Flood Risk & Foul Drainage Assessment

LIDL UK Gmbh

Proposed LIDL Store,
Wakefield Road,
Mapplewell,
Barnsley

Flood Risk and Foul Drainage Assessment

December 2017

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1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

LIDL UK Gmbh has commissioned WYG Engineering Ltd to undertake a Flood Risk & Foul Drainage Assessment (FRDA) in respect of the proposed new LIDL Store in Wakefield Road, Mapplewell. This report has been prepared to accompany the detailed planning application for the development as set out below.

It should be noted that in developing the surface water and foul drainage strategies for this development due consideration has been made in respect of the separate outline planning application for a new residential development which is to be submitted for the site immediately to the north of the proposed store.

1.2 PROPOSED DEVELOPMENT

The proposed development is to consist of a new LIDL Store and associated car park providing 139 parking spaces.

The application site is deemed brownfield as it was occupied by a former industrial unit that has been demolished.

The proposed development is classified as 'Less Vulnerable' in accordance with Table 2 of the PPG - Flood Risk & Coastal Change (PPG).

A copy of the proposed site layout is contained in Appendix A.

1.3 REQUIREMENT FOR SURFACE WATER DRAINAGE ASSESSMENT

According to flood risk mapping provided by the EA, the site is located within Flood Zone 1: i.e. land assessed as having an annual probability of river flooding lower than 1 in 1000 (<0.1% Annual Exceedance Probability (AEP). However, as the proposed planning application is classified as a 'major' planning application, according to the Ministerial Statement HCWS 161 dated 18 December 2014, a surface water drainage assessment is required in support of the planning application.

1.4 SCOPE OF THE SURFACE WATER DRAINAGE ASSESSMENT

This FRDA will be undertaken in accordance with the guidelines of the Environment Agency Flood Risk Assessment Guidance in FZ 1 https://www.gov.uk/guidance/flood-risk-assessment-in-flood-zone-1-andcritical-drainage-areas

In line with the NPPG and the EA requirements, the FRDA will review the existing fluvial and coastal flood risk and also consider all other potential sources of flood risk, such as pluvial flooding, sewers, overland flow routes, groundwater flooding, reservoir flooding, and ordinary watercourses.

This FRDA will assess the existing flood risk to the site from rivers and the sea and propose appropriate mitigation measures and establish a management regime for surface water runoff from the site such that flood risk to adjoining areas is not exacerbated. If not managed properly, surface water runoff from the site could potentially lead to increases in flood risk to other areas or the development itself.

As the planning application seeks detailed planning permission, a detailed drainage strategy will be provide. Potential measures for draining surface water will be discussed, and this will have a specific focus on implementing Sustainable Drainage Systems (SUDs) strategies

1.5 FOUL DRAINAGE ASSESSMENT

The Foul Drainage Assessment will review the existing foul water drainage systems within and adjacent to the development site and identify the peak flows from the proposed development. The assessment will also identify points of connection to the public sewer system. A pre – development enquiry was lodged to Yorkshire Water to confirm the suitability of the proposals.

1.6 LIMITATIONS OF THIS REPORT

This report has been prepared by WYG Engineering on behalf of LIDL UK Gmbh with the scope of the report as described in Section 1.2 above and the particular instructions and requirements. It is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.

WYG Engineering accepts no duty or responsibility (including in negligence) to any party other than LIDL UK Gmbh and disclaims all liability of any nature whatsoever to any such party in respect of this report.

This report cannot be reproduced without WYG's written consent.

2 SITE DESCRIPTION

2.1 EXISTING SITE

The application site covers an area of 0.9 ha and is currently brownfield, as is located on a site previously occupied by an industrial unit. The site is adjacent to Wakefield Road in Mapplewell, and the nearest postcode is S75 6DN and the site's grid reference is SE 34011 09891.

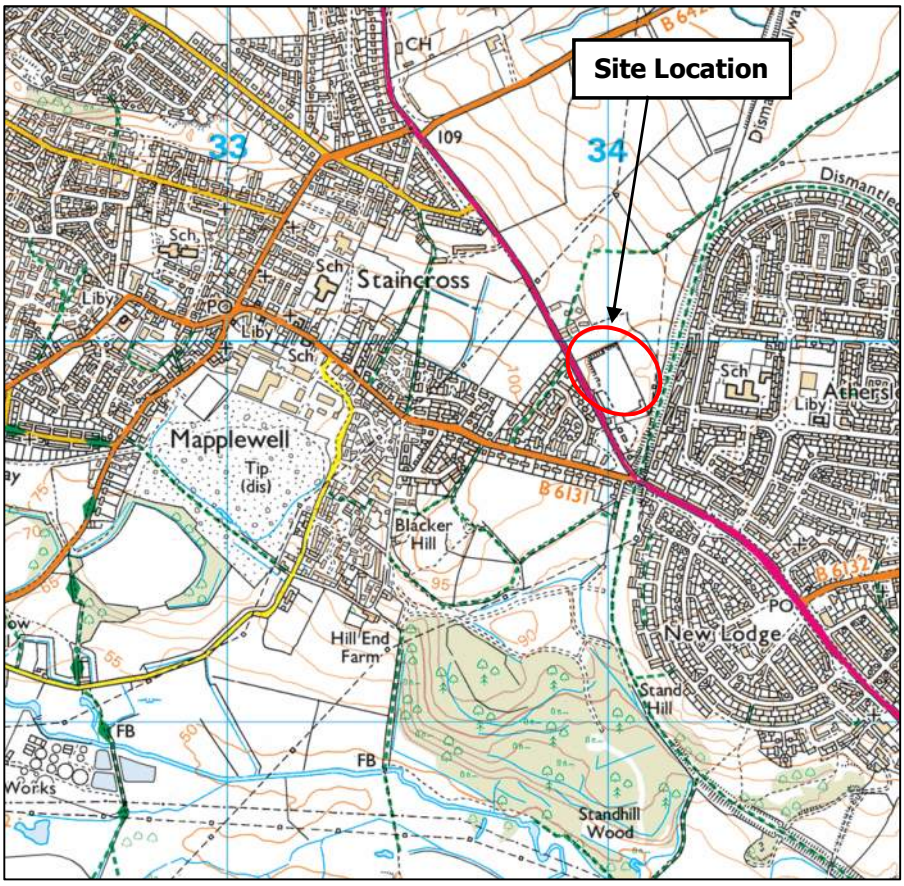


Figure 1 – Site Location[1]

The site is bounded by agricultural land to the north, by a disused railway to the east, by a commercial area to the south and residential dwellings to the west and north west.

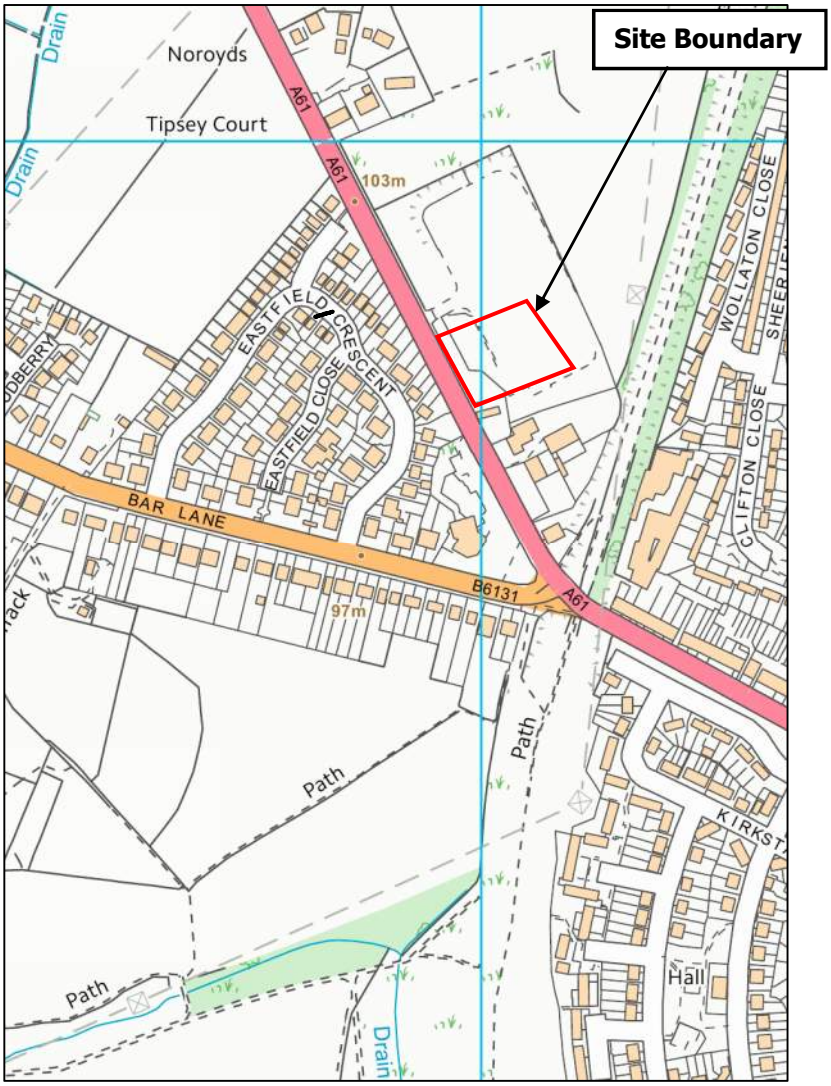


Figure 2 – Site Plan

A topographical survey of the site was undertaken in July 2015 and identified that the site falls from west to east. The highest levels within the site are found at the north western corner of the site, where the highest level is 98.91m AOD. The lowest levels are located at the eastern part of the site, and the lowest level is 96.93m AOD.

