SPR EA1N and EA2 PROJECTS

DEADLINE 8 - POST HEARING SUBMISSIONS (ISH 11) FLOOD RISK AND DRAINAGE

Interested Party: SASES **PINS Refs:** 20024106 & 20024110

Date: 25 March 2021 **Issue:** 1

These submissions comprise three elements as follows.

1. Flood risk: policy framework prepared by Richard Turney of Landmark Chambers attached at Appendix 1.

2. Report prepared by GWP Consultants attached at Appendix 2 setting out a technical analysis of flood risk.

3. Landscape briefing note 7 prepared by Michelle Bolger in respect of landscape matters attached at Appendix 3 setting out the landscape impact of the SuDS infiltration ponds.

APPENDIX 1

Flood risk: policy framework prepared by Richard Turney of Landmark Chambers

ISH 11 – Summary of Submissions

Flood risk: Policy framework

1. The starting point is the relevant policies in EN-1 which, by virtue of s 104 Planning Act 2008, need to be given statutory weight.

2. The detailed (but not the only) consideration of flood risk is in section 5.7. It explains at the outset:

> "5.7.3 The aims of planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new energy infrastructure is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and, where possible, by reducing flood risk overall."

3. The first and most important part of the policy is to direct development away from areas of flood risk unless necessary. This is achieved through the application of the Sequential Test. By exception, where the Sequential Test cannot be met, the Exception Test can be followed with the objective of making the development safe, without increasing flood risk elsewhere. Importantly, the Exception Test is not engaged unless and until the Sequential Test is met.

4. Paragraph 5.7.4 of EN-1 recognises that surface water flood risk may mandate an FRA even if one is not otherwise required. Thus, pluvial flood risk is firmly within the scope of the flood risk with which the policy is concerned.

5. The **minimum** requirements of a flood risk assessment are set out at 5.7.5. They include in particular:

    a. That the FRA must be **proportionate** to the risk and the scale, nature and location of the project;
    b. That the FRA must consider the risk of flooding **from** the project (not just to the project);
    c. That the FRA must consider both the **potential adverse and beneficial effects of flood risk management infrastructure, including raised defences, flow channels, flood storage areas and other artificial features, together with the consequences of their failure**;
    d. That the FRA must **consider and quantify the different types of flooding** (whether from natural and human sources and including joint and cumulative effects) and identify flood risk reduction measures, so that assessments are fit for the purpose of the decisions being made;
    e. That the FRA must **consider the effects of a range of flooding events including extreme events on people, property,** the natural and historic environment and river and coastal processes;
    f. That the FRA must include an **assessment of the remaining (known as 'residual') risk after risk reduction measures** have been taken into account and demonstrate that this is acceptable for the particular project;
    g. That the FRA must **consider how the ability of water to soak into the ground may change with development**, along with how the proposed layout of the project may affect drainage systems;
    h. That the FRA must **be supported by appropriate data and information**, including historical information on previous events.

6. The Examining Authority will need to scrutinise the adequacy of the Applicants' work by reference to those clear minima set out in EN-1.

7. EN-1 refers to PPS25 and practice guide which are now superseded by NPPF and PPG (see further below).

8. The decision-making paragraphs provide:

> "5.7.9 In determining an application for development consent, the IPC should be satisfied that where relevant:
> ● the application is supported by an **appropriate FRA**;
> ● **the Sequential Test has been applied as part of site selection;**
> ● a sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk;
> ● **the proposal is in line with any relevant national and local flood risk management strategy;**
> ● priority has been given to the use of sustainable drainage systems (SuDs) (as required in the next paragraph on National Standards); and
> ● in flood risk areas the project is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed over the lifetime of the development.
>
> 5.7.10 For construction work which has drainage implications, approval for the project's drainage system will form part of the development consent issued by the IPC. The IPC will therefore need to be satisfied that the proposed drainage system complies with any National Standards published by Ministers under Paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010. In addition, the development consent order, or any associated planning obligations, will need to make provision for the adoption and maintenance of any SuDS, including any necessary access rights to property. The IPC should be satisfied that the most appropriate body is being given the responsibility for maintaining any SuDS, taking into account the nature and security of the infrastructure on the proposed site. The responsible body could include, for example, the applicant, the landowner, the relevant local authority, or another body, such as an Internal Drainage Board."

