

**Consultation Response from KC,
Lead Local Flood Authority**

2022/90565 land south of, The Lodge and north of Church Lane, Linthwaite, Huddersfield

Discharge of conditions 7 (internal roads), 8 (Church Lane crossing), 11 (cycle parking), 12 (electric vehicle charging), 13 (waste storage and collection), 15 (sound insulation), 16 (ventilation), 17 (attenuation basin), 18 (flood routing), 23 (crime prevention), 26 (boundary treatments), 28 (ball strike risk), 30 (pedestrian connections), 32 (landscaping) and 33 (biodiversity enhancement and management) of previous permission 2021/91571 for erection of residential development for 125 dwellings

Date Responded: 6th May 2022

Responding Officer: Paul Farndale

Responding Ref:

Condition 17: Attenuation Basin

We recommend that the design of the attenuation pond is also reviewed for aesthetics, amenity and biodiversity by our landscape architect, Emma Mills, and any other suitably qualified officers. For example, planting on the aquatic bench if required.

The use of a forebay is noted. The length of flow between inlet and outlet is small in comparison with the length of the pond. (Flow width ratio). Under normal circumstances this should be maximised for treatment purposes. However, this is less relevant on this site with the final outfall being public combined sewer and flows will be treated at a wastewater treatment works.

A non-return valve should be considered as a pollution prevention measure should flows in the public combined sewer ever back up into the surface water system.

Evidence of lining has been provided.

Fall protection barriers will be required on inlet and outlet structures including wingwalls.

Safety cages preventing access to incoming and outgoing pipes should be re-assessed for blockage prevention. Flush grilles are prone to blockage and a horizontal section is advised to aid overspill. We also advise raising 150mm above the invert of the pipe to lower risk of blockage from small items.

A relatively flat (1 in 15) safety bench around normal water level is present and is recommended as 3.5m wide by CIRIA. Please state the width on the relevant drawings.

Exceedance route to be shown with extended and additional cross sections. From this a narrative regarding spillways, erosion control and protection of any embankment, where applicable is required.

A maximum permanent water depth of 1.2m has been achieved although a stepped bench is recommended for safety for children as slopes are steeper than 1 in 3 in this area. A stepped profile in this location aids an aquatic bench for planting (landscape designed may wish to comment).

Temporary storage should ideally not be greater than 0.5m unless risk assessed for a pond this size. This is achieved for the 1 in 2 storm level and almost for the 1 in 30 year event. We note that the depth from the maintenance bench is less than 1.2m in the 1 in 100+ climate change event. A stepped system may reduce this risk in line with the CIRIA guide. This can be discussed with the LLFA.

Consideration of a toddler rail is required to be evidenced. Health and safety risk assessment by principal designer.

A statement on groundwater and potential effects on the pond is required in the flood risk assessment.

A generic maintenance plan has been included in the submitted FRA. However, it is practice in Kirklees for LPA to ensure maintenance and management of SUDS features for the lifetime of the site including the period from installation to adoption by the statutory undertaker. Under CDM regs the principle designer should oversee the health and safety of design and maintenance of that design, including access to an into attenuation systems. A risk assessment and method statement bespoke to the site is therefore expected. This should be presented as an itinerary and schedule of tasks. This should also include a section on the design and clearance of the forebay and general control of

sedimentation, and methodology of draining down the pond. Waste management licences are likely to be required.

Submitted flow control drawing showing water levels must reflect those of the latest microdrainage simulation, rev D and the relevant water levels (minor level difference). All drawings to be updated and old ones superseded on the application. Flow rates are however accepted as within 5l/s for the 1 in 100 + climate change event.

Condition 18: Flood Routing

Further clarification and supporting information is required using road contour maps including pavement and back of kerb levels. Levels and gradients of driveways should be added to form an supporting flood route engineering layout as opposed to an indicative routing plan with arrows.

Specific detailing around road 2 flowing to road 1 and not continuing into the road 3 cul-de-sac is crucial. Kirklees LLFA will accept small cul-de-sac (less than 10 houses, equivalent to a minor application) being isolated from main flows in exceedance events and blockage scenarios. Areas should be kept to a minimum and levels showing the cul-de-sac entrance (road 2 to road 3) fall back toward road 1 should be explored. Road 1 ideally should be lower than adjacent properties to create the conduit and protect curtilage. This was agreed at a pre-planning meeting so as not to create a basin effect or low spot with properties. In short, re-examine road 2 into road 1 and isolate road 3.

A basin effect has been created on road 3. Further dialogue and supporting information showing risk reduced to acceptable levels is required for plots 27-32 (weir points, gulley levels along the road, route to rear of the properties).

The flooding of circa 1 cubic metre in the 1 in 100 year + 30% climate change event is acceptable at from sewer leg 2.000

No cut off swale details have provided on any drainage or landscape plan as was agreed to rear of southern plots backing on to elevated land. The swale/ditch should ensure that surface run off from saturated land is pushed to the gap between plots 94/95 and onto special corridor identified adjacent to plot 92. Note the contours currently suggesting a low spot between 97/100 presenting a flood risk. Any landscaped feature will need to remain for the life of the site and needs to be included in a unilateral undertaking (section 106) This needs to be a management company responsibility.

The exceedance route from the pond does not appear to tally with the levels shown. Vulnerability of adjacent existing plots should be fully assessed and presented and risk minimised to acceptable levels. Section CC on the SUDS details sheet 2 should effectively be expanded and other cross sections shown with finished floor levels of existing properties and garden levels. Additional cross sections should be submitted to present a fuller risk analysis.