A copy of the topographic survey of the site is contained within Appendix B.

2.2 EXISTING DRAINAGE

2.2.1 Main Rivers

The nearest main river to the application site (as listed on the EA Flood Map for Planning) is the River Dearne, which flows 1.2km to the south west of the site.

2.2.2 Ordinary and Manmade Watercourses

There are no ordinary watercourses within the site boundary.

2.2.3 Sewers

Yorkshire Water Sewers

Inspection of the Yorkshire Water (YW) sewer records identified a 225mm diameter public foul sewer which drains south parallel with Wakefield Road within the rear gardens of the existing residential properties fronting onto Eastfield Crescent. This sewer discharges into a combined sewer at the junction between Wakefield Road and Bar Lane.

A copy of the sewer records received from YW is contained in Appendix C.

Barnsley Council

The YW sewer records identified a 225mm diameter highway draining south within the western verge of Wakefield Road. However, Barnsley MBC Highways section have confirmed that at present there are known capacity and flooding issues associated with this sewer.

Private Sewers

The utility survey of the site identified a number of manholes within the site. However, these are in a poor condition and mostly blocked.

A potential existing connection from the south west corner of the site discharging to the Yorkshire Water combined sewer has been identified and some initial survey work undertaken.

Due to the poor condition and blockage of this connection further cleaning and CCTV survey work is to be undertaken to identify if this connection can be re used to drain the foul flows from the proposed development.

A copy of the utility survey is included in Appendix B.

3 FLOOD RISK

3.1 FLUVIAL FLOOD RISK

Fluvial flood risk is the risk arising from rivers and watercourses.

A floodplain is the area that would naturally be affected by flooding if a river rises above its banks or if coastal areas are exposed to coastal flood risk. In England, floodplains and land subject to coastal flood risk are divided into flood zones (FZ) for planning purposes. These areas show the extent of the natural floodplain area at risk of inundation if there were no flood defences or certain other manmade structures and channel improvements. They are divided as follows:

- Flood Zone 3 shows the land having a 1 in 100 or greater annual probability of river flooding.
- Flood Zone 2 shows the additional extent of an extreme flood from rivers. It is land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding;
- Flood Zone 1 is the area where flooding from rivers and the sea is very unlikely.

The EA Flood Map for Planning shows the site as being in Flood Zone 1 and therefore it is considered that it is at low risk of flooding from rivers.

3.2 SURFACE WATER FLOODING & OVERLAND FLOWS

Surface water flooding occurs where high rainfall events exceed the drainage capacity in an area (i.e. sewer system and/or watercourse), leading to flooding.

An extract of the Environment Agency's Updated Flood Map for Surface Water is shown below in Figure 3. It can be seen that the central area of the application site is at risk of flooding from surface water. The topographical survey indicates that the area shown as being at risk is at a lower level than the adjacent areas and therefore surface water will pond there when the capacity of the drainage system is exceeded.

However, it is expected that once the site is re – developed, the new site levels will remove this low lying area, and a suitable drainage system will be provided. Therefore, the risk will become low.



Figure 3 - Extract from the EA's Updated Flood Map for Surface Water (July 17)

3.3 SFRA REVIEW

A review of the Barnsley Metropolitan Borough Council SFRA dated 2010 was undertaken to inform this FRA. The following points were highlighted:

- Proposals over 1000 m^2 floor space or 0.4 hectares in Flood Zone 1 need to demonstrate how the proposed development will make a positive contribution to reducing or managing flood risk;
- All development proposals on Brownfield sites are required to reduce surface water run-off by at least 30%; and
- New development should incorporate SuDS;

3.4 BARNSLEY MBC - LOCAL FLOOD RISK MANAGEMENT STRATEGY (LFRMS)

A review was undertaken of the Barnsley MBC Draft LFRMS dated 2014 and this did not identify any additional flood risk issues relevant to the proposed development site.

3.5 SEWER FLOODING

The SFRA does not include Mapplewell as one of the areas where sewer flooding has been recorded and therefore it is considered that the site is at low risk of flooding from sewers.

3.6 GROUNDWATER FLOODING

The SFRA indicates that a number of areas within the council boundaries are at risk of flooding from groundwater, however the site is not within any of these areas. Therefore, it is concluded that the site is at low risk of flooding from groundwater.

3.7 RESERVOIR FLOODING

Although the probability of a catastrophic dam failure is considered to be extremely low, the consequence of such an event would be severe. A review of the EA online 'Risk of Flooding from Reservoirs' identified that the application site is not located within a zone at risk of reservoir flooding.

3.8 SUMMARY OF FLOOD RISK

3.8.1 Overview of Flood Risk

Based on the above it can be seen that the application site is considered to at low risk of flooding from rivers, sewers, groundwater, and reservoir failure. A small low lying area within the central part of the site is shown as being at risk from surface water flooding, however the re – development of the site will remove the low lying area and therefore the risk will become low.

It will be essential to ensure that no increase in flooding occurs downstream of the site as a result of the development and this matter is discussed in more detail within Section 4.

4 DEVELOPMENT PROPOSALS

4.1 PROPOSED DEVELOPMENT

The proposed development is to consist of a new LIDL store and car parking for 139 vehicles.

The application site is currently brownfield as there used to be an industrial unit on site that has now been demolished.

The proposed development is classified as 'Less Vulnerable' in accordance with Table 2 of the PPG - Flood Risk & Coastal Change (PPG).

A copy of the Proposed Site Layout Plan is contained in Appendix A.

4.2 SEQUENTIAL & EXCEPTION TEST

One of the aims of the PPG is to steer development away from zones of high flood risk towards Flood Zone 1. According to Table 2 of the PPG (Flood Risk & Coastal Change), the development is classified as 'Less Vulnerable', and given that the application site is located in Flood Zone 1, according to Table 3 of the PPG (Flood Risk & Coastal Change), the proposed development is acceptable and there is no need for the Sequential or Exception Tests.

4.3 LOCAL PLANNING POLICIES

4.3.1 Barnsley MBC Local Plan

A review of the Core Strategy dated 2011 was undertaken. Additionally, Barnsley MBC is in the process of producing a new local plan that will be adopted in 2018. A review of the 2016 Draft Local Plan was also undertaken to inform this report. The Core Strategy includes policies CSP 3 and CSP 4, and the draft Local Plan includes policy CC 3 – Flood Risk which indicate that:

- New development will not be permitted if it is at an unacceptable risk of flooding or if it increases flood risk elsewhere;
- Development on brownfield sites should reduce runoff rates at least a 30%; and
- All major development will be expected to use SuDS unless it is demonstrated that they are not feasible.

4.3.2 Barnsley LFRMS

A review was undertaken of the Barnsley MBC LFRMS dated 2014. The document provides a background in flood risk and sets out regional strategies to manage flood risk. One of the objectives that the council will seek as LLFA will be to promote appropriate development that includes SUDS.

4.4 DEVELOPMENT AND FLOOD RISK

4.4.1 Flood Risk to the Development

As discussed in Section 3.8.1, the site is considered to be at low risk of fluvial flooding, groundwater, sewer, overland flows, and reservoir failure. Additionally, in accordance with the requirements of the PPG and the NPPF, it is essential that the development of the site does not increase the risk of flooding off site.

4.4.2 Flood Risk Arising from the Development

The new development will result in the development of a brownfield site in flood risk terms. In line with the requirements of the Barnsley MBC stated in the SFRA, runoff rates from the proposed development must be a 30% lower than the existing runoff rates. However, this requirement has now been superseded by the introduction of the DEFRA Non-Technical Standards for Sustainable Drainage which requires post development run off to be reduced to pre development greenfield run off rates.

On site attenuation will therefore be required within the application site to ensure that the proposed surface water drainage system does not exacerbate flood risk outside of the extent of the proposed development for all storm events up to and including the 1 in 100 plus 30% allowance for climate change storm event.

4.5 ASSESSMENT OF PRE AND POST DEVELOPMENT AREAS

The application site covers an area of 0.9 ha and is classified as a brownfield site. Table 3 below shows the pre and post development permeable and impermeable areas for the application site. It must be noted that areas shown as covered by gravel in the topographical survey have been considered impermeable.

In accordance with the requirements of the DEFRA Non-Technical Standards for Sustainable Drainage, the post development discharge rate is to be based on the existing pre development greenfield discharge rate and therefore no allowance will be made for the existing surface water run off from the existing impermeable areas.

Table 1 – Pre and Post Development Areas for Application Site

Status	Impermeable Area (Ha)	Permeable Area (Ha)
Pre Development	0.77	0.13
Post Development	0.85	0.05

The above proposed post development impermeable areas have been adopted in assessing the preliminary on site attenuation volumes.