9. EN-1 thus clearly indicates that development consent should be **withheld** where the sequential test has not been applied. That is unsurprising, since that is the consistent position of all relevant national flood policies. Whilst paragraph 5.7.13 of EN-1 refers to flood zones 2 and 3, the "sequential test" needs to understood in the context of the current definition in the NPPF. Thus:

> "158. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding."

10. It is notable that in up-to-date NPSs, the sequential test is defined by reference to the NPPF (see e.g. Airports NPS, para 5.166 and footnotes). It follows that as a matter of national policy, the sequential test is not confined to EA (fluvial) flood zones but needs to be applied to all areas at risk of flooding.

11. Crucially, it is only if the sequential test has been applied that the exception test can be engaged at all. It is not possible to "leap" to the exception test since the clear policy priority is to direct energy infrastructure away from areas of flood risk through proper application of the sequential test. **If** the exception test is engaged, then:

> "5.7.16 All three elements of the test will have to be passed for development to be consented. For the Exception Test to be passed:
> ● it must be demonstrated that the project provides wider sustainability benefits to the community that outweigh flood risk;

● the project should be on developable, previously developed land or, if it is not on previously developed land, that there are no reasonable alternative sites on developable previously developed land subject to any exceptions set out in the technology-specific NPSs; and
● a FRA must demonstrate that the project will be safe, without increasing flood risk elsewhere subject to the exception below and, where possible, will reduce flood risk overall.

5.7.17 Exceptionally, where an increase in flood risk elsewhere cannot be avoided or wholly mitigated, the IPC may grant consent if it is satisfied that the increase in present and future flood risk can be mitigated to an acceptable level and taking account of the benefits of, including the need for, nationally significant energy infrastructure as set out in Part 3 above. In any such case the IPC should make clear how, in reaching its decision, it has weighed up the increased flood risk against the benefits of the project, taking account of the nature and degree of the risk, the future impacts on climate change, and advice provided by the EA and other relevant bodies."

12. On mitigation, EN-1 provides:

"5.7.18 To satisfactorily manage flood risk, arrangements are required to manage surface water and the impact of the natural water cycle on people and property.
…

5.7.20 Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts.

5.7.21 The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site arrangements are made and result in the same net effect."

13. It is notable that there is no suggestion that such mitigation is not to be considered at consent stage: indeed, there is a strong indication to the contrary.

14. Other parts of EN-1 are also relevant to flood risk issues. Addressing natural hazards in substation design is part of the "good design" required by EN-1. Thus:

"4.5.2 Good design is also a means by which many policy objectives in the NPS can be met, for example the impact sections show how good design, in terms of siting and use of appropriate technologies can help mitigate adverse impacts such as noise.

4.5.3 In the light of the above, and given the importance which the Planning Act 2008 places on good design and sustainability, the IPC needs to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, **are as attractive, durable and adaptable (including taking account of natural hazards such as flooding)** as they can be."

15. Similarly, flood risk is central to the requirement to be adaptable to climate change (e.g. 4.8.4). EN-1 also refers to the relevance of flood risk to the assessment of **cumulative effects** (in the context of Appraisal of Sustainability of the energy NPSs):

"1.7.3 There may also be cumulative negative effects on water quality, water resources, flood risk, coastal change and health at the regional or subregional levels depending upon location and the extent of clustering of new energy and other infrastructure. Proposed energy developments will still be subject to project level assessments, including Environmental Impact Assessment, and this will address locationally specific effects. The energy NPSs set out mitigation for cumulative negative effects by requiring the IPC to consider accumulation of effects as a whole in their decision-making on individual applications for development consent."

16. The NPPF is also an important and relevant matter to the determination of the applications. Its provisions have been briefly addressed above. The emphasis is on the application of the sequential test, followed by the exception test only after the sequential test has been applied. Flood risk should not be increased elsewhere (paragraph 163). The NPPF can be read consistently with EN-1 for the reasons explained above.

