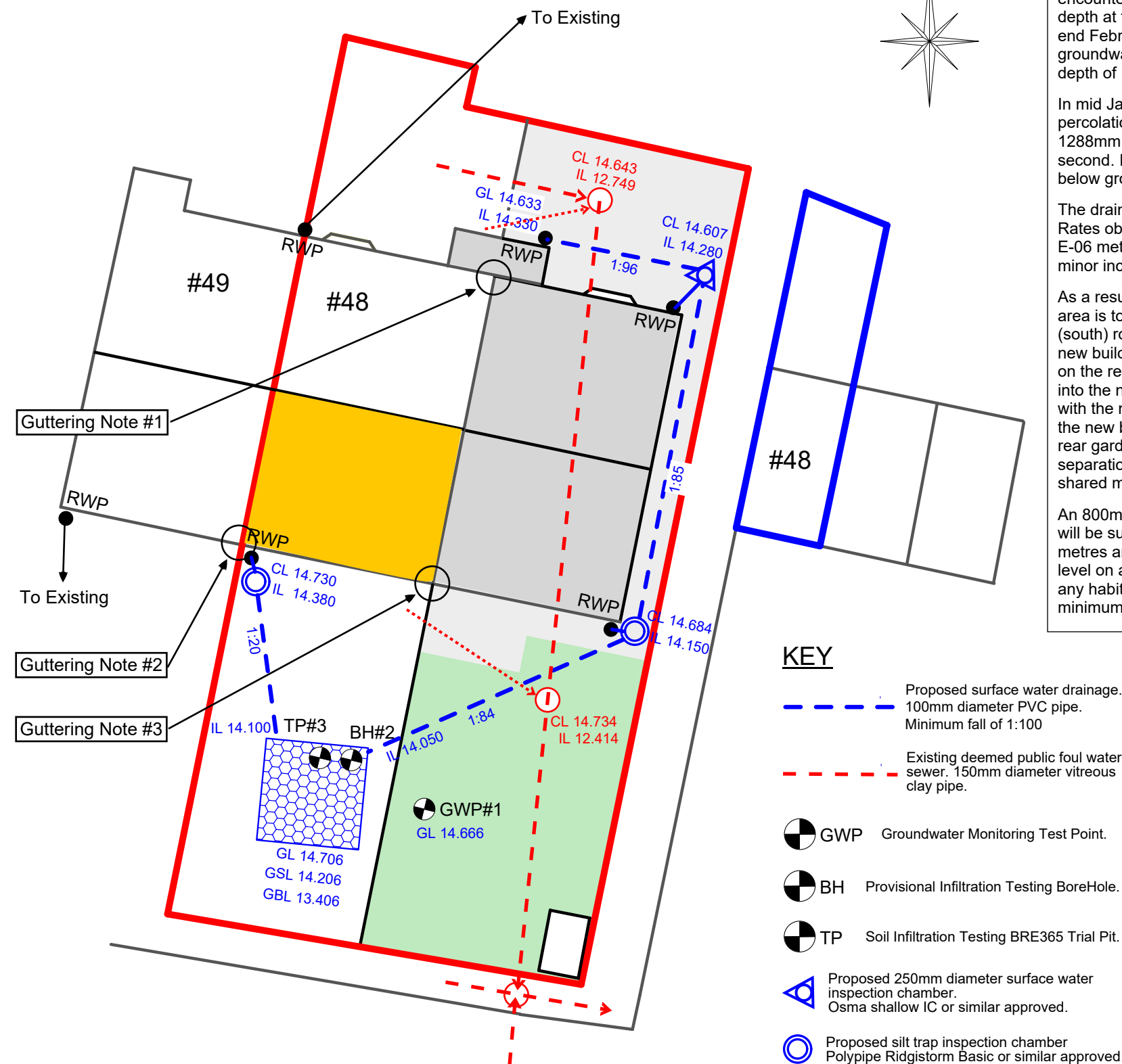


Detailed Drainage Layout Scale 1:150



**Guttering Notes**

These guttering requirements are necessary to maintain the drainage roof flows as existing, so as not to increase or add any flow into the new Rainwater Discharge Points and thence into the new soakaway.

- 1) -- Separate the front new building from the front (north) roof of #48.
- 2) -- Separate the rear (south) roof of #48 from the rear (south) of #49.
- 3) -- Keep the rear (south) roof of #48 on it's own, separate from the new building.

This now ensures each house has it's own separate roof drainage solution.

Surface Water Drainage Design Notes

As detailed from the British Geological Survey, the Superficial Geological ground conditions here indicates River Terrace Deposits of sand, silt and clay over Bedrock of the London Clay Formation. The London Clay was not encountered in either the Groundwater Monitoring BoreHole or the Percolation Test BoreHole / Trial Pit.

