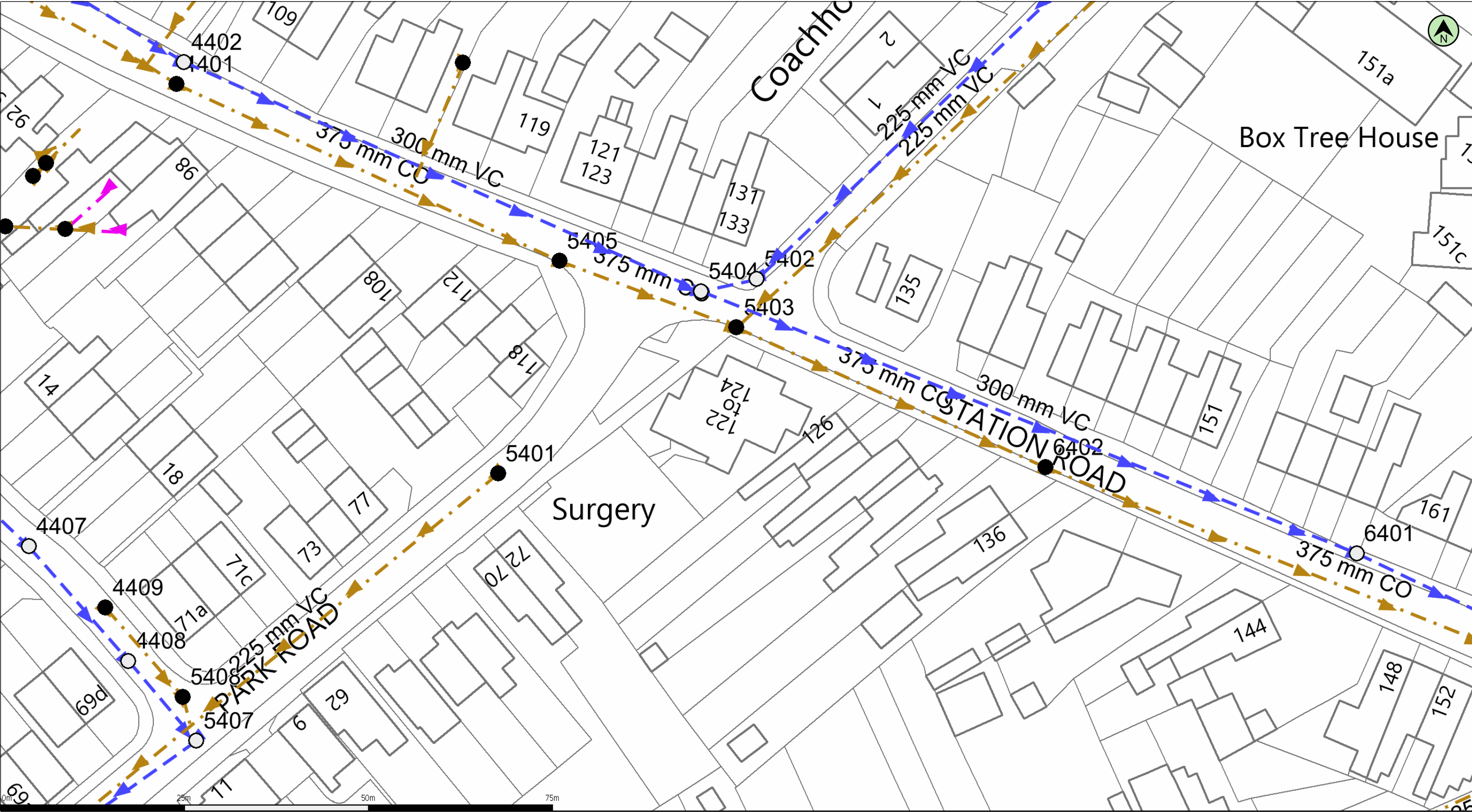
## 3 Foul Drainage

Internal building modifications to the foul drainage system will be undertaken in accordance with Building Regulations. Discharge will be to the existing public foul sewer within Station Road, by existing lateral connection, subject to further survey.