17. The Planning Practice Guidance (PPG) provides further relevant detail:

    a. It confirms the interpretation of sequential test set out above, namely that it applies to all sources of flooding: *"This general approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. The aim should be to keep development out of medium and high flood risk areas (Flood Zones 2 and 3)* ***and other areas affected by other sources of flooding where possible."*** *"The Sequential Test ensures that a sequential approach is followed to steer new development to areas with the lowest probability of flooding… Within each flood zone, surface water and other sources of flooding also need to be taken into account in applying the sequential approach to the location of development."*
    b. It emphasises the need for site specific flood risk assessment, and the contents of the FRA: *"A flood risk assessment should also be appropriate to the scale, nature and location of the development. For example, where the development is an extension to an existing house (for which planning permission is required) which would not significantly increase the number of people present in an area at risk of flooding, the local planning authority would generally need a less detailed assessment to be able to reach an informed decision on the planning application. For a new development comprising a greater number of houses in a similar location, or one where the flood risk is greater, the local planning authority would need a more detailed assessment."*
    c. It explains that "essential utility" infrastructure may meet the exception test but only if it "**has to be located in a flood risk** area for operational reasons, including electricity generating power stations and grid and primary substations". However that presupposes that it has been demonstrated that the infrastructure *must* be located in an area of flood risk. It is no part of the Applicants case here (and nor could it be) that the substation site must be located in an area of flood risk. In any event, the exception test only falls to be applied <u>after</u> the sequential test has been performed.

18. SASES defers to the Suffolk County Council and East Suffolk Council on the relevant local policies. However, it is noted that the policies are consistent with the NPPF (and EN-1) in requiring the sequential approach to be applied.

19. The Friston Surface Water Management Plan:

    a. Clearly and unambiguously identifies the surface water flood risk, and therefore confirms that the need to treat the site as an area of flood risk for the purpose of the sequential test. It also confirms the need for a detailed analysis of the effect of the development on surface water flood risk.
    b. It confirms the direct hydraulic connection between the substation site and the receptors in the village.
    c. It cannot, alone, take the Applicants' case forward because it contains no assessment of the effect of the development on surface water flooding.

20. SASES would also emphasise here the relevance of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The ES must contain:

> "7. **A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment** and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the

extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and **should cover both the construction and operational phases.**"

21. It is well-established that if mitigation measures are relied upon they should be demonstrated to be achievable. An ES is inadequate where it does not properly address the proposed mitigation measures for both construction and operational phases.

Application of policy to the present applications

22. In summary, there is a fundamental failure to apply the sequential test. The RAG Assessment which underpins the Applicants' site selection process did not consider pluvial flood risk at all. Indeed, the Preliminary Environmental Information appears not to have appreciated that there was a surface flood risk at all at the Friston site. The Applicants have provided no answer to this at all.

23. It follows that, applying EN-1 (together with the NPPF and local policies), the proposals should be regarded as having failed to apply the sequential test and thus contrary to a fundamental part of the relevant NPS. It is immediately apparent from the RAG Assessment that there are other sites which are not at flood risk which would be suitable for the proposed development. Thus, if the Applicants had applied the sequential test, the inevitable conclusion would have been that the Friston site should not be preferred. Development consent should be refused on this basis alone.

24. It is not open to the Applicants to "leap" to the exception test. That can only be applied once it has been demonstrated, through the sequential test, that the development cannot be located away from flood risk.

25. In summary the Examining Authority should report that:

    a. The Friston site is an area of flood risk;

    b. That the sequential test has not been applied to the selection of this site;

    c. That the applications fail the relevant policy tests in EN-1 (5.7.9), the NPPF, and in local policy;

    d. That accordingly development consent should be refused.

26. Further and in any event, the proposals should be found to be contrary to other aspects of relevant flood policy:

    a. The FRA is inadequate for the purposes of paragraph 5.7.5 of EN-1. See further the analysis provided by GWP Consultants;

    b. The proposals fail properly to address mitigation contrary to paragraphs 5.7.18-25 of EN-1, and contrary to the requirements of the EIA Regulations. Again, see the further analysis by GWP.