4.5.1 Existing & Proposed Discharge Rates

Although the site is considered a brownfield site in flood risk terms and discharged the previous surface water run off to an off-site sewer system, it has not been possible to confirm this. Also, it should be noted that DEFRA Non-Technical Standards for Sustainable Drainage now require the post development discharge rate to be based on the existing pre-development greenfield discharge rate.

Taking into account the above requirements, an assessment of the pre development greenfield run off rate has been undertaken using the Micro Drainage ICP Suds toolkit and based on a post development impermeable area of 0.85ha the allowable discharge rate has been identified as being 3.4l/s.

As this figure is less than the normal minimum flow control device rating of 5 l/s, then the default minimum value of 5 l/s has been adopted in assessing the on site surface water attenuation required.

Appendix D includes the Micro Drainage Calculation of the greenfield run off rate.

4.6 PROPOSED MITIGATION

4.6.1 Flood Risk due to Surface Water Runoff from the Site

In order to ensure that surface water runoff from the site does not cause an increase in flood risk, the management of runoff has been considered via a sequential approach, in line with Building Regulations. The following options for the disposal of surface water runoff were considered, in order of preference[1]:

i) A soakaway or some other infiltration system;

ii) A watercourse;

iii) A sewer.

[2] Building Regulations H3(3), Rainwater drainage

4.6.1.1 Discharge to soakaway

The site investigation information for the site identified that the underlying ground consisted of silty and stiff clays and therefore infiltration is considered to unfeasible to drain the surface water run-off from the development

4.6.1.2 Discharge to Watercourse

There nearest watercourse is approximately 580m to the south of the site, south of the A61/abandoned railway bridge. The option of utilising this watercourse is considered further in Section 4.7.

4.6.1.3 Discharge to Sewer

The only sewers which could be utilised to drain the development are either the existing 225mm diameter highway drain or alternatively the existing Yorkshire water 225mm diameter combined sewer both of which are located to the west of Wakefield Road.

Barnsley Council as Highways Authority indicated that surface water runoff from the site cannot be accepted into the existing highway drain. A consultation was issued to YW to seek their views in a discharge of surface water runoff from the proposed development to the combined sewer in Wakefield Rd.

A copy of the relevant correspondence with Barnsley MBC is included in Appendix E.

4.7 SURFACE WATER DRAINAGE STRATEGY

At present on going liaison is being undertaken with Yorkshire Water and Barnsley MBC Highways Section to assess the option of draining the surface water to one of these sewers rather than laying a new off site surface water sewer along the old railway line and discharging into an existing watercourse some 580m away.

Two options are presented to drain the surface water runoff from the proposed development site.

Option 1

The first option is to discharge surface water from the site (including the adjacent residential development) to either the adjacent YW sewer or the Barnsley MBC highway drain at a point to be agreed with either of the respective Statutory Authorities.

Due to known capacity issues with each sewer, a maximum discharge rate of 3 l/s for both the store development and the housing development has been adopted. In addition, due to the respective invert levels of the sewers and the proposed site levels to drain to these sewers it will be necessary to pump the surface water flows.

At present the exact point of connection has not been agreed with either of the Authorities and if no local connection can be made, then a new off-site surface water sewer may be required draining south along Wakefield Road to a point to be agreed.

Once the final solution has been identified then an addendum report is to be issued setting out in more detail the final drainage solution together with the associated final design drawings and calculations.

In assessing the future discharge rates an allowance of 1 l/s has been considered for the store development and 2 l/s for the future housing development.

Option 2

Alternatively, a new gravity surface water sewer could be laid along the abandoned railway track, in order to discharge surface water runoff from the development site to an existing watercourse located approximately 580m to the south of the A61 bridge.

In adopting this option there is also the possibility of incorporating over sized sewers within the off-site sewer to minimise the required on site attenuation. In addition, laying a new off-site surface water sewer will allow some additional drainage to be provided to eliminate the existing localised surface water flooding which occurs along part of the disused railway line.

It should be noted that this option will also require agreement to be obtained from Barnsley MBC who are the land owners to both lay the new sewer and also as riparian owners, to allow the 5 l/s discharge into the existing watercourse.

4.7.1 Required Attenuation Volumes

Table 3 below includes the required attenuation volume to be provided to make sure that there is no flooding within the site during any rainfall event up to and including the 1 in 30 year return period event. Exceedance flows up to and including the 1 in 100 year plus 30% climate change event will be stored within external areas of the site.

Within the site the required attenuation is to be provided by means of below ground cellular storage tanks located within the proposed car parking areas.

Table 3 – Estimated Attenuation Volumes

Impermeable Area	Option	Discharge Rate (l/s)	Required 1 in 30 year volume (m^3)	Required 1 in 100 year + CC volume (m^3)
0.85	Discharge to sewer	1.0	489	663
	Discharge to Watercourse	5.0	298	875

The proposed surface water drainage strategy is contained in Appendix F. Appendix G includes the supporting detailed Micro Drainage calculations.

4.7.2 Water Quality

The customer car park will provide 139 spaces and therefore it will be provided with a Class 1 by – pass separator that will prevent the discharge of pollutants to the receiving water body or sewer. This interceptor will be fitted with an alarm to ensure that no pollutants are discharged in the event of a failure of the interceptor.

4.8 MINIMUM FINISHED FLOOR LEVELS & OVERLAND FLOOD ROUTE

In setting the final external levels for the development it is important to ensure that if flows in exceedance of the 1 in 100 years plus 30% allowance for climate change storm event occur or a failure of the site surface water drainage system occurs, that suitable overland flood routes are provided within the development to ensure no localised flooding of the buildings occurs within the development.

It is therefore proposed to direct overland surface water flows to the east of the application site, given that the site naturally drains in that direction. The site levels and layout will be set in order to maintain an overland surface water flood path through the site. Additionally, it is proposed to set the finished floor levels of the new store nominally 150mm above the average ground level, which will ensure that in the event of extensive overland flows, no flooding of the buildings will occur. Additionally, by installing a suitable surface water drainage system, this should deal with any potential surface water flooding issues on site.

4.9 RESIDUAL FLOOD RISK

If the above mitigation measures are provided as part of the development, it is considered that the primary residual failure would be as a result of some type of failure of the site drainage system during the life of the

development. Regular, ongoing maintenance will therefore be required to ensure that the capacity of the system is maintained as it has been designed.

In addition, as discussed above there remains a residual risk of a storm event that exceeds the capacity of the drainage system, as events beyond the 1 in 100 year plus 30% allowance for climate change storm event will not be catered for explicitly.

4.10 FUTURE MAINTENANCE RESPONSIBILITIES

It is anticipated that upon completion of the development the surface water sewers within the site will remain under LIDL ownership. LIDL has in place a management and maintenance system for other LIDL sites and once this LIDL store is developed, it will be incorporated into the LIDL maintenance plans.

A full inspection and operation manual will be provided setting out the proposed schedule of inspection and maintenance and who will be responsible for executing these elements. Table 4 below provides a summary of the maintenance required by the elements of the drainage network.

Table 4 - Maintenance tasks and frequency required

SuDS element	Maintenance Task	Recommended Frequency
Underground Tanks	- Remove debris from catchment surface - Remove sediment from pre treatment structures - Inspect inlets and outlets - Survey inside of the tank	- Every 12 months - Every 5 years
By Pass Separator	- Remove litter and debris - Inspect integrity and for oil and grease accumulation - Service electrical systems - General Inspection - Replace filter media	- Every 6 months - Every 5 years - As specified by manufacturer

5 FOUL DRAINAGE ASSESSMENT

5.1 EXISITING FOUL DRAINAGE

As stated within Section 2.2.3 there is a 225mm diameter sewer immediately to the west of Wakefield Road.

A copy of the sewer records received from YW is contained in Appendix C.

5.2 PROPOSED FOUL DRAINAGE STRATEGY

The application site is to consist of a LIDL supermarket. Based on a peak flow of 0.6 l/s per developable hectare (refer to Sewers for Adoption 6th Edition), the peak foul flow has been assessed as being 0.5 l/s.

In relation to the proposed foul drainage solution to be adopted for both this site and the adjacent residential application, each site is anticipated to be pumped and each rising main will discharge into either a new connection laid across Wakefield Road into the Yorkshire Water sewer or alternatively, if the existing connection can be proved to be in a suitable condition, then this will be utilised to serve both developments.

Yorkshire Water indicated in their response to the pre-development enquiry that the foul flows from the proposed development for both sites can be accepted into the existing 225mm diameter combined sewer located to the west of Wakefield Road and a copy of this approval is contained within Appendix H.

As with the surface water drainage strategy, once the final drainage design has been identified an addendum report will be issued incorporating the final foul drainage design drawings.

6 CONSENTS REQUIRED

6.1 WATER INDUSTRY ACT 1991

6.1.1 Section 98

In the event that it is not possible to adopt the proposed surface water connection points as identified within Section 4, then an off site surface water connection could be provided by means of a sewer requisition to be submitted to Yorkshire Water under Section 98 application of the Water Industry Act 1991.

6.1.2 Section 106

Any new connection to the Yorkshire Water public sewer system will require a Section 106 application under the Water Industry Act 1991.

