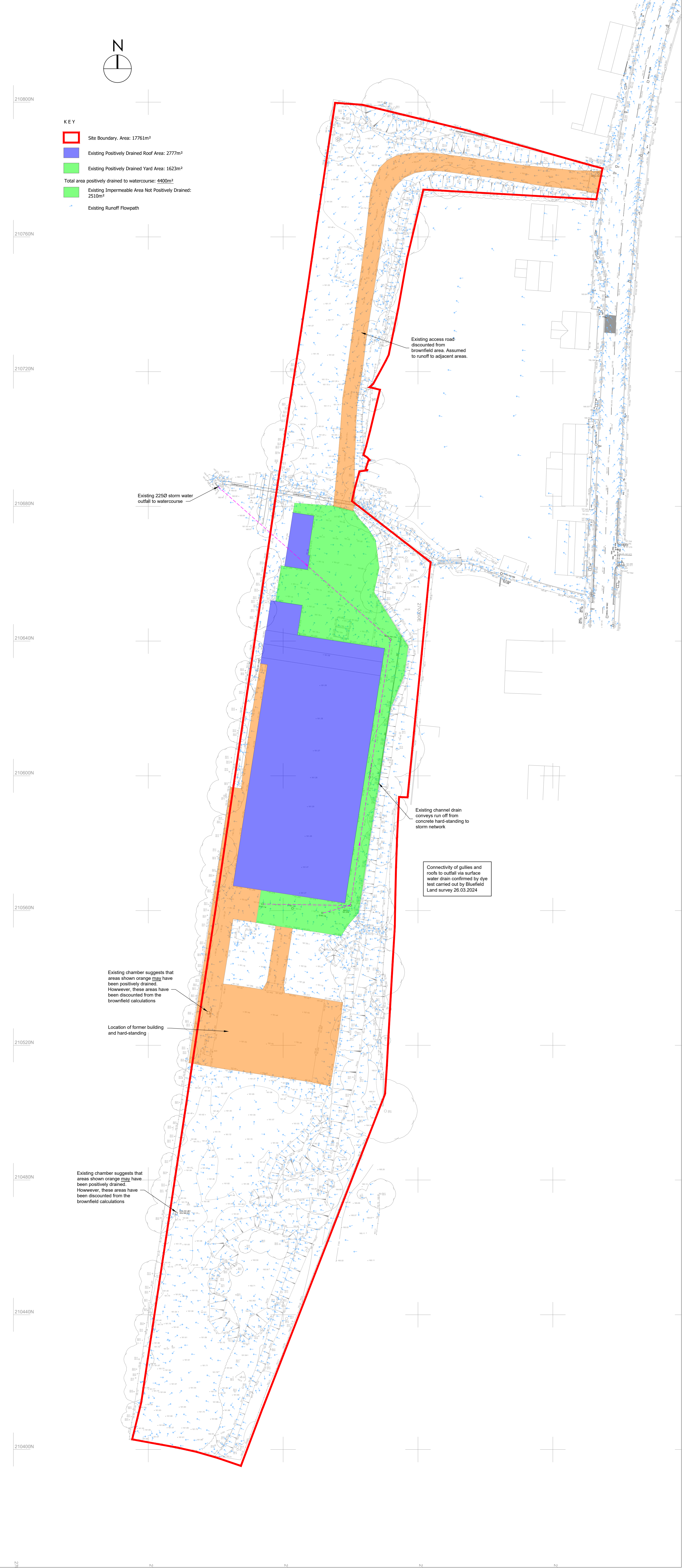




Existing Impermeable Area Plan
Scale 1:500

EXISTING BROWNFIELD SURFACE WATER DISCHARGE RATES

Pre-Development Brownfield Catchment Area = 0.49ha

*Based on existing impermeable area positively drained to outfall only. In remaining greenfield areas not included.

