Drainage Philosophy
15T788– Proposed Retail and Business Development, Stanley Road, South Shields

08 December 2015
Drainage Philosophy

Project: Proposed Retail and Business Development, Stanley Road, South Shields

Client: Lidl UK GmbH

LLFA: South Shields Council

BGP Job No: 15T788

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1. Introduction

1.1. Lidl UK GmbH have appointed Billinghurst George & Partners (BGP) to prepare a Drainage Philosophy and Schematic Drainage Scheme for the proposed development off Stanley Road, South Shields, South Tyneside (see Appendix A and B). This Drainage Philosophy statement has been prepared to supplement the Proposed Drainage Scheme for planning.

1.2. A hierarchy for the appropriate disposal of surface water is included within Building Regulations Part H3 which states the following:

   “Rainwater from a system provided … shall discharge to one of the following, listed in order of priority:

   1) An adequate soakaway or some other adequate infiltration system; or, where this is not reasonably practicable,
   2) A watercourse; or, where that is not reasonably practicable,
   3) A sewer.”

1.3. The following Drainage Philosophy statement addresses each element of the above hierarchy and details how the surface water and foul water will be discharged from site.
2. Existing Drainage

2.1. A site location plan is within Appendix A.

2.2. The site generally falls from South to North and from West to East.

2.3. The rainfall that falls on the existing site discharges in to gullies within the car park area and in to the 300 diamater combined NWL sewer that runs through the site.

2.4. All existing foul drainage discharges in to the combined NWL sewer that runs through the site and out in to South Dene road.
3. Proposed Surface Water Drainage

3.1. Discharge to Ground

3.1.1. Discharge of the surface water to ground via infiltration is suited to sites which have ground conditions made up of gravel, sand or a mixture of the two. Sands and gravels permit rapid dispersion and infiltration of surface water which is necessary to ensure that overland flooding does not occur during intense rainfall periods.

3.1.2. A preliminary borehole log has been received which was produced by Roberts Environmental Limited. These early indications show that made ground has been recorded at each of the investigation positions. In the majority of the investigation positions it has been recorded to depths of between 0.35m and 1.00m below ground level (bgl). However, within TP04 and TP05, along the western side of the care home, the made ground was recorded to depths 2.20m and 2.30m bgl’s respectively.

3.1.3. Over the majority of the site the Made Ground comprises hardstanding over sub-base type materials of crushed stone, over gravel of brick and stone and disturbed sandy gravelly clay with fragments of brick and stone. The deeper Made Ground on the western side of the site comprises predominantly disturbed clay or sand with anthropogenic debris of brick, concrete, sandstone, pottery, glass, timber and ash. The deeper made ground on the western side of the site may possibly relate to historic activity including rail lines on this portion of the site.

3.1.4. The natural deposits were relatively uniform across the whole site, including below the area of the proposed store, comprising firm becoming stiff brown, mottled grey, slightly sandy gravelly clay with fragments of coal. The gravel content of the clay was noted to increase from depths of approximately 2.00m bgl’s. However, a band of clayey sandy gravel was encountered within TP01 from a depth of 2.00m to 3.40m bgl’s.

3.1.5. Two in-situ permeability tests were undertaken with BH06 and BH07. These boreholes were extended to a depth of 2.00m bgl’s and then filled with water. The test involves the monitoring of the falling water level at regular intervals to determine the rate of infiltration, with the results being used to calculate the permeability of the deposits.

3.1.6. For the both the tests undertaken the water levels within the boreholes remained static, at the surface throughout the duration of the test, indicating that the deposits are impermeable. Therefore, these deposits are not considered suitable for the use of soakaway systems.
1.1. Discharge to a Watercourse

1.1.1. The nearest named watercourse is the River Tyne (Main River), which is located 1.4km North of the site. The watercourse runs from West to East along the North of South Tyneside.

1.1.2. Because of the distance of this water course it is deemed unsuitable for use as a potential discharge point.

1.2. Surface Water Proposals

1.2.1. It is expected that the proposed will discharge to the existing surface water sewer in South Dene road.

1.2.2. The discharge rate is to be set at a rate of 20l/s. This is a 50% reduction on the existing Lidl store run off for a 30 year storm. This reduction is based on the existing Lidl store only and does not include the existing care home run off which has been reduced by 100%.

1.2.3. The use of permeable paving has been deemed the most practical solution to limit the land take of the attenuation required.

1.2.4. The storage volume required within the sub-base has been calculated to be 300m$^3$ which is based on the 100 year return period plus 20% climate change storm event discharging at 20l/s

2. Proposed Foul Water Drainage

2.1. A pre development enquiry will need to be submitted to NWL to confirm the suitability of the proposed discharge point.

2.2. It is proposed to connect the foul water to the existing 150 diameter foul sewer in South Dene road which ultimately connects to the 300 diameter combined sewer further downstream.

2.3. A pre development enquiry will confirm the rates at which the foul water can be discharged from site.
3. Conclusion

3.1. It is not reasonably practicable to discharge the surface water to ground via infiltration. It is also not reasonably practical to discharge to a watercourse. Therefore it is anticipated that the development will discharge out to the existing surface water sewer in South Dene road at a rate of 20l/s.

3.2. It is anticipated the foul water will discharge to the existing foul water sewer in South Dene road at a rate to be agreed with NWL.

3.3. A proposed drainage scheme has been recommended (see Appendix B), but this is subject to further investigation of the existing NWL drainage system via a CCTV survey and agreement with the LLFA.

3.4. This statement has been prepared with reference to the information available at the time of writing. The details of the report may be revised upon receipt of additional or further information.

Report No: 15T788 / DP 001

Drainage Philosophy – Proposed Retail and Business Development, Stanley Road, South Shields

Richard Lee
Date: 08/12/2015

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Date: 08/12/2015

For and on behalf of Billinghurst George & Partners
Appendix A

Site Location Plan
Appendix B

BGP Proposed Drainage Scheme
Appendix C

Topographic Survey
WARNING...Where indicated on the plan there could be abandoned asbestos cement materials or shards of pipe. If excavating in the vicinity of these abandoned asbestos cement materials, Northumbrian Water must be given two working days notice of their intention to excavate trial holes. Private connections are not shown but their presence should be anticipated.

The information shown on this plan should be regarded as approximate and is intended for guidance only. No Liability of any kind whatsoever is accepted by Northumbrian Water, its servants or agents for any omission. The actual position of any water mains or sewers shown on the plan must be established by taking trial holes in all cases. In the case of water mains and sewers, the appropriate Health & Safety precautions should be taken. Northumbrian Water accepts no liability in respect of claims, costs, losses or other liabilities which arise as the result of the presence of the pipes or any failure to take adequate precautions. Emergency Telephone Number: 0345 71 71100

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Appendix D

Northumbrian Water Records