In early November 2020 a BoreHole was augered to a depth of 2395mm (12.271 AOD) below ground level and groundwater was not encountered at this maximum depth. An Open Head Piezometer (a slotted Groundwater Monitoring Pipe) was installed to this maximum depth at the approximate position of the proposed soakaway and groundwater was monitored on a weekly basis from mid November 2020 to end February 2021. During the monitoring period groundwater was encountered only once in late November 2020. This highest level of groundwater of 2391mm below ground level ie 12.275 AOD was recorded on 21st November 2020, to inform the use of infiltration to a typical depth of 1600mm below ground level whilst still maintaining a freeboard of over 750mm.

In mid January 2021 an initial provisional 160mm diameter test borehole was augered to a depth of 877mm below ground level and a percolation test was carried out. This produced a result of 8.973 E-06 metres / second. This was extended in late January 2021 to a depth of 1288mm below ground level and a second provisional percolation test was carried out. This produced a result of 1.392 E-05 metres / second. In mid February this borehole was enlarged to a BRE365 trial pit of size 1400mm long by 320mm wide and to a depth of 1300mm below ground level.

The drainage design is based on percolation tests carried out in February 2021 to BRE365 principles within this trial pit. The Soil Infiltration Rates obtained are detailed in the table below. Testing produced a range of Infiltration Rates and a minimum soil infiltration rate of 6.122 E-06 metres / second was obtained to which a Factor of Safety of 2 has been applied, where the consequence of failure is "no damage / minor inconvenience".

As a result of investigations it was decided to leave the front (north) roof area of #48 to drain to existing. The existing #48 porch small roof area is to be combined with the new porch roof area to drain into the new soakaway. This is to keep construction simple. The existing rear (south) roof area of #48 drains to a probable soakaway but its location has not been established, though it is considered that the proposed new building will compromise it. For this reason the existing rear roof of #48 only, will drain into the proposed new soakaway. The guttering on the rear will need to be split at the party wall with #49 and each run will need an end cap to ensure any roof water from #49 does not drain into the new soakaway, and consequently compromising its design. The existing front guttering on #48 will need an end stop at the party wall with the new building to ensure any of this front roof water from #48 does not drain into the new soakaway. The guttering on the front roof of the new building will need to be separate. All the new roof area (front & rear) of the new building will drain into the same joint soakaway in the rear garden of #48. This situation is necessary since there is a deemed public foul sewer bisecting the plot -- north to south -- and a 5 metre separation distance cannot be maintained if individual soakaways for each property are implemented. The design ensures that there is no shared maintainable drainage resource except for the geocellular soakaway itself, which is non-maintainable.

An 800mm deep rectangular geocellular soakaway has been designed, 3.00 metres long x 3.00 metres wide, with a cover of 500mm, which will be suitable to drain the proposed new building roof area of 51.2 square metres plus the combined porches of roof area of 3.2 square metres and the rear existing roof of #48 of 25.6 square metres, totalling a full Roof Area of 80 square metres, without flooding above ground level on a 1 in 100 year rainfall return event plus 40% climate change addition. The soakaway should be sited a minimum of 5 metres from any habitable building to avoid any saturation of the ground and settlement affecting the building structure and in this instance to maintain a minimum distance of 5 metres from any public sewer.

**NOTE**  
This drawing had been produced for discharge of planning conditions only.  
All levels and details to be checked for Building Regulations approval and construction purposes.

## Winter Soil Infiltration Testing Results

BH#2 Provisional (877mm deep bgl)  
January 18th 2021 -- 8.973 E-06 m/s

BH#2 Provisional (1288mm deep bgl)  
January 22nd 2021 -- 1.392 E-05 m/s

TP#3 BRE365 Trial Pit  
1400mm long x 320mm wide x 1300mm deep

February 22nd 2021 -- 9.606 E-06 m/s  
February 23rd 2021 -- 7.250 E-06 m/s  
February 24th 2021 -- 6.122 E-06 m/s

The Minimum Rate used in the calculations from the three tests within the Trial Pit TP#3 was 6.122 E-06 metres / second.

A Factor of Safety of 2.0 was used in the calculations for the design.

Mate GeoTechnic Services

|      |             |      |         |
|------|-------------|------|---------|
| 01   | Original    | RC   | 6-03-21 |
| Rev. | Description | Drn. | Date    |

Project

**Proposed New Build  
#48 The Meadows  
Walberton  
BN18 0PB**

Client **Mrs C. Henderson**

Drawing Title **Surface Water Drainage**

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Scale **As Shown** Drawing Original **A3**

Drawing Number **MGS -- WA/39/18-rev01**