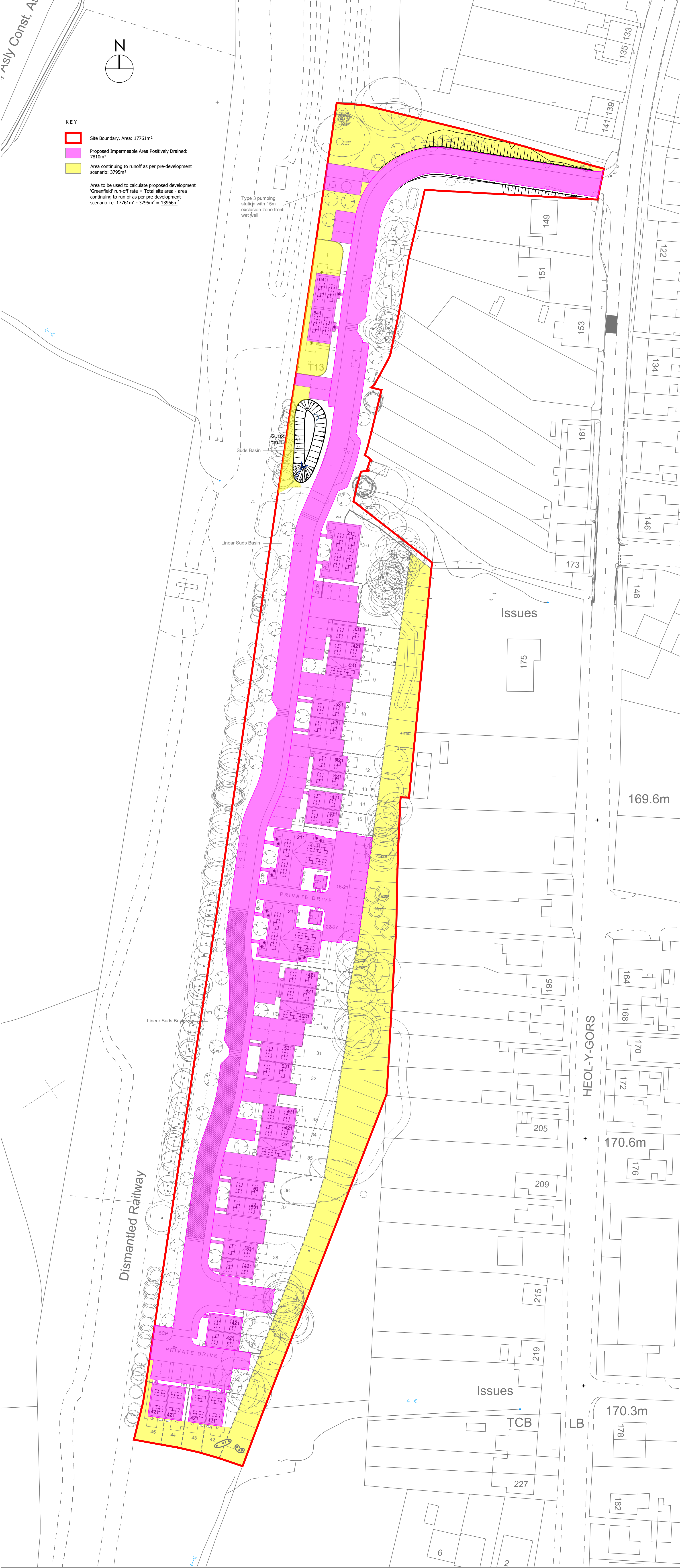
Pre-Development Brownfield Runoff Rates (0.49ha)

Qbar = 24.3 l/s (1.14 x Q1)
1 in 1yr = 47.6 l/s
1 in 30yr = 62.2 l/s
1 in 100yr = 66.5 l/s

Note that modelling of the existing 2250 pipe shows restricted flows due to pipe capacity. This is reflected in the above discharge rates. See Causway Flow Design Report '2024-08-12 - Brownfield Runoff - Dummy Network'

Pre-Development volume discharge (100yr 360mins) (0.49ha)

*1 in 100yr (360mins) = 301m³



Proposed Impermeable Area Plan
Scale 1:500

EXISTING & PROPOSED SURFACE WATER DISCHARGE RATES

Note: NPT S&B have requested that proposed development discharge rates be restricted to the pre-development greenfield rate and not the pre-development brownfield rate.

Therefore, the proposed discharge rate will be restricted to the pre-development Qbar greenfield rate for all storms up to and including the 100 year +40% storm event. >=

Pre-Development Greenfield Catchment Area = 1.366ha

Allowable Greenfield Runoff Rates (1.366ha)

Qbar = 25.0 l/s
1 in 1yr = 21.9 l/s
1 in 30yr = 44.4 l/s
1 in 100yr = 54.5 l/s

Rates calculated using HR Wallingford 'Greenfield runoff rate estimator'

Post-Development Approx. Impermeable Area = 0.781ha

Post-Development peak flow rate

1 in 1yr = 24.9 l/s (+3.0 l/s)
1 in 30yr = 24.9 l/s (+5.5 l/s)
1 in 100yr = 25.0 l/s (+25.5 l/s)
1 in 100yr +40% = 25.0 l/s

Discharge Volume (100yr 360mins)

*Post-Dev - 1 in 100yr (360mins) = 498.7m³

Total Volume +/- = +197.7m³ *Note: All flows restricted to pre-development Brownfield Qbar rate. Therefore, discharge volumes are provided for information only.

SUDS Features

The above post-development flow rates are based on a traditional piped system with a 5 minute concentration time.

However, all runoff is to be conveyed to pass through a SUDS feature which will further reduce the above discharge rates and volume.

The SUDS components will effectively increase concentration time, reduce flow velocities and rates, and providing significant volume losses through evaporation and exfiltration.

Losses are difficult to quantify and will vary depending on plant species, level of saturation and varied ground conditions across the site.