6.2 OFF SITE SURFACE WATER SEWER

Where it is required to lay any off-site sewer along the disused railway line then approval will be required from the land owner (Barnsley MBC) to lay the sewer and also from the riparian owner of the receiving watercourse (Barnsley MBC) to facilitate the works.

Due to the time constraints and legal issues with this option it is recommended that early consultations are undertaken to identify any costs and programme implications involved.

7 CONCLUSIONS & RECOMMENDATIONS

7.1 CONCLUSIONS

This report has identified the following conclusions:

1. The foul and surface water drainage for the new store is to be developed in conjunction with the proposed outline planning application for residential development immediately to the north of the application site.
2. The development site is shown on the EA Statutory Flood Maps for Planning as being entirely within Flood Zone 1.
3. The proposed development is to consist of a new retail store and 139 car parking spaces.
4. The 0.9 ha site is classified as brownfield as it was previously occupied by a now demolished industrial unit.
5. The existing & proposed developments are classified as 'Less Vulnerable' according to Table 2 of the NPPG (Flood Risk & Coastal Change).
6. The existing site falls predominantly from west to east toward s the former railway line.
7. The nearest main river to the application site (as listed on the EA Flood Map for Planning) is the River Dearne which flows 1.8km to the south west of the site.
8. The nearest watercourse is located approximately 580m to the south of the application site.
9. There are no historical records of any flooding within the application site.
10. The application site is considered to be at low risk of flooding from rivers, surface water, sewers, overland flows, groundwater, and reservoir failure.
11. The application site is underlain by silty stiff clays as identified by the site investigation study and deemed unsuitable to utilize infiltration techniques to drain the surface water run-off from the development.
12. The existing pre development greenfield Q_{bar} discharge rate is estimated to be 3.4 l/s, however the default minimum discharge rate of 5 l/s has been adopted in assessing the on site attenuation should a discharge to a watercourse be adopted.
13. Two options are proposed to drain the surface water from this development.
14. Option 1 involves pumping the surface water to either the existing Yorkshire Water combined sewer, or alternatively to the Barnsley MBC 225mm diameter highway drain, both of which are located to the west of Wakefield Road. With this option the maximum total pumping rate from both sites has been set at 3 l/s. Discussions with Yorkshire Water and Barnsley MBC Highways Section are on going to agree to which sewer, if any, a connection can be made.

15. Option 2 involves a new gravity surface water sewer is to be laid along the abandoned railway track, in order to discharge surface water runoff from the development site to an existing watercourse located approximately 580m to the south of the application site.

16. In adopting Option 2, there is also the possibility of incorporating over sized sewers within the off-site sewer to minimise the required on site attenuation. In addition, laying a new off-site surface water sewer will allow some additional drainage to be provided to eliminate the existing localised surface water flooding which occurs along part of the disused railway line.

17. It should be noted that Option 2 will also require agreement to be obtained from Barnsley MBC who are the land owners to both lay the new sewer and also as riparian owners, to allow the 5 l/s discharge into the existing watercourse.

18. The required attenuation storage will be provided by means of underground cellular storage tanks located within the car parking area.

19. Based on a pumped solution with a maximum pumping rate of 1 l/s, the estimated 1 in 30 year storage volume has been calculated as being 489m^3 and an additional exceedance volume of 663m^3 being required, which will be provided by allowing the external car parking areas to flood with the site levels set to ensure that this exceedance volume is retained with the site boundary.

20. Based on a gravity discharge to the existing watercourse at a rate of 5 l/s the estimated 1 in 30 year storage volume has been calculated as being 298m^3 and an additional exceedance volume of 278m^3 being required, which will be provided by allowing the external car parking areas to flood with the site levels set to ensure that this exceedance volume is retained with the site boundary.

21. Foul flows will drain to the Yorkshire Water sewer located to the west of Wakefield Road. Due to the existing levels of the Yorkshire Water sewer, it may be necessary to pump the foul flows.

22. Yorkshire Water have accepted that the total foul flows from both the new retail store and the proposed residential development can be discharge d to the existing 225mm diameter combined sewer located to the west of Wakefield Road.

23. The final foul sewer connection route to the Yorkshire Water sewer has yet to be confirmed as further investigations are being undertaken to identify if the existing sewer draining from the old industrial unit connects to the Yorkshire Water sewer and is in a serviceable condition.

7.2 RECOMMENDATIONS

Based on the above, the following recommendations are made:

1. Finished Floor Levels of the new buildings are to be set at nominally 150mm above the average ground level to ensure that in the event of exceedance events causing overland flows within the development, no flooding of the properties will occur.

2. The ongoing sewer investigations within the site and in particular the existing off site connection survey, should be completed and the results assessed to review if the existing connection can be utilised.

3. Further discussions are to be undertaken with both Barnsley MBC Highways and Yorkshire Water to identify if a surface water connection can be made to one of the sewers.

4. If the above cannot be achieved, then early negotiations with Barnsley MBC should be undertaken to agree laying the surface water off site sewer along the old railway line and discharging to the watercourse.

5. Once the final surface water and foul drainage strategy has been identified then an addendum report shall be provided incorporating the revised drainage design drawings and supporting calculations.

6. On completion, a regular inspection & maintenance regime is to be provided for the proposed components of the drainage system.

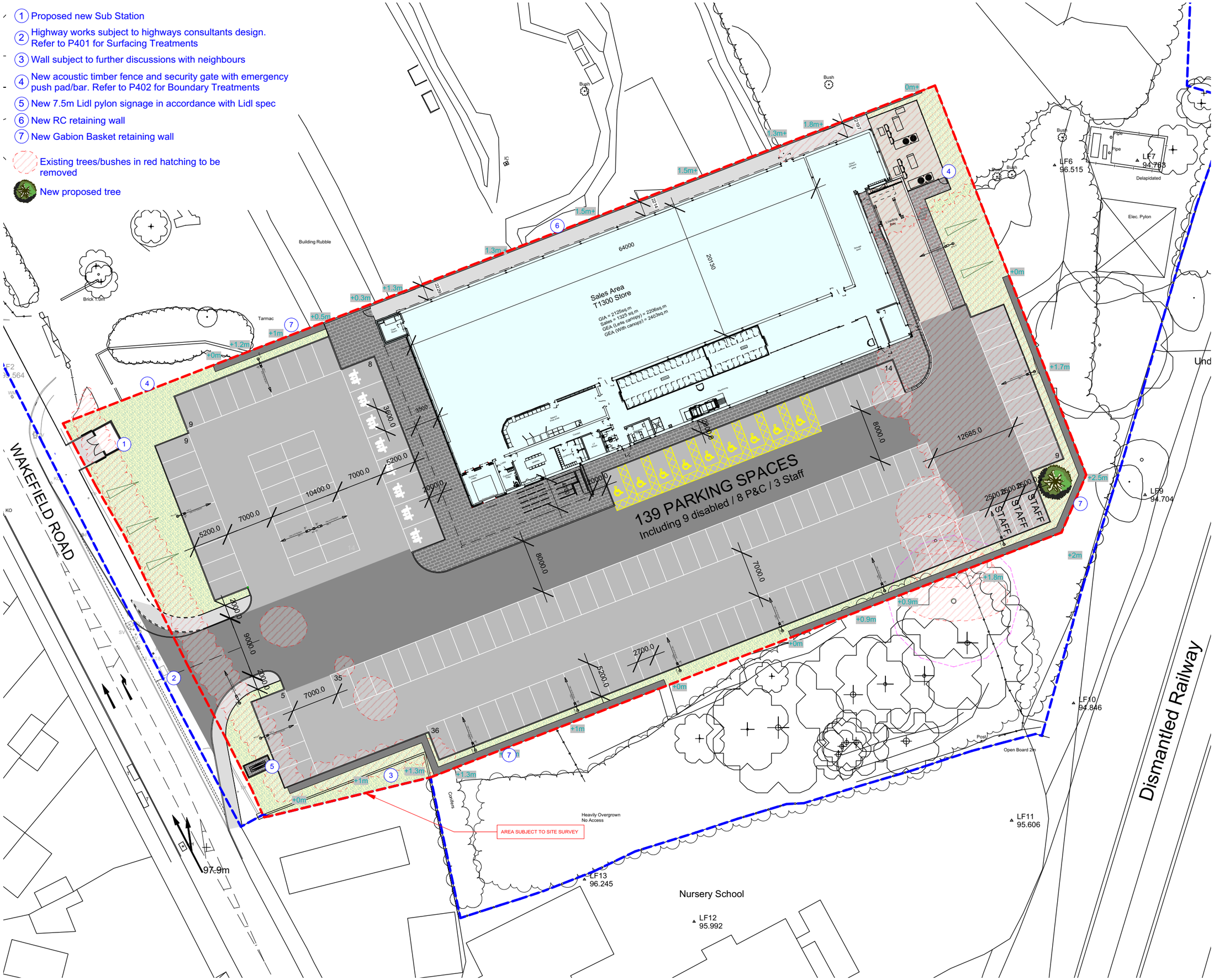
APPENDIX A

Proposed Site Layout

1. Proposed new Sub Station
2. Highway works subject to highways consultants design. Refer to P401 for Surfacing Treatments
3. Wall subject to further discussions with neighbours
4. New acoustic timber fence and security gate with emergency push pad/bar. Refer to P402 for Boundary Treatments
5. New 7.5m Lidl pylon signage in accordance with Lidl spec
6. New RC retaining wall
7. New Gabion Basket retaining wall

Existing trees/bushes in red hatching to be removed

New proposed tree



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DO NOT SCALE!
ALL DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE WORK COMMENCES

SUBJECT TO HGV TRACKING CHECK

INLINE WITH TOPOGRAPHICAL SURVEY, LANDFORM SURVEY DATED 03.07.15 DRAWING NUMBER 001.