27. For all those reasons, development consent should be refused on flood risk grounds.

APPENDIX 2

Report prepared by GWP Consultants

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POST ISH 11 TECHNICAL SUBMISSION BY SASES ON FLOOD RISK MATTERS IN FRISTON DUE TO THE SCOTTISH POWER RENEWABLES PROPOSED EA1N AND EA2 ONSHORE WORKS

For

SASES

March 2021

Report Title: **Post ISH 11 Technical Submission by SASES on Flood Risk Matters in Friston due to the Scottish Power Renewables Proposed EA1N and EA2 onshore works**

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CONTENTS

POST ISH 11 TECHNICAL SUBMISSION BY SASES ON FLOOD RISK MATTERS IN FRISTON DUE TO THE SCOTTISH POWER RENEWABLES PROPOSED EA1N AND EA2 ONSHORE WORKS

1. PRINCIPAL EXAMINATION SUBMISSIONS

The following are the principal submissions relating to flood risk and drainage which SASES has made during the examination.

1. Report on Flood Risk Impact of Scottish Power Renewables East Anglia Offshore Windfarm on Friston Village for SASES, October 2020 (REP1-370 and Appendices and Drawings at REP1-347, 348, 344, 356, 360 and 369)
2. Flood Risk related Comments on Deadline 2 Submissions in respect of Scottish Power Renewables EA1N And EA2 Project Onshore Works near Friston for SASES, December 2020 (REP3-138)
3. Deadline 2 submission – ExQ1 responses -1.7 Flood Risk (REP2-064)
4. Flood Risk related Comments on Deadline 3 Submissions in respect of Scottish Power Renewables EA1N and EA2 Project Onshore Works near Friston for SASES, January 2021 (REP4-101, Appendix 1)
5. Post Hearing Submissions (ISH4) pages 3,4 and 5 Item 4(d) – Flood Risk and Drainage
6. Flood Risk Related Comments On Deadline 4 Submissions In Respect Of Scottish Power Renewables EA1N and EA2 Project Onshore Works near Friston for SASES, February 2021 (REP5-097, Appendix 2)
7. Flood Risk related Comments on Deadline 6 Submissions in respect of Scottish power Renewables EA1N and EA2 Project Onshore Works near Friston. Letter to SASES, 04 March 2021 (REP7-089)

2. INTRODUCTION

SASES has throughout the SPR DCO consultation process maintained a consistent position that Friston Village will be at increased flood risk due to the location, design and construction of the three sub-stations and three cable sealing ends in the watershed north and upstream of the village.

SASES objections can be summarised into 6 critical issues relating to flood risk:

i Site Location Selection

ii Flood Risk Methodology

iii Baseline Hydrological Assessment

iv Construction Phase Impacts

v Operation Phase Impact and Mitigation

vi Post-Operation Phase

These are each discussed briefly in the sections below.

3. SITE LOCATION SELECTION

The site selection process used by the Applicant did not consider pluvial (surface water runoff) flood risk, focusing solely on river flooding and the use of the Environment Agency flood risk zones. SASES (GWP Consultants LLP letter 4 March 2020, REP7-089) considers this fails to meet the Sequential Test, which policy (EN-1, NPPF) and local flood risk strategies clearly require to consider ALL forms of flooding: river, pluvial, groundwater, and sewer.

The failure to consider pluvial flood risk not only resulted in the Applicants' preferred site location for the sub-stations being located in a high pluvial flood risk area, and also one in direct hydraulic connection to Friston Village - a residential area with longstanding flooding problems, but also is in breach of national policy and local flood strategy.

The Examination Authority should conclude that the Applicants have not met the sequential test in EN-1 and accordingly should not be satisfied that the requirements of Paragraph 5.7.9 and 5.7.13

have been met. No evidence has been put forward by the Applicants to show that the Exception Test (5.7.14 and following) has been met. The Exception Test may only be used where "the sequential test alone cannot deliver an acceptable site".

