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DRAINAGE STATEMENT

ON

DEVELOPMENT OFF LINGARDS ROAD,
SLAITHWAITE

FOR

SB HOMES LIMITED

Our Ref: E09/7567DS01

Date: 24 November 2022

1. Introduction

- 1.1 Haigh Huddleston & Associates have been requested by SB Homes to investigate and provide design information in relation to the proposed drainage for the development off Lingards Road, Slaithwaite.

2. Site Description

- 2.1 The site is located to the south of Manchester Road (A62) in Huddersfield, West Yorkshire. It lies approximately 1.0km to the southwest of Slaithwaite Town Centre. A site location plan (Fig. I) is attached in Appendix A
- 2.1 The site can be accessed from Lingards Road on its south east boundary. The Ordnance Survey co-ordinates for the centre of the site are 407290m E, 413350m N. The site is approximately 2.1 hectares in area and slopes steeply from south to north and from east to west. The site levels vary considerably with the north west boundary varying from 172m to 173.6 and from 177.6 to 178.2m AOD. The south eastern boundary falls from 203.1m to 184m whilst the western boundary falls from 203m down to 173.6m AOD. The levels to the north eastern boundary vary from 181.1 to 172.63 m AOD.
- 2.2 The site is irregularly shaped and located on the edge of a residential area. To the north, east and south there are single dwelling residential developments to the main roadways. Beyond these are open pastureland with steep slopes from the south. The land to the north all slopes away from the site down to Manchester Road and then down through wooded slopes to the River Colne.
- 2.3 There are two watercourses shown crossing the site one of which has been culverted. These flow from south to north and exit the site via a culvert on the north eastern boundary. The nearest watercourse beyond these are the River Colne which is approx. 100m away to the north of the site. The water courses crossing the site issue from springs within the Millstone grit rock on the southern edge of the site. The catchment areas falling towards the site are potentially substantial but there are a number of springs along this escarpment that allow the ground water to flow out of the rocks. The River Colne flows from west to east through Huddersfield before flowing east to join the River Calder.

3.0 Proposed Development

- 3.1 It is understood that the proposed development is for residential properties with associated adoptable roads and private drives/parking areas.
- 3.2 The scheme is for 42 number properties with a number to be accessed directly off Lingards Road.

4.0 Existing Drainage Arrangements

- 4.1 There is an open watercourse crossing the site which exits the site on the northern boundary. Flows from this feature are controlled by the adjacent landowners via a small basin with an inlet and outlet structure. The surface water is then routed towards Manchester Road via a culverted section adjacent to the gable of No. 50A Manchester Road.

- 4.2 The above watercourse is fed by a series of springs which emanate from within the Millstone grit rock on the southern boundary of the site. At present Lingard Road affectively provides a cut-off for overland flows entering the site along the southern boundary. Some investigation work in the form of trial trenches will be required to confirm if there are any culverted piped flows entering the site centrally along the southern boundary. This will enable the catchment area to be confirmed.
- 4.3 Further investigation works has been undertaken in relation to the watercourse to the west of the proposed site. Two features have been proved onsite.
- i) Evidence of a stone culvert has been found on site which feeds an open ditch directly to the rear of the existing turning circle. At the rear of the turning circle no evidence of any piped watercourse was found and dye testing has revealed the surface water flow passes through the stone retaining wall joint and outfalls at its base to the collected by road gullies before passing below Manchester Road to the watercourse.
 - ii) A second stone culverted watercourse was proved adjacent to the western site boundary. This was measured as 200mm wide x 130mm deep. The structure of the watercourse has deteriorated on the adjacent land and at present surface water flows to the rear of the gas governor retaining wall and seeps through the existing structure before finding its way onto Manchester Road.
- 4.4 The main culvert below Manchester Road has been surveyed. The length between the initial manhole within the turning head and the second manhole in the opposite carriageway is in poor condition. The pipe construction varies between a 225mm diameter and a 300 x 300mm stone culvert. In a number of locations the pipe has partially collapsed restricting the length these could be surveyed with the CCTV unit.
- Downstream from the manhole located within the carriageway is a 375mm diameter concrete pipe which leads directly to the watercourse to the north and outfalls approximately 20m into the cemetery area. This section of pipe was in relatively good condition although steeply falling in places to the outfall.
- 4.5 Anecdotal discussions with the adjacent landowner has indicated that the existing water tank on site is spring-fed from elevated areas of the site above the tank. At present the landowner takes a water supply from this tank. This is proposed to be upgraded and re-established following the site development. A possible well structure has been mentioned, however no evidence is visible during a walkover on site, further investigation works will be undertaken to determine the source of the feed to the water tank. At present it is suspected that it is spring-fed by the large area of marshy ground present in this proportion of the site. Again it is proposed to maintain this feed via a series of new land drainage system located within the properties in the area of the site.
- 4.6 It is understood that there is an existing foul drain which serves No. 45 Lingards Road crossing the site. This system would have been adopted by Yorkshire Water under the "Big Transfer" in 2011 and will therefore require a formal diversion agreement to be accommodated with the proposed re-development. Please note sufficient space has been provided within the site layout to enable any anticipated diversion works to be incorporated. The manhole surveyed at the rear of No. 45 has been infilled with earth making a CCTV impossible at the present time. Again some further investigation work is required to confirm depth and any other possible connections. However there is sufficient space and falls on site to be confident a diversion can be accommodated.

5.0 Proposed Drainage

5.1 The adoptable road and roof drainage for the new properties will be drained by an adopted Yorkshire Water sewer through a S104 Agreement.

5.2 Due to site levels the outfall from the development will be split. The majority of the site will outfall to the north west with a smaller proportion outfalling to the north east.

5.3 Foul Water

- i) There is an existing foul drain crossing the site. This will need to be diverted under a S185 Agreement with Yorkshire Water as discussed above.
- ii) The foul drainage for the majority of the site will discharge to the 300mm diameter combined sewer in Manchester Road to the north west of the site. From a site inspection the proposed sewer can be accommodated between the existing trees on the off-site route.
- iii) The foul from the small portion of the site to the east will connect to the 150mm diameter sewer at the head of the existing footpath. Note this manhole is 2.7m deep and has a 150mm adopted pipe laid across the channel line which is likely to serve No. 45.

5.4 Surface Water

- i) In the first instance the current planning hierarchy for drainage requests that infiltration systems are utilised wherever possible, before off-site watercourses and drains are considered. Following trial holes on site it is evident that the clayey superficial deposits will not be conducive for soakaways. Therefore watercourses should be considered as the preferred solution.
- ii) As per the above due to site levels the surface water from the site will be split into 2 No. outfalls.
- iii) Surface water from the main body of the site will discharge to the identified watercourse along the western site boundary. Surface water flows from the system has been proven to connect to the existing culvert below Manchester Road prior to outfalling into an open watercourse within the cemetery area to the north.
Based upon a greenfield run-off discharge from the site a 1 in 2 year flows of 6.6 l/s has been determined. This could potentially increase slightly for the 1 in 100 year event including climate change with the agreement of the LLFA.
- iv) Based upon the above figures approximately 440m³ of surface water attenuation will be required. This is proposed to be stored within a reinforced concrete offline tank. Please note this has been slightly lowered to enable the existing ground profile to remain unaltered following the tank construction. The flow control manhole and the tank will be formerly adopted under a S104 Agreement. Please note that in the interim period prior to the sewer being transferred to Yorkshire Water the developer will retain responsibility for ensuring the system is fully operational.
- v) A second surface water outfall is proposed to the north east of the scheme. This will serve the 5 No. properties and associated private parking in this area of the site. A nominal discharge rate of 3 l/s has been agreed with Yorkshire Water with a small section of 1500mm diameter pipe being used to provide the attenuation. The system will also be put forward for adoption with Yorkshire Water.

6.0 Land Drainage

- 6.1 A land drainage scheme is highlighted on drawing No. 7567/36.
- 6.2 The watercourse along the western site boundary will be renewed to ensure that an adequate land drainage provision is made. The watercourse connection to the outfall will be renewed below Manchester Road and tie-in to the existing manhole in the opposite carriageway prior to the existing 375mm diameter concrete outfall pipe. This will avoid the partially collapsed section of pipe beneath Manchester Road.
- 6.3 It has been agreed with the LLFA to provide improvement works to the drainage system to the west of the site and to convey the run-off from the watercourse to the rear of the turning head into this new system. This should remove water seeping through the retaining wall onto Manchester Road, this will provide a significant improvement. Note the size of the outfall pipe has been increased to accommodate the additional flows.
- 6.4 A 225/300mm land drainage system will be constructed adjacent to the northern site boundary. We would recommend that this system is established early in the project to prevent overland flows entering third party land during construction.
- 6.5 The existing land drainage system will be modified to enable a continued water supply to the existing tank located in the central in the western half of the site. The existing water feed from the tank will be renewed and maintained to the third party property.
- 6.6 A small spillway/overflow has been introduced prior to the open section of watercourse entering third party land as requested by the LLFA. This would assist the flood routing in this area and direct any potential flows to the land drainage system on the northern boundary.
- 6.7 A land drain will be provided centrally through the development from the southern boundary with Lingards Road to intercept the spring water. Further investigation is likely to be necessary to confirm no other piped discharges are present in the site area.
- 6.8 A multitude of other land drains will be required to the rear of retaining structures through the development. These will connect into the main carrier runs as listed above.
- 6.9 The future maintenance of the land drainage will be the responsibility of the future plot owners where the system falls under their boundary curtilage. This should be noted to the new homeowners that they are aware of their responsibilities.
- 6.10 Easements have been annotated to the land drainage system and any new planting in terms of trees should be avoided in these areas.

7.0 Lingards Road

- 7.1 At present there is a combined 150mm diameter pipe within Lingards Road. A number of road gullies are noted that already discharge into this system.
- 7.2 At present there is an existing grass verge to the road abutting the site that is slightly elevated above the highway proving a 150/200mm level difference. This will ensure that the surface water within Lingards Road would be unlikely to enter the site.

- 7.3 Additional road gullies are proposed with Lingards Road to ensure that surface water is collected at more regular centres and to ensure improved overland flow management. Only marginal additional impermeable area is being drained by these gullies, if the new footpath is included to Lingards Road.

8.0 Flood Routing

- 8.1 Flood routing has been considered throughout the development scheme to ensure that any exceedance flows can be safely managed on site without entering properties.
- 8.2 There is a new footpath to be constructed along the site frontage with Lingards Road with a stone wall to the rear. The footpath would generally have a 100mm kerb face and backfall to the highway. This should be sufficient to prevent any overland flows from Lingards Road entering the site.
- 8.3 Based upon the extremely low probability of surface water flows enter the new development from Lingards Road on the drive access the levels will be arranged to ensure they crossfall away from the properties and onto the soft landscaped areas between the properties. Note: land drainage will be constructed within these areas and flood routes will be provided between properties to ensure flows are diverted away from the finished floor levels.