SUBJECT TO REVIEW OF LEVELS AND FALLS

SUBJECT TO CONFIRMATION OF CAR CHARGING POINT REQUIREMENT

SUBJECT TO LIGHTING PLAN

BASED ON LIDL SPEC DRAWING LD(13)-GF-01 - Ground Floor - Setting Out Plan

SUBJECT TO HIGHWAYS CONSULTED DESIGN

N

Residual Hazard Register:
HGV Tracking
Vehicular movements within car park
Pedestrian movements within car park.

Development Site Area (sq m)	45,249 sq m
Red Line Site Area (sq m)	9,098 sq m
Store Type Reference	Type 1300 Store
Sales Areas (sq m)	1325
Number of Aisles	5 Aisle
G/F GIA (sq m)	2125
Building footprint (ex canopy) (sq m)	2206
Building footprint (inc canopy) (sq m)	2403
Lidl Car Park Spaces	139

Rev.	Date	Description	Drawn
E.	21.12.17	Highways layout and site entrance updated	PC
D.	13.11.17	Floor Plan updated to latest spec	AB
C.	22.09.17	Level gradient symbols added to E and W boundary & latest lighting scheme added	AB
B.	11.09.17	Annotations and retaining heights updated	LS
A.	04.08.17	Development boundary shown in blue	AB

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E: info@htcarchitects.co.uk

client
Lidl UK GmbH

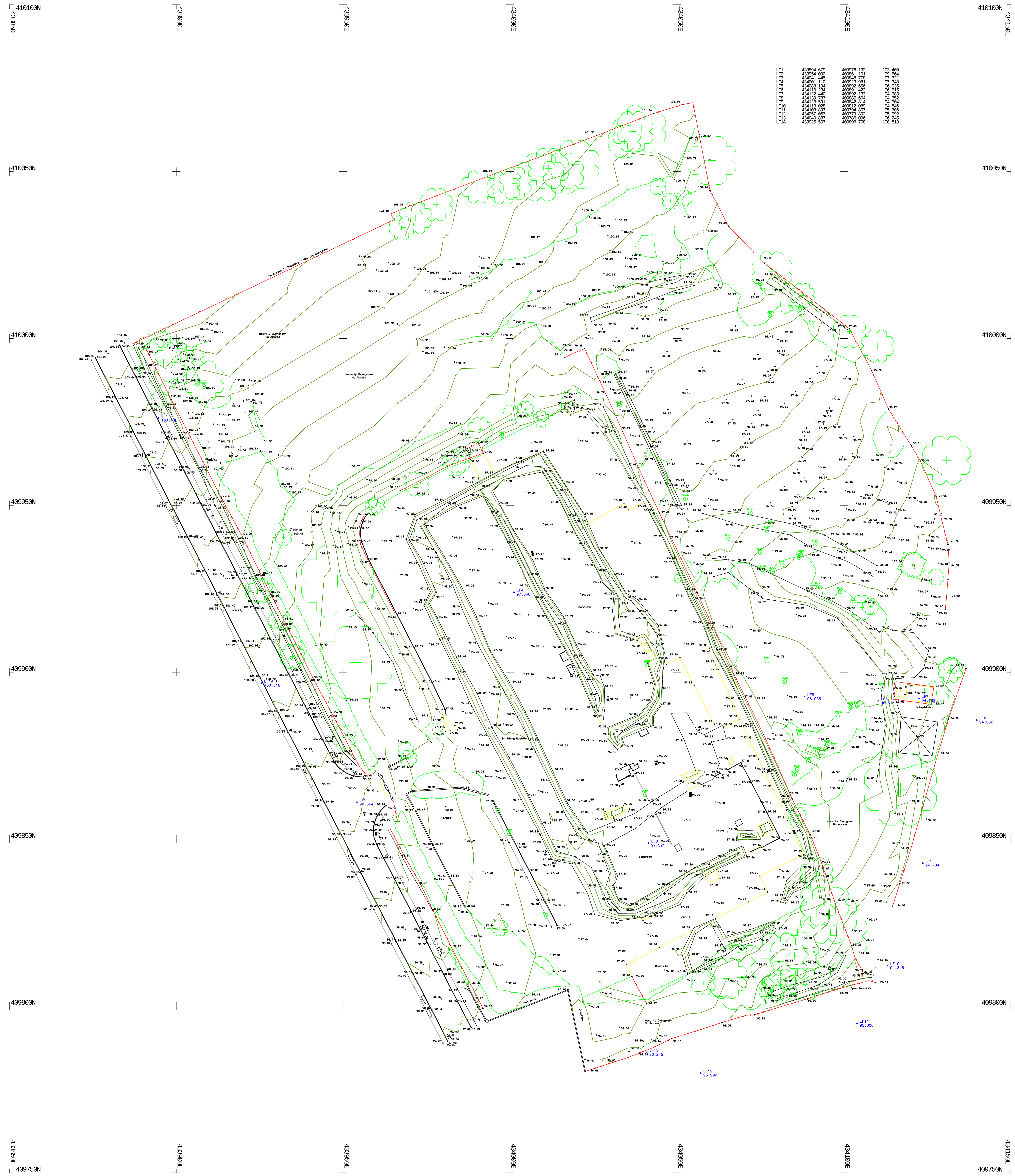
project
New Store
Wakefield Road,
Mapplewell

drawing title
Proposed Type 1300 Lidl Site Plan

date	July 2017		
status	Planning Issue		
scale	1:500 @ A3		
drawn	RT/AB	checked	LS
job no.	1744	dwg no.	P400 rev. E

APPENDIX B

Topographic Survey and Utility Survey



LF1	433894.679	409976.132	103.400
LF2	433954.092	409861.101	99.564
LF3	434041.445	409848.778	97.321
LF4	434001.110	409923.981	97.348
LF5	434088.194	409892.656	96.935
LF6	434110.234	409891.422	96.515
LF7	434122.440	409892.133	94.783
LF8	434139.737	409885.664	94.352
LF9	434123.591	409842.814	94.704
LF10	434113.028	409812.089	94.846
LF11	434103.897	409794.807	95.606
LF12	434057.053	409779.892	95.992
LF13	434040.887	409786.096	96.245
LF1A	433925.507	409896.708	100.818

Legend

BO	BOLLARD	IC	INSPECTION COVER
BS	BUS STOP	IL	INVERT LEVEL
BM	BENCH MARK	LP	LAMP POST
BT	TELECOM COVER	MH	MANHOLE
CL	COVER LEVEL	MP	MILEPOST
CCTV	CCTV POLE	PB	POST BOX
DK	DROP KERB	RS	ROAD SIGN
DP	DOWNPIPE	RE	RODDING EYE
EC	ELECTRIC COVER	SF	SOFFIT
EP	ELECTRIC POLE	SV	STOP VALVE
ER	EARTH ROD	TL	TRAFFIC LIGHT
FH	FIRE HYDRANT	TP	TELEGRAPH POLE
FL	FLOOR LEVEL	TV	CABLE TV COVER
GV	GAS VALVE	UTL	UNABLE TO LIFT
GMK	GAS MARKER	WM	WATER METER
GU	GULLY	▲100	SURVEY STATION
		+22.22	SPOT LEVEL

LEVELS SHOWN ARE TIED IN TO ORDNANCE SURVEY GPS OSTN02 DATUM.

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Accuracies are commensurate with the stated scale of the survey.

rev	by	date	notes	check

Landform Surveys
professional surveying solutions
quayside i4, ouseburn Building, albion row, newcastle upon tyne NE6 1LL
t: 0191 2650555 f: 0191 2765636
e: office@landform-surveys.co.uk www.landform-surveys.co.uk