Approval for the foul connection is to be sought from Severn Trent Water prior to works commencing.

## Appendix A

### STW sewer records



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Date: 12/02/26

Scale: 1:500

Map Centre: 451575,305451

Data updated: 14/01/26

Our Ref: 2026398 - 1

Wastewater Plan A3  
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|                                            |  |                        |  |                                       |  |
|--------------------------------------------|--|------------------------|--|---------------------------------------|--|
| Public Foul Gravity/Lateral Drain          |  | Highway Drain          |  | Manhole Foul                          |  |
| Public Combined Gravity/Lateral Drain      |  | Overflow Pipe          |  | Manhole Surface                       |  |
| Public Surface Water Gravity/Lateral Drain |  | Disposal Pipe          |  | Abandoned Pipe                        |  |
| Pressure Foul                              |  | Culverted Water Course |  | Chamber                               |  |
| Pressure Combined                          |  | Pumping Station        |  | Section 104 sewers are shown in green |  |
| Pressure Surface Water                     |  | Fitting                |  | Private sewers are shown in magenta   |  |

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Station Rd

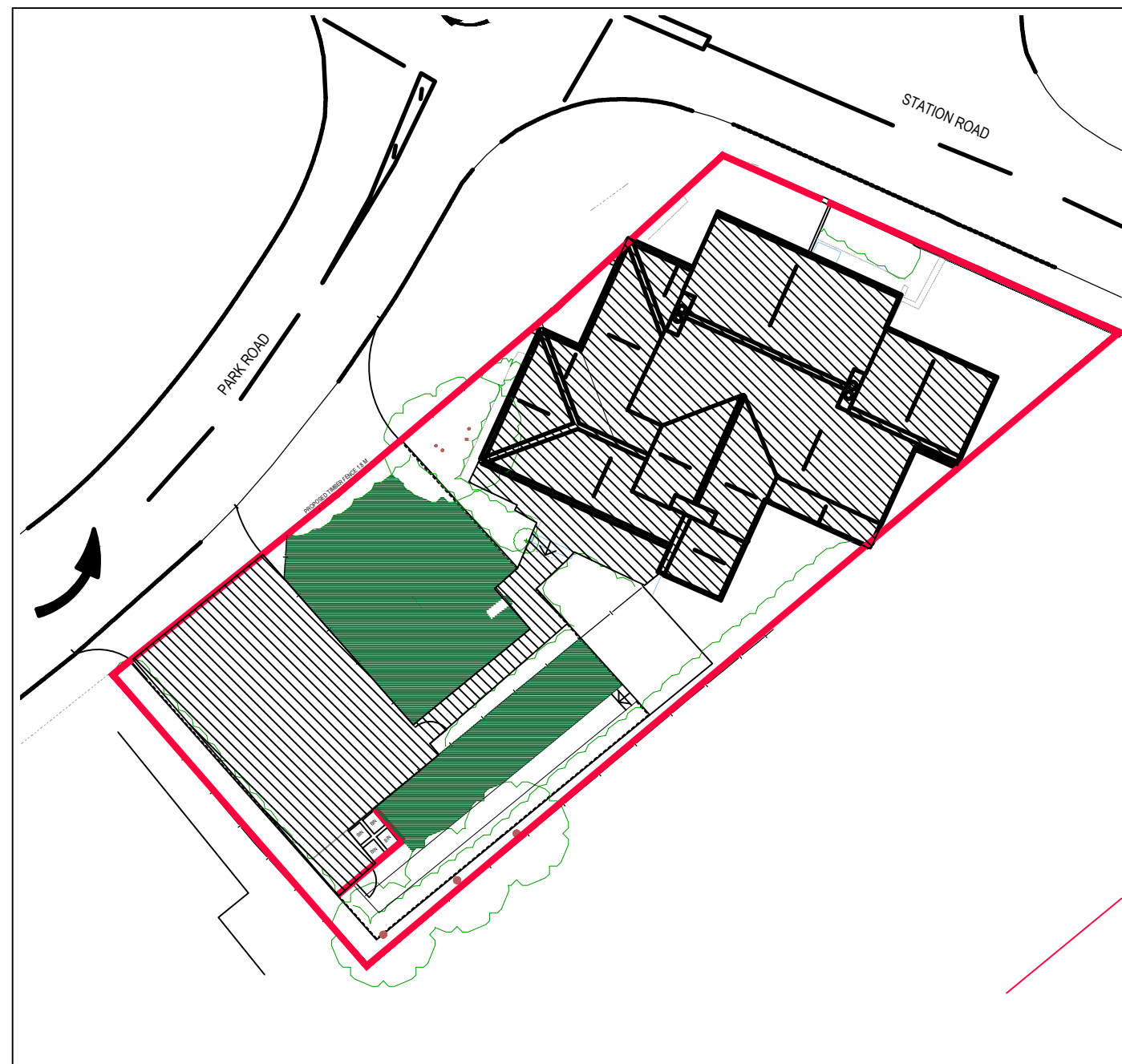
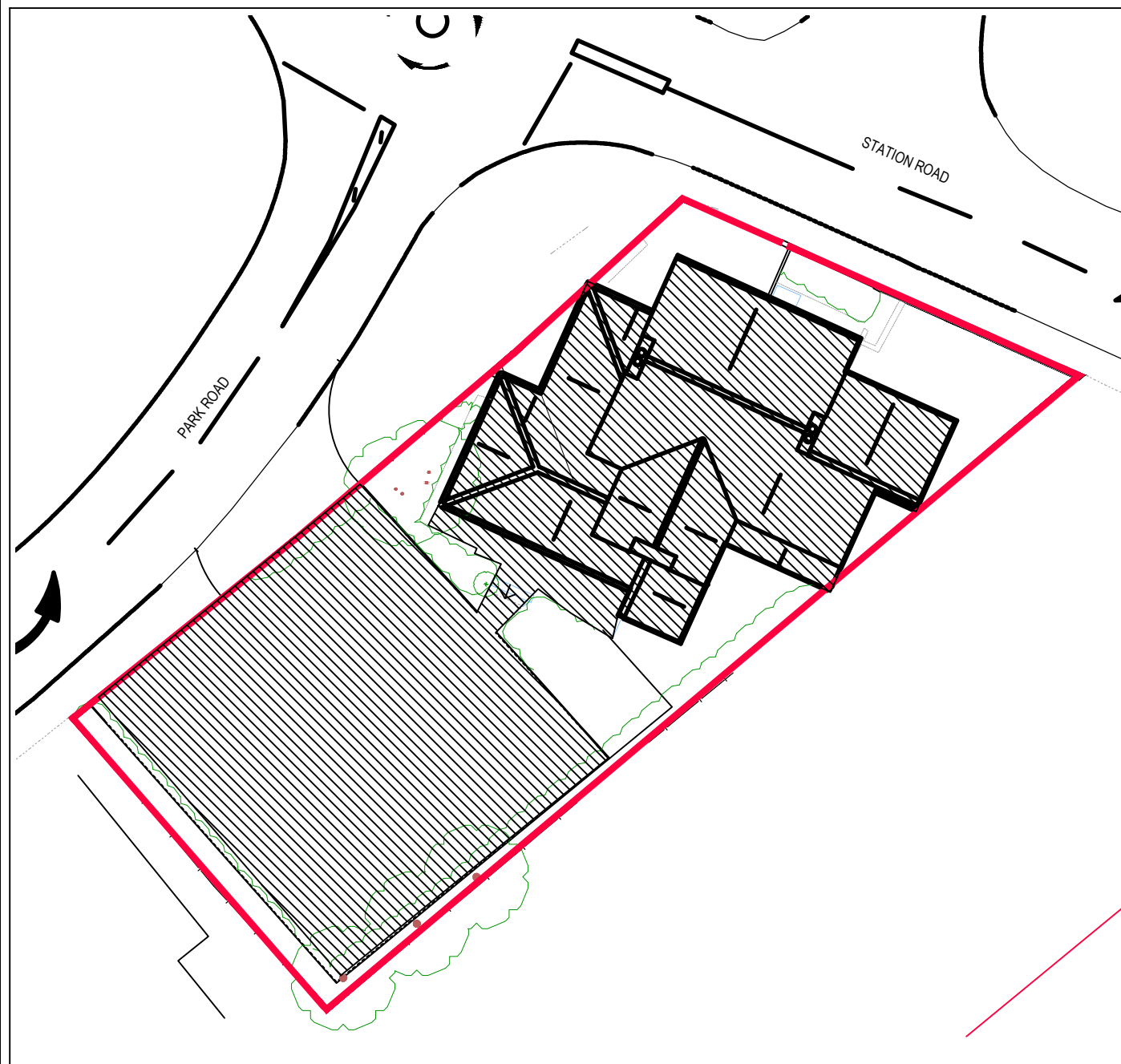




