

F.A.O

Heritage conservation officer

Planning, Heritage Team

The proposed removal of the largest attenuation swale represents a fundamental compromise to the site's sustainable drainage strategy, conflicting with national planning objectives aimed at environmental protection and sustainable development. Paragraph 182 of the National Planning Policy Framework (NPPF) is clear that 'planning policies and decisions should ensure that new development is appropriate for its location, taking into account the likely effects of pollution on health, living conditions and the natural environment.' The proposed swale currently delivers essential SuDS functions such as attenuation, water quality improvement, biodiversity support, and visual amenity as the feature forms a critical part of the site's blue-green corridor. The removal of this natural feature in favour of a heavily engineered, below-ground system contravenes the SuDS hierarchy as established by Paragraph 172 of the NPPF, which prioritises the use of natural drainage systems. This approach contradicts the principles of sustainable water management and increases both environmental risk and construction complexity. Any alternative approach must be assessed not only on technical feasibility but also on its alignment with national policy priorities for long-term environmental resilience and sustainable infrastructure delivery

Impact on SuDS:

The swale currently plays a critical role within the site's SuDS strategy. It provides vital attenuation (1034m³), supports gradual surface water discharge, and contributes to water quality improvement, biodiversity, and visual amenity, this swale forms a blue green corridor which bisects the site. Its removal would eliminate a key natural feature designed to manage runoff sustainably.

Instead, the alternative solution relies on a heavily engineered system that required oversized underground infrastructure to convey and manage flows. This approach reduces opportunities for above-ground water management.

Location of Alternative SuDS Features

The steep embankments and unstable topography located on site fundamentally constrain viable locations for surface water management. The 1:3 gradient central embankment is geotechnically unsuitable for SuDS due to erosion risks, ineffective infiltration, and impractical construction/maintenance access. Similarly, the hillside near the canal outfall which requires several backdrops to manage its excessive slope has been confirmed by geotechnical investigations as landslide prone, rendering it completely unviable for any SuDS infrastructure. These topographical limitations, combined with the allocation a large green space to the NEAP and other proposed SuDS, leave no other feasible above-ground areas for more SuDS features.



Old Marsh Farm Barns
Welsh Road, Sealand
Flintshire CH5 2LY

Telephone: 01244 288 178

Fax: 01244 288 516

www.betts-associates.co.uk

This spatial constraint is critical given the increased storage requirement driven by both the reduced allowable discharge rate and the additional 5.0 l/s inflow from the proposed school development. Consequently, the removal of the existing attenuation swale, which occupies one of the site's few stable, low gradient locations and necessitates reliance on heavily engineered below ground drainage systems, despite their conflict with sustainable drainage principles

Reduced Discharge Rate:

Surface water is to be discharged to an adjacent canal under a fixed and agreed discharge rate of **13.5 l/s**, which is significantly lower than the site's calculated Qbar rate. This restriction places additional pressure on the drainage system to attenuate and control flows effectively before discharge. Without the swale to provide that initial volume of storage and controlled release, this rate becomes increasingly difficult to manage within the site boundaries, requiring substantial underground storage and larger diameter pipes to accommodate the requirement for additional storage during storm events.

Consequences of 1000m of Additional Pipework:

1. **Cost and Construction Complexity:** Installing approximately 1000 metres of 1200mm diameter pipe introduces significant costs related to materials, excavation, and reinstatement. Larger pipe sizes also require increased construction widths and deeper trenches, disrupting adjacent infrastructure and extending the construction programme.
2. **Topographical and Spatial Constraints:** The site's steep topography compounds the issue. To accommodate larger and deeper pipework, Plots 136–158 would need to be lifted, which brings further design, structural, and cost implications, including the potential need for retaining structures at boundaries and near tree root protection zones earthworks.
3. **Hydraulic and Environmental Risk:** Without the balancing function of the larger swales, the system must rely more heavily on oversized pipework to attenuate and convey flows. This increases vulnerability to blockages and system surcharges. Furthermore, the loss of above ground-based water quality treatment could degrade the quality of water being discharged to the canal, conflicting with both SuDS guidance and environmental protection goals.



Old Marsh Farm Barns
Welsh Road, Sealand
Flintshire CH5 2LY
Telephone: 01244 288 178
Fax: 01244 288 516

www.betts-associates.co.uk

Removing the swale would compromise the sustainability and functionality of the site's drainage strategy, while significantly increasing construction costs, complexity, and long-term risk. The combination of a reduced discharge rate to the canal and the need for extensive underground infrastructure makes this approach less effective, less sustainable, and harder to justify both technically and economically.

Kind Regards,



Nicholas Richards BSc (Hons) GMICE

ASSOCIATE

Betts Associates



Old Marsh Farm Barns
Welsh Road, Sealand
Flintshire CH5 2LY
Telephone: 01244 288 178
Fax: 01244 288 516

www.betts-associates.co.uk