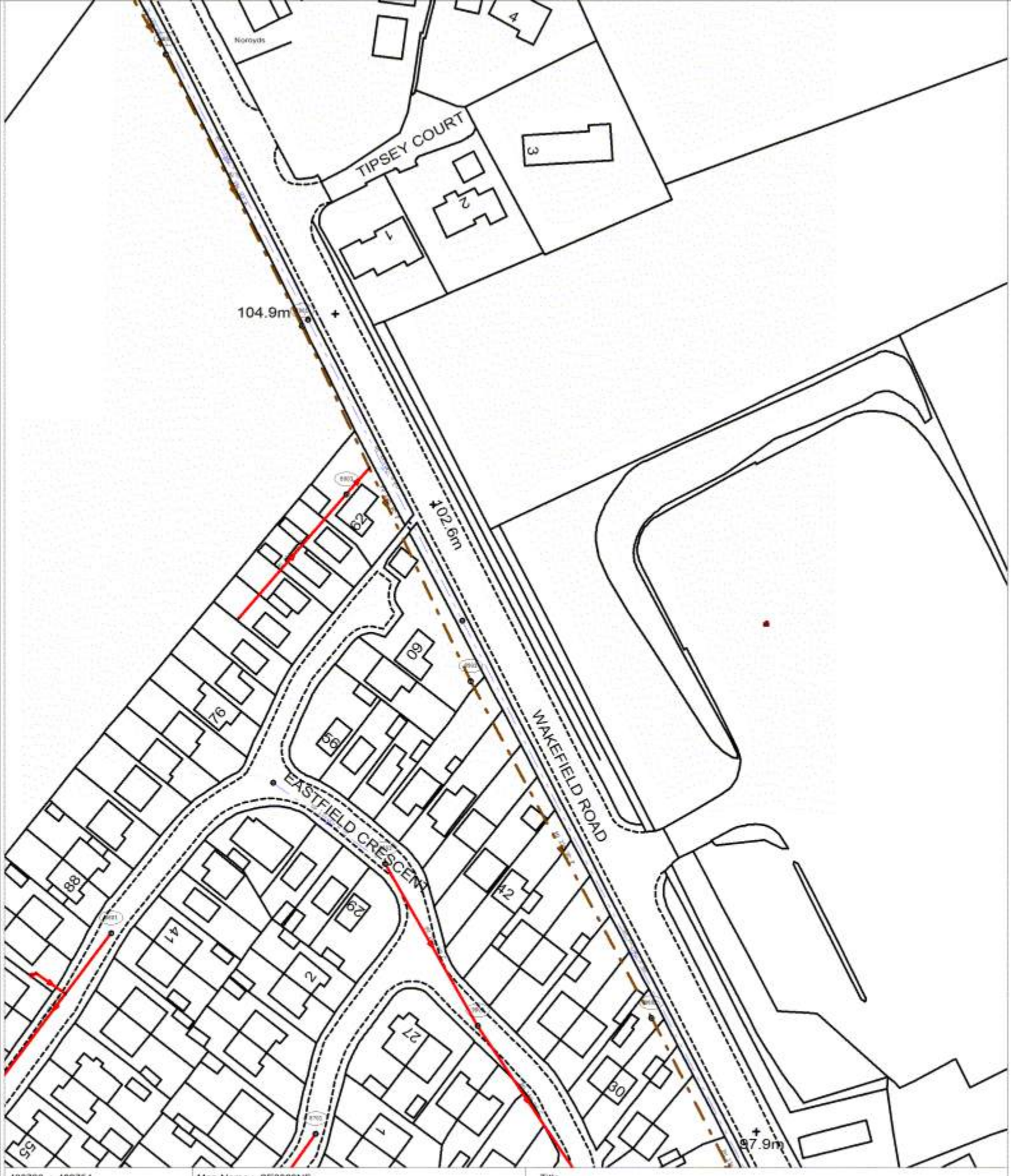
CLIENT
Pipestone Ltd
Land at Mapplewell

TITLE
Topographic Survey

				drawing no	scale
drawn	EH	date	03-07-15	001	1/500@AO
checked	MR	date	03-07-15		
clients Ref					

APPENDIX C

YW Sewer Record



433766 : 409754 | Map Name : SE3309NE | Title

Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :
YorMap Advisor C ROBERTS
Contact Tel : 87 2582

Notes

Partial Key
Foul Sewer = F
Combined Sewer = C
Surface Water Sewer = SW
Trade Sewer = TD
Partially Separate = PS

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connections are shown.

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Date Req : 17/08/2017, 10:48:48 | Date Gen : 17/08/2017, 10:48:55

Source : Sewer Network Enquiry

UPN: Undefined | Originator: C ROBERTS, YorMap, 87 2582

APPENDIX D

Correspondence with Barnsley MBC LLFA

francisco.aguilar

From: Atkins , Wayne <WayneAtkins@barnsley.gov.uk>
Sent: 22 August 2017 09:19
To: francisco.aguilar
Cc: Grayson , Ian
Subject: RE: Ordinary Watercourse in Wakefield Road, Mapplewell

Francisco,

Unfortunately Barnsley MBC Highways Department have a policy of not accepting flows from private developments in the Highway Drainage Network due to issues with ownership and responsibility for repair and possible pollution incidents in the future.

Regards

Wayne Atkins
Principal Engineer – Drainage
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council

Telephone: 01226 772182
E-mail: wayneatkins@barnsley.gov.uk

From: francisco.aguilar [mailto:francisco.aguilar@wyg.com]
Sent: 21 August 2017 10:57
To: Atkins , Wayne
Cc: Grayson , Ian
Subject: RE: Ordinary Watercourse in Wakefield Road, Mapplewell

Hello Wayne,

As we just discussed, YW has indicated that there is a 225mm diameter highway drain under the A61 in Mapplewell as shown in the attached plan.

Could you please indicate if Barnsley Council as Highway Authority would accept the discharge of surface water runoff from the proposed developments into this highway drain?

Thank you for your help

Regards

Francisco Aguilar
Flood Risk & Drainage Engineer

For more information about WYG Engineering, please have a look at our brochure

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Arndale Court, Headingley, Leeds, West Yorkshire, LS6 2UJ
Tel: +44 113 219 2284

www.wyg.com

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From: Atkins , Wayne [mailto:WayneAtkins@barnsley.gov.uk]
Sent: 16 August 2017 10:39
To: francisco.aguilar <francisco.aguilar@wyg.com>
Cc: Grayson , Ian <iangrayson@barnsley.gov.uk>
Subject: RE: Ordinary Watercourse in Wakefield Road, Mapplewell

Francisco,

Unfortunately there is no watercourse under Wakefield Road at this location. Surface water from part of the old factory discharged down the adjacent railway embankment into the old signal ducting, since the railway bridge under Wakefield Road was infilled this now causes flooding issues to the public footpath on the old railway line.

Obviously this situation cannot be mimicked by your proposal and you will need to find an alternative outfall for surface water from the site.

Regards

Wayne Atkins
Principal Engineer – Drainage
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council

Telephone: 01226 772182
E-mail: wayneatkins@barnsley.gov.uk

From: francisco.aguilar [mailto:francisco.aguilar@wyg.com]
Sent: 08 August 2017 14:52
To: Atkins , Wayne
Subject: RE: Ordinary Watercourse in Wakefield Road, Mapplewell

Hi Wayne,

Apologies for that. I attach the proposed masterplan that indicates the site location with the OS background.

Thank you

Regards

Francisco Aguilar
Flood Risk & Drainage Engineer

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From: Atkins , Wayne [mailto:WayneAtkins@barnsley.gov.uk]
Sent: 08 August 2017 14:33
To: francisco.aguilar <francisco.aguilar@wyg.com>
Subject: RE: Ordinary Watercourse in Wakefield Road, Mapplewell

Hi,

There is no location plan attached to your enquiry, please can you send one.

Thanks

Wayne Atkins
Principal Engineer – Drainage
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council

Telephone: 01226 772182
E-mail: wayneatkins@barnsley.gov.uk

From: HighwayDrainage
Sent: 08 August 2017 10:40
To: Atkins , Wayne
Subject: FW: Ordinary Watercourse in Wakefield Road, Mapplewell

Hi Wayne

Just confirm for me please and ill send the forms out.

Kim Fox
Network Resilience Technical Assistant
Environment & Transport
Place Directorate
BMBC
Tel : 01226 773589
Email: kimfox@barnsley.gov.uk

From: francisco.aguilar [mailto:francisco.aguilar@wyg.com]
Sent: 08 August 2017 10:28
To: HighwayDrainage
Cc: tom.beavis
Subject: Ordinary Watercourse in Wakefield Road, Mapplewell

Dear Sir/Madame,

We have been commissioned to undertake a Flood Risk Assessment to support a planning application for the development of a new Lidl store and a residential development on a brownfield site adjacent to the A61 – Wakefield Road in Mapplewell. Please find attached a location plan for convenience.

Yorkshire Water has advised in their response to our pre – development enquiry that there is a culverted watercourse under Wakefield Road. Could you please confirm if this is the case, and provide details of the watercourse? This would be our preferred discharge point for surface water runoff from the development in the event that infiltration proves to be unfeasible.

Assuming that this watercourse exists, we would be grateful if you could advise if Barnsley Council has enabled any local regulations regarding ordinary watercourse in addition to the Land Drainage Act 1991; and if there are any records of flooding in the location or additional information that we may need to be aware of.

Thank you for your help,

Regards

Francisco Aguilar
Flood Risk & Drainage Engineer

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---

francisco.aguilar

From: Atkins , Wayne <WayneAtkins@barnsley.gov.uk>
Sent: 20 December 2017 10:15
To: tom.beavis
Cc: francisco.aguilar; Gary.Rafferty@lidl.co.uk
Subject: RE: Proposed development at Wakefield Road in Mapplewell- Discharge to highway drainage.

Tom,

As stated previously to Francisco, we do not allow flows from private developments into the Highway Drainage system. In particular in this area we already have flooding issues with the Highway Drainage system so therefore believe there are issues with either the capacity of the drain or with damage to the drain therefore we can not allow additional flows into this drain.

I am unaware of where this drain outfalls but if YW state that it connects into the sewage system and are obviously happy with you discharging 5 l/s into the system I would suggest you ask them for permission to connect into one their sewers in the area which discharges to the same system.

I understand the issue with laying a sewer to the local watercourse but with regard to access to third party land I would suggest going through YW's requisition process where their powers of entry can be used.

Regards

Wayne Atkins
Principal Engineer – Drainage
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council

E-mail: wayneatkins@barnsley.gov.uk

From: tom.beavis [mailto:tom.beavis@wyg.com]
Sent: 18 December 2017 16:06
To: Atkins , Wayne
Cc: francisco.aguilar; Gary.Rafferty@lidl.co.uk
Subject: Proposed development at Wakefield Road in Mapplewell- Discharge to highway drainage.

Wayne
I refer to previous correspondence you have had with Francisco Aguilar on the above site, in which we requested a connection to the existing 225mm diameter highway drain that drains along the west of Wakefield Road and I understand eventually discharges into the Yorkshire Water surface water system further south.

Can you pleas provide a copy of your highway drainage records for the area which show the point of connection to the YW sewer system as at present we do not have these

In your response to Francisco, you stated that Barnsley MBC Highways Department have a policy of not accepting flows from private developments in the Highway Drainage Network due to issues with ownership and responsibility for repair and possible pollution incidents in the future.

Following further investigations we have identified that the use of infiltration and the site is underlain by very silty clays so infiltration not viable. The only other alternative is to lay a long off site sewer along the old railway line (up to 580m) and discharge into a local watercourse, however, this will involve crossing third party land as well and obtaining such an agreement may not be possible.

Having further discussed the matter with Yorkshire Water and bearing in mind there are no economic alternatives, they have proposed that we use Section 115 of the Highways Act to allow the additional flows of 5 l/s (or greater if

possible) to be drained into the existing 225mm diameter highway drain. Can you confirm if this would be an acceptable way forward and what if any, additional information you would require to progress this option.

It should be noted that there is a strong political pressure for the development to progress and bearing in mind that there are no reasonable alternative options for draining the surface water flows, can Barnsley MBC Highways reconsider our proposal.

If you wish to discuss any matter relating to the above please contact me on 0113 219 2292

Regards

Tom Beavis
Associate

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APPENDIX E

Greenfield Runoff Rates

ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	Soil	0.450
Area (ha)	1.000	Urban	0.000
SAAR (mm)	652	Region Number	Region 3

Results l/s

QBAR Rural	4.0
QBAR Urban	4.0
Q2 years	3.8
Q1 year	3.5
Q30 years	7.1
Q100 years	8.4

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APPENDIX F

Proposed Indicative Drainage

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Notes:

1. This drawing is to be read in conjunction with all relevant architect's and engineer's drawings.

2. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Key:

- EXISTING SURFACE WATER
- PROPOSED SURFACE WATER
- EXISTING FOUL WATER
- PROPOSED FOUL WATER

Drainage layout plan (1:250)

FOUL AND SURFACE WATER DISCHARGE POINTS AND RATES TO BE CONFIRMED

No.	Revision	Date	Drwn
A	Surface water drainage layout amended	22.11.17	RTM

Status

TOPPING ENGINEERS
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Windsor House Cornwall Road Harrogate HG1 2PW
t: 01423 522 293
w: www.topping-engineers.com
e: info@topping-engineers.com

Client: Lidl UK GmbH

Project: Wakefield Road, Mapplewell

Drawing title: Drainage Layout Plan

Drawn	Chkd	Date	Scale
RTM		October 2017	1:250

Contract No.	Drg No.	Revision
17466	C-50	A

APPENDIX G

Supporting Micro Drainage Calculations

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 803 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control Σ Outflow (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	8.042	0.542	0.0	4.9	4.9	162.3	O K
30 min Summer	8.224	0.724	0.0	4.9	4.9	216.8	O K
60 min Summer	8.417	0.917	0.0	4.9	4.9	274.5	O K
120 min Summer	8.602	1.102	0.0	4.9	4.9	329.8	O K
180 min Summer	8.695	1.195	0.0	4.9	4.9	357.6	O K
240 min Summer	8.746	1.246	0.0	4.9	4.9	373.0	O K
360 min Summer	8.798	1.298	0.0	4.9	4.9	388.4	O K
480 min Summer	8.816	1.316	0.0	4.9	4.9	393.7	O K
600 min Summer	8.813	1.313	0.0	4.9	4.9	393.1	O K
720 min Summer	8.802	1.302	0.0	4.9	4.9	389.6	O K
960 min Summer	8.775	1.275	0.0	4.9	4.9	381.7	O K
1440 min Summer	8.714	1.214	0.0	4.9	4.9	363.4	O K
2160 min Summer	8.621	1.121	0.0	4.9	4.9	335.4	O K
2880 min Summer	8.528	1.028	0.0	4.9	4.9	307.5	O K
4320 min Summer	8.319	0.819	0.0	4.9	4.9	245.1	O K
5760 min Summer	8.128	0.628	0.0	4.9	4.9	187.9	O K
7200 min Summer	7.985	0.485	0.0	4.9	4.9	145.1	O K
8640 min Summer	7.879	0.379	0.0	4.9	4.9	113.4	O K
10080 min Summer	7.801	0.301	0.0	4.8	4.8	90.2	O K
15 min Winter	8.109	0.609	0.0	4.9	4.9	182.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	116.077	0.0	164.8	26
30 min Summer	77.924	0.0	221.4	41
60 min Summer	49.937	0.0	286.9	70
120 min Summer	30.911	0.0	355.3	128
180 min Summer	23.009	0.0	396.7	188
240 min Summer	18.531	0.0	425.9	246
360 min Summer	13.610	0.0	469.2	364
480 min Summer	10.932	0.0	502.3	482
600 min Summer	9.215	0.0	529.1	600
720 min Summer	8.010	0.0	551.7	662
960 min Summer	6.415	0.0	588.5	778
1440 min Summer	4.683	0.0	641.0	1040
2160 min Summer	3.411	0.0	707.9	1456
2880 min Summer	2.721	0.0	752.7	1876
4320 min Summer	1.975	0.0	819.0	2680
5760 min Summer	1.571	0.0	870.1	3360
7200 min Summer	1.315	0.0	910.1	4048
8640 min Summer	1.137	0.0	944.5	4752
10080 min Summer	1.007	0.0	974.5	5440
15 min Winter	116.077	0.0	184.6	26

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Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	8.315	0.815	0.0	4.9	243.9	O K
60 min Winter	8.532	1.032	0.0	4.9	308.8	O K
120 min Winter	8.743	1.243	0.0	4.9	372.1	O K
180 min Winter	8.852	1.352	0.0	4.9	404.5	O K
240 min Winter	8.914	1.414	0.0	4.9	423.2	O K
360 min Winter	8.981	1.481	0.0	5.0	443.1	O K
480 min Winter	9.011	1.511	0.0	5.0	451.9	O K
600 min Winter	9.021	1.521	0.0	5.0	453.9	O K
720 min Winter	9.011	1.511	0.0	5.0	451.9	O K
960 min Winter	8.974	1.474	0.0	5.0	441.0	O K
1440 min Winter	8.896	1.396	0.0	4.9	417.8	O K
2160 min Winter	8.763	1.263	0.0	4.9	378.0	O K
2880 min Winter	8.625	1.125	0.0	4.9	336.6	O K
4320 min Winter	8.306	0.806	0.0	4.9	241.2	O K
5760 min Winter	8.027	0.527	0.0	4.9	157.8	O K
7200 min Winter	7.849	0.349	0.0	4.8	104.3	O K
8640 min Winter	7.741	0.241	0.0	4.6	72.2	O K
10080 min Winter	7.677	0.177	0.0	4.3	52.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	77.924	0.0	247.8	40
60 min Winter	49.937	0.0	321.4	70
120 min Winter	30.911	0.0	397.9	126
180 min Winter	23.009	0.0	444.3	184
240 min Winter	18.531	0.0	477.0	242
360 min Winter	13.610	0.0	525.4	356
480 min Winter	10.932	0.0	562.4	470
600 min Winter	9.215	0.0	592.2	582
720 min Winter	8.010	0.0	617.3	688
960 min Winter	6.415	0.0	657.8	884
1440 min Winter	4.683	0.0	709.4	1104
2160 min Winter	3.411	0.0	792.8	1568
2880 min Winter	2.721	0.0	843.0	2024
4320 min Winter	1.975	0.0	917.4	2864
5760 min Winter	1.571	0.0	974.6	3520
7200 min Winter	1.315	0.0	1019.4	4176
8640 min Winter	1.137	0.0	1058.0	4760
10080 min Winter	1.007	0.0	1091.8	5440

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.353	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.770

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.256	4	8	0.256	8	12	0.257

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Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 7.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	315.0	0.0	1.500	315.0	0.0
0.500	315.0	0.0	1.600	0.0	0.0
1.000	315.0	0.0			

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0098-5000-1500-5000
Design Head (m)	1.500
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	98
Invert Level (m)	7.500
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	5.0
Flush-Flo™	0.431	4.9
Kick-Flo®	0.878	3.9
Mean Flow over Head Range	-	4.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.2	1.200	4.5	3.000	6.9	7.000	10.3
0.200	4.4	1.400	4.8	3.500	7.4	7.500	10.7
0.300	4.8	1.600	5.1	4.000	7.9	8.000	11.0
0.400	4.9	1.800	5.4	4.500	8.4	8.500	11.3
0.500	4.9	2.000	5.7	5.000	8.8	9.000	11.6
0.600	4.8	2.200	6.0	5.500	9.2	9.500	11.9
0.800	4.3	2.400	6.2	6.000	9.6		
1.000	4.1	2.600	6.5	6.500	10.0		

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APPENDIX H

YW Pre Development Enquiry

YorkshireWater

Mr F Aguilar
WYG Management Services Ltd
Arndale Court
Arndale Otley Road
Headingley
Leeds
LS6 2UJ

Yorkshire Water Services
Developer Services
Sewerage Technical Team
PO BOX 52
Bradford
BD3 7AY

Tel: 0345 120 8482
Fax: (01274) 372 834

Email:
Technical.Sewerage@yorkshirewater.co.uk

For telephone enquiries ring:
Chris Roberts on 0345 120 8482

Your Ref: A104788
Our Ref: T012355

4th August 2017

Dear Mr Aguilar,

Wakefield Road, Mapplewell HU7 3GB - Pre Planning Sewerage Consultation on R649307 - RESIDENTIAL

Thank you for your recent enquiry. Our charge of £153.00 (plus VAT) will be added to your account with us, reference WYG074. You will receive an invoice for your account in due course.

Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records. The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months.

Foul Water

Development of the site should take place with separate systems for foul and surface water drainage. The separate systems should extend to the points of discharge to be agreed.

Foul water domestic waste should discharge to the 225 mm diameter public foul sewer recorded in Wakefield Road, at a point to the west of the site.

Surface Water

The developer's attention is drawn to Requirement H3 of the Building Regulations 2000. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order.

Sustainable Drainage Systems (SuDS), for example the use of soakaways and/or permeable hardstanding etc, may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SuDS in this instance from the appropriate authorities.

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority, with regard to surface water disposal from the site.

It is understood that a culverted watercourse is located in Wakefield Road to the west of the site. This appears to be the obvious place for surface water disposal (if SuDS are not viable).

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority, with regard to surface water disposal from the site.

Other Observations

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may obtain an application form from our website (www.yorkshirewater.com) or by telephoning 0345 120 84 82.

An off-site foul and surface water sewer may be required which may be provided by the developer and considered for adoption under Section 104 of the Water Industry Act 1991. Please telephone 0345 120 84 82 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0345 120 84 82.

Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the WRc publication "Sewers for Adoption - a design and construction guide for developers" 6th Edition as supplemented by Yorkshire Water's requirements, pursuant to an agreement under Section 104 of the Water Industry Act 1991. An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Developer Services Team (telephone 0345 120 84 82) for further information.

The public sewer network is for domestic sewage purposes. This generally means foul water for domestic purposes and, where a suitable surface water or combined sewer is available, surface water from the roofs of buildings together with surface water from paved areas of land appurtenant to those buildings. Land and highway drainage have no right of connection to the public sewer network. No land drainage to be connected/discharged to public sewer.

As a last resort, highway drainage may be accepted under certain circumstances. If it can be demonstrated, through satisfactory evidence, that SUDS are not a viable option, there are no watercourses or highway drains available and if capacity is available within the public sewer network, highway drainage discharges to the public sewer network may be permitted. In this event, the developer may be required to enter into a formal agreement with Yorkshire Water Services under Section 115 Water Industry Act 1991 to discharge non-domestic flows into the public sewer network.

All the above comments are based upon the information and records available at the present time. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours sincerely

Chris Roberts
Sewerage Technician
Developer Services

francisco.aguilar

From: Chris.Roberts@yorkshirewater.co.uk on behalf of technical.sewerage@yorkshirewater.co.uk
Sent: 29 August 2017 13:13
To: francisco.aguilar
Subject: Development Enquiry - Proposed LIDL and Residential Development in Wakefield Road, Mapplewell, Barnsley - R649307
Attachments: image001.png; image002.png; image003.png; image004.png; image005.png

Hi Francisco,

The 225 mm public foul sewer does not have any capacity available to accept any discharge of surface water. If SuDS are not viable, the developer is advised to contact the Environment Agency/local Land Drainage Authority with a view to establishing a suitable watercourse for discharge.

Regards

Chris

|------------>
| From: |
|------------>
>-------|
|"francisco.aguilar" <francisco.aguilar@wyg.com>
|
>-------|
|------------>
| To: |
|------------>
>-------|
|"technical.sewerage@yorkshirewater.co.uk" <technical.sewerage@yorkshirewater.co.uk>,
"Chris.Roberts@yorkshirewater.co.uk" |
|<Chris.Roberts@yorkshirewater.co.uk>,
|
>-------|
|------------>
| Cc: |
|------------>
>-------|
|"tom.beavis" <tom.beavis@wyg.com>
|
>-------|
|------------>
| Date: |
|------------>
>-------|
|16/08/2017 10:46 |
>-------|
|------------>
| Subject: |
|------------>

>----------|
|RE: Development Enquiry - Proposed LIDL and Residential Development in Wakefield Road, Mapplewell, Barnsley |
>----------|

Hi Chris,

Please find attached the email from Barnsley Council LLFA indicating that there is no nearby watercourse in Wakefield Road.

Infiltration tests will be carried out to assess the feasibility of infiltration (provided ground contamination is not an issue). However, could Yorkshire Water accept that if infiltration tests are unsuccessful, discharge from both the LIDL site and the new residential site could be discharged to the YW sewer in Wakefield road at greenfield runoff rates?

Thank you for your help

Regards

Francisco Aguilar
Flood Risk & Drainage Engineer

For more information about WYG Engineering, please have a look at our brochure

WYG
Arndale Court, Headingley, Leeds, West Yorkshire, LS6 2UJ
Tel: +44 113 219 2284

www.wyg.com
WYG Engineering Limited. Registered in England number: 1959704.
Registered Office: Arndale Court, Otley Road, Headingley, Leeds, West Yorkshire LS6 2UJ VAT No: 431-0326-08.

-----Original Message-----
From: Chris.Roberts@yorkshirewater.co.uk [mailto:Chris.Roberts@yorkshirewater.co.uk] On Behalf Of technical.sewerage@yorkshirewater.co.uk
Sent: 04 August 2017 15:01
To: francisco.aguilar <francisco.aguilar@wyg.com>
Subject: Development Enquiry - Proposed LIDL and Residential Development in Wakefield Road, Mapplewell, Barnsley

Dear Francisco,

Please find my response below.

(See attached file: WAKE.pdf)(See attached file: roberts4_radEB0A8.PNG)

Regards

Chris Roberts
Sewerage Technical Team

Dear Sir/Madame,

Please find attached the completed form regarding a pre development enquiry on the site above. An indicative masterplan is also attached for convenience.

There are no watercourses near the site, and infiltration may not be a feasible discharge mechanism for surface water runoff. An investigation is being carried out to confirm whether soakaways would present a viable solution. We would like to obtain confirmation from YW that in the event that infiltration proves to be unfeasible, surface water can be discharged to the foul sewer under Wakefield Road, as it seems to act, according to records, as a combined sewer.

Foul water may require to be pumped as levels may not allow for a gravity connection.

Thank you for your help,

Regards,

Francisco Aguilar
Flood Risk & Drainage Engineer

WYG
Arndale Court, Headingley, Leeds, West Yorkshire, LS6 2UJ
Tel: +44 113 219 2284

www.wyg.com
|----------|

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Francisco,

Unfortunately there is no watercourse under Wakefield Road at this location. Surface water from part of the old factory discharged down the adjacent railway embankment into the old signal ducting, since the railway bridge under Wakefield Road was infilled this now causes flooding issues to the public footpath on the old railway line.

Obviously this situation cannot be mimicked by your proposal and you will need to find an alternative outfall for surface water from the site.

Regards

Wayne Atkins
Principal Engineer – Drainage

Environment & Transport

Place Directorate

Barnsley Metropolitan Borough Council

Telephone: 01226 772182
E-mail: wayneatkins@barnsley.gov.uk

From: francisco.aguilar [mailto:francisco.aguilar@wyg.com]
Sent: 08 August 2017 14:52
To: Atkins , Wayne
Subject: RE: Ordinary Watercourse in Wakefield Road, Mapplewell

Hi Wayne,

Apologies for that. I attach the proposed masterplan that indicates the site location with the OS background.

Thank you

Regards

Francisco Aguilar
Flood Risk & Drainage Engineer

Assuming that this watercourse exists, we would be grateful if you could advise if Barnsley Council has enabled any local regulations regarding ordinary watercourse in addition to the Land Drainage Act 1991; and if there are any records of flooding in the location or additional information that we may need to be aware of.

Thank you for your help,

Regards

Francisco Aguilar
Flood Risk & Drainage Engineer

For more information about WYG Engineering, please have a look at our brochure<
http://www.wyg.com/uploads/files/discipline_brochures/WYG-Engineering-Brochure.pdf?utm_medium=email&utm_campaign=Engineering&utm_content=Brochure_Download&utm_source=Email_Footer
>

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Tel: +44 113 219 2284

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Registered Office: Arndale Court, Otley Road, Headingley, Leeds, West Yorkshire LS6 2UJ VAT No: 431-0326-08.

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