## Appendix B

Drg 2552-550 - Contributing areas

Drg 2552-500 - SuDS Strategy



EXISTING SITE  
TOTAL SITE AREA = 590m<sup>2</sup>  
IMPERMEABLE AREA = 416m<sup>2</sup>  
PERMEABLE AREA = 174m<sup>2</sup>

PROPOSED SITE  
TOTAL SITE AREA = 590m<sup>2</sup>  
IMPERMEABLE AREA = 292m<sup>2</sup>  
PERMEABLE AREA = 298m<sup>2</sup>

|   |             |          |             |
|---|-------------|----------|-------------|
| A | First Issue | 12/02/26 | Checked WSS |
|---|-------------|----------|-------------|

Client

**Design Studio  
Architects**

Project

**122 Station Road  
Ratby**

Drawing

**Contributing Areas**

Drawing Ref

2552-550 RevA



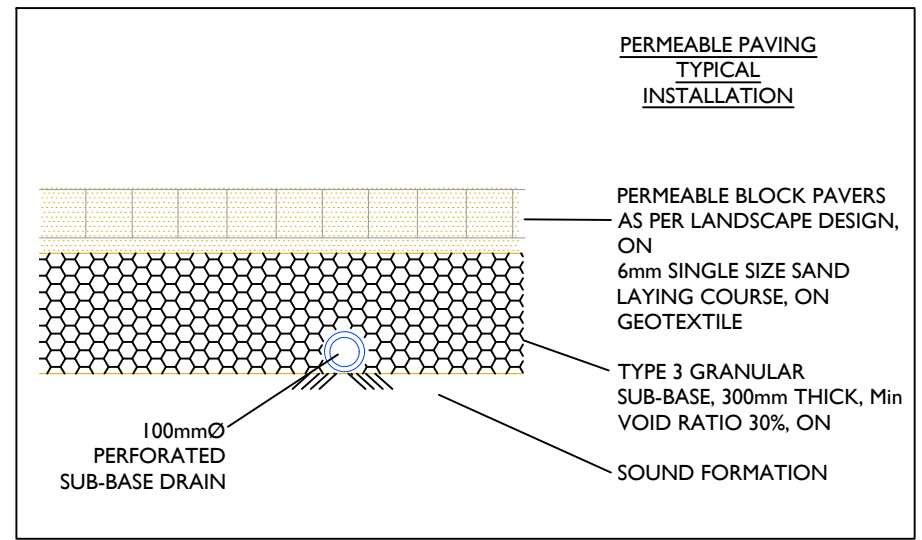
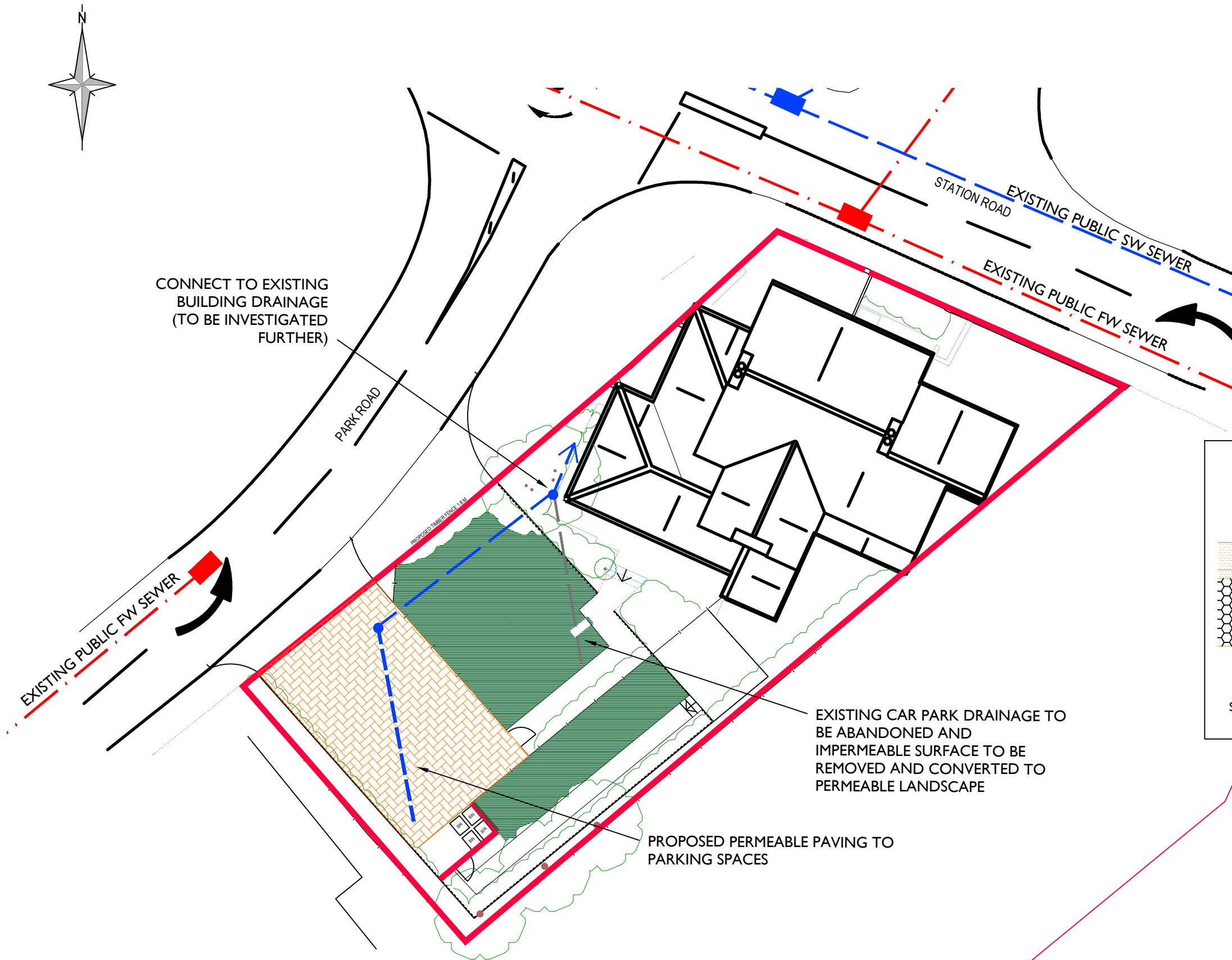
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Scale

1:250 at A3



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Client  
**Design Studio Architects**

Project  
**122 Station Road Ratby**

Drawing  
**SuDS Strategy**

Drawing Ref  
2552-500 RevA

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