Hybrid application: Detailed planning application for the erection of 143 residential units, supermarket (Use Class A1), petrol filling station, additional parking for Community Campus, public open space, landscaping, access, parking and ancillary works. Outline application for Health Centre (Use Class D1) with all matters reserved.

Land at Midland Road, Royston

Flood Risk & Drainage Statement

For

Kier Property Developments Limited

Report Ref	Issue	Prepared by	Reviewed by	Date
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PROPOSED SUPERMARKET, HEALTH CENTRE & RESIDENTIAL DEVELOPMENT

LAND AT MIDLAND ROAD, ROYSTON

FLOOD RISK AND DRAINAGE STATEMENT FOR PROPOSED SUPERMARKET

This flood risk and drainage statement has been prepared for Kier Property Developments Limited to assess the flood risk and drainage issues associated with the proposed redevelopment of a parcel of land to the north of Midland Road, Royston. The site, centred on national grid reference 436285 411761, adjoins Royston District Centre to the rear of the Civic Hall and the Council Offices. The site location is shown on the attached drawing AD(00) 01.

The redevelopment site is approximately 7.12 hectares and was previously occupied by Royston High School and its associated playing fields. The High School has since been demolished. It is now proposed that the site will be developed to form a 3,066 sq.m. gross supermarket with petrol filling station, associated car parking, service area and landscaping. The site will also provide a residential development of approximately 143 units and a health centre. The attached Archial drawing AD(00) 02 shows the proposed development layout.

This Flood Risk and Drainage Statement will discuss the principles of the proposed development and identify any likely flood risks to the site. It will also discuss the surface and foul water drainage proposals.

Flood Risk Assessment

Flood Zones

As the site is greater than 1.0 ha in size, a Flood Risk Assessment by and in accordance with the National Planning Policy Framework (NPPF) will be required.

The principal source of fluvial flooding will be from any adjacent watercourses and is likely to be from out of bank flows. The site may also be vulnerable to pluvial flooding from the proposed development drainage system and existing drainage. Ground water flooding is identified as not a risk. Yorkshire Water has confirmed no record of flooding on their system in this area.

The Environment Agencies Indicative Online Flood Map shows that the entire site is located within Flood Zone 1 "Low Probability" and is assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).

Existing Watercourses

An un-named culverted watercourse runs in an easterly direction along Common Lane immediately to the north of the site. This watercourse accepts a discharge from a short length of open ditch running parallel to the sites northern border, in addition to a 600mm diameter surface water sewer from the north. The Yorkshire Water sewer outfall is shown on the attached pre-planning enquiry response and the associated sewer record plan. The existing watercourse continues, in a 600mm diameter culvert, in a north easterly direction along Common Lane and away from the site.

A topographical survey of the site has been undertaken and shows the site to fall towards the northeast corner at a gradient of approximately 1 in 40. Any flooding from this culverted watercourse will naturally flow away from the site and therefore does not pose a risk to the proposed development. The site is not considered to be at risk from fluvial flooding.

Flood Risk

A further source of flooding is as a result of excess run-off from the development. It is important that the proposed ground levels are configured such that any flooding on site is directed away from proposed buildings and towards the surface water storage facilities. It should also ensure that any overland flows resulting from excess run-off are retained on site up to the 1 in 100 year plus climate change event.

Proposed Surface Water Disposal

The current Building Regulations now requires disposal of new development surface water to discharge by infiltration (to ground), to watercourse or to sewer in that order of priority. Furthermore, Sustainable Urban Drainage Systems (SUDS) should also be used wherever possible to mimic as far as practicable the natural run-off.

Four trial pits were excavated to between 2.75m and 3.50m depth using a wheeled backhoe excavator and breaker at pre-determined locations. The trial pits were logged with changes of strata recorded and detailed exploratory hole records were taken. The excavations proved less than 1 metre of made ground overlying natural gravely clays to a depth of between 1.5m and 2.2m with all excavations terminated in either sandstone or mudstone.

Percolation tests were carried out generally in accordance with BRE Digest 365 'Soakaway Design' 2003. All tests undertaken failed to record any fall in water levels, indicative of no infiltration into the underlying strata. Therefore the use of soakaways as a method for disposal of surface water is not considered feasible.

Given the above, surface water flows should be directed to the existing culverted watercourse immediately to the north of the site.

Flows from the proposed development should be restricted to the existing site run-off rate. However, as no connectivity can be proven from the existing school development, surface water run-off should be restricted to greenfield rates unless further evidence of the existing school drainage system is obtained. Proposed surface water run-off from the development should be restricted using a suitable flow control device together with underground attenuation tanks.

Based on a total catchment area of 6.92 hectares and a greenfield run-off rate of 5.0 l/sec/ha, a total restricted discharge rate of 35 l/sec would be permitted. Given the depth of the attenuation and the relative level of the existing watercourse, an adoptable surface water pumping station will be required. This pumping station should be positioned in the north eastern corner of the site, adjacent to the watercourse, and should be designed in accordance with Sewers for Adoption 7th Edition. The station will need a compound of approximately 10m x 8m and no habitable buildings should be located within 15m of the pumping station compound.

In order to provide an adequate outfall into the culverted watercourse, works will be required to the existing open ditch to the northern site boundary. These works will include, but are not limited to, the removal of silt and debris from the channel and the construction of a suitable headwall.

Consent will be required from Barnsley MBC for any works within this existing watercourse and for the discharge of surface water from the site.

In accordance with current guidance, Sustainable Urban Drainage (SUDS) techniques should be employed to:

a) Reduce the peak surface water run-off from the site and hence reduce the risk of flooding both on site and downstream of the site and
b) Increase the quality of any surface water discharged from the site.

Sewer Diversion

In order to maximise the proposed development site the existing Yorkshire Water combined sewer crossing the site could be diverted and re-aligned along a more desirable route through the development. An application under Section 185 of the Water Industry Act (1991) should be made to Yorkshire Water in writing should this option wish to be progressed.

A 6.0 metre no build easement should be maintained to the existing and/or and diverted Yorkshire Water sewer within or adjacent to the site. Furthermore, no trees should be planted within 5.0 meters.

Proposed Foul Water Disposal

The attached Yorkshire Water pre-planning enquiry response states that foul flows should discharge into the existing/diverted 300/375mm diameter public combined sewer recorded crossing the site. Foul flows can discharge into this sewer at an unrestricted rate.

A small percentage of the proposed development cannot discharge into this existing/diverted sewer by gravity due to the topography of the site. A foul water sewer requisition will therefore be required to serve this portion of the site. An application under Section 98 of the Water Industry Act (1991) should be made to Yorkshire Water.

Where storm and foul water drainage will be offered for adoption it should be designed to Sewers for Adoption 7th Edition. All the proposed surface water systems should be designed to accommodate a 1 in 30 year storm event without flooding. Furthermore, the 1 in 100 year plus climate change storm event should also be retained on site in an area that will not cause flooding to any existing or proposed buildings. In accordance with the NPPF, the climate change uplift of 30% should be applied to rainfall estimates.