4. FLOOD RISK METHODOLOGY

The Examining Authority must be satisfied that the applications are "supported by an appropriate FRA" (5.7.9). The Applicant has failed to apply the most simple of flood risk methodologies to the flood risk assessment of Friston Village. Specifically, the Applicant has failed to apply the Source-Pathway-Receptor principle to assess flood risk. This approach recognises that flood risk is a function of: the source of the increase in flood risk – in this case the construction and operation of a large area of hardstanding which generates more runoff than agricultural fields and woodland; the hydraulic flow route or pathway from the flood source to the flood risk receptors – in this case overland flow routes into the village into the Friston water course and then into the culverted Main River; and the vulnerability of the receptors in the village, in this case residents of different ages, mobility, wealth and health who have differing degrees of vulnerability, coping, adaptation and resilience to flood risk.

Whilst the Applicant has made some attempt to assess the flood risk source – the Applicant recognises the operational development will increase the area of hardstanding and therefore will increase the storm runoff flow rate and volume leaving the development site if no mitigation is provided; the Applicant has made no attempt whatsoever to assess the flood receptors (residents, properties, businesses) in the village; and relied entirely on secondary data sources to assess the pathways of floodwaters entering the village.

For a considerable period of time, the Applicant did not consider that flood risk impact assessment and mitigation needed to look at both Peak flows and Total flow volumes leaving the post-development site. The Applicant has finally recognised (Deadline 6) the need to consider both issues – and uses the QBAR (1 in 2.3 Year Return Period) as a maximum rate for discharge – consistent with SCC guidance. SASES rejects this approach given a) the poor characterisation of runoff flows in the Friston watershed (see next point on Baseline hydrology) and b) flooding in Friston occurs more regularly than once in every two to three years, *i.e.* the QBAR may still cause flooding.

The inadequacy of the baseline is considered in the next point below. The critical failure of the Applicant regarding the Source-Pathway-Receptor methodology is the omission of the Receptor in its entirety, assuming instead that full mitigation can be achieved. This position is unacceptable, and we note SCC raise similar concerns.

5. BASELINE HYDROLOGICAL ASSESSMENT

The upper watershed of the Friston catchment is small but highly heterogeneous, with both varying soils and geology, as well as local depressions and runoff routes which direct and store storm runoff. High resolution public domain topographic data exists for the watershed.

The Applicant has made no attempt to account for this complexity, and after initially relying on 'catchment percentage disturbance' as a proxy for flood risk, eventually used generic hydrological database methods to arrive at non-specific estimates of storm runoff flows from the proposed development area, despite being fully aware of the topographic heterogeneity of the upper watershed from the public domain topographic data.

The Applicant has made no attempt to monitor rainfall, nor runoff flow levels or velocities in the Friston watercourse or survey its dimensions or restrictions, nor determined ground infiltration rates – despite having years to set-up and operate such a monitoring network. Indeed, the Applicant has made no attempt to confirm soil or geological strata distributions, nor make any estimate of the depth to groundwater beneath the site or beneath the village.

The characterisation of the upper watershed, the runoff rates generated by different storm events, the conveyance of flow routes into and through the village, are all therefore poorly defined by the Applicant. Instead, they rely on an SCC commissioned hydraulic model of the Friston watercourse (Friston Surface Water Study, May 2020 – REP1-185), which whilst it includes the geometry of the main flow channel in the village, is nonetheless an uncalibrated model (there is no local rainfall or stream flow data) and is reported by local residents to have underestimated the flooding of the actual event (6 Oct 2019) it was intended to replicate.

In a different location with low pluvial flood risk this inadequate baseline hydrological characterisation might be acceptable, but in Friston Village which experiences flooding several times per year, and

serious flooding every one to two years, this is unacceptable and indeed is not consistent with DEFRA guidance on assessing flood risk in small catchments, which required stream monitoring.

The Applicant actually recognises this characterisation is inadequate for design purposes and states it will undertake detailed surveying and modelling of the watercourse, as well as ground investigations to assess infiltration – thus confirming the poor definition of the baseline conditions.

The pluvial flood risk to Friston Village therefore remains poorly defined, with little confidence in generic design storm return periods generated by national databases.

The groundwater flood risk to Friston has not been given any thought by the Applicant whatsoever despite the village's low elevation, the known deep strata being highly permeable and supporting major groundwater abstractions (the village is as low as 10mAOD in its centre and is some 6km from the coast, suggesting regional groundwater levels are likely to be close to ground surface within the village), and the focus on ground infiltration as a pluvial flood risk mitigation option. The consequence of not adequately characterising the groundwater regime beneath the site and village, is that the Applicant has no understanding of the extent to which groundwater levels will rise once a ground infiltration scheme is introduced which discharges greater quantities of water into the ground than occurred pre-development, and whether groundwater levels would rise to reach ground surface and cause groundwater flooding to the village – essentially mitigating one flood risk (pluvial) by creating another (groundwater).

The significance of this poorly defined hydrological baseline condition is not only that pre-development runoff rates cannot be accurately determined, but that this means required post-development flood risk mitigation design is uncertain because the permissible pre-development discharge rates are not known, and therefore the actual viability of proposed mitigation measures cannot be demonstrated – *i.e.* flood risk mitigation cannot be proven to be possible.

6. CONSTRUCTION PHASE IMPACTS

The Applicant has given little attention to the construction phase impacts focussing almost entirely instead on the operational phase (discussed in next section). The Applicant refers solely to a Code of Construction Practise (CoCP) which contains some flood risk reduction strategies but mostly focuses on good site management practises *e.g.* silt erosion reduction *et al*. There is no assessment of increased flow generation from a de-vegetated site footprint and no design of any storm water capture or storage schemes.

The Applicant does not appear to appreciate that the construction phase surface water drainage may actually create a greater flood risk than the operational phase. The construction phase area is approximately twice the size of the operational phase, is spread across both sides of the valley, includes kilometres of cable alignments, and will generate an increase in turbidity (which the operational phase should not) which will need treatment prior to disposal.

The haul road enters the sub-station site by crossing Grove Road in a location known to flood from runoff from fields to the east. In times of flood, Grove Road becomes the pathway for the runoff to be carried down to the culvert of the Main River. Increased runoff and turbidity from the haul road will therefore further increase the flood risk to the village.

If the Applicant had undertaken appropriate baselining of the Friston village watershed and flow routes they would have become aware of the problems of sediment laden floodwaters in the village.

The Applicant has made no attempt to conceptualise the required construction phase surface water drainage scheme, let alone provide a hydraulic and treatment design against a specified Return Period storm event, and therefore has not proven that a construction phase surface water management scheme is even viable.

7. OPERATIONAL PHASE IMPACT AND MITIGATION

The Applicant has focused its flood risk assessment and mitigation efforts onto the operational phase and has routinely referred to the required information being available in the Outline Operational Drainage Management Plan (OODMP). This was eventually made available for the first time at Deadline 4 and has undergone revisions multiple times since, when challenged. The last version made available at Deadline 6 (REP6-017,018) was still outline and draft and acknowledged by the Applicant as requiring further amendments.

SASES continues to have fundamental concerns about the content and omissions within the OODMP, which we note SCC does as well.

The OODMP relies upon a robust understanding of the pre-development runoff flows in the Friston watershed (which SASES has already challenged as being an inadequate baseline hydrological characterisation – see Point iii) to arrive at a QBAR flow rate to discharge from the site. SASES questions whether reducing discharge flows to the QBAR flow rate *(i.e.* the 1 in 2.3 Year Return Period storm event) is adequate to prevent increased flooding risk to Friston village given that it experiences flooding several times every year.

The Applicant continues to refuse to undertake infiltration testing of the underlying strata, which means they cannot demonstrate whether an infiltration only storm water discharge scheme is possible. The viability of such a scheme would also require understanding of the underlying groundwater regime, whether the infiltrating water could flow away and whether it would cause groundwater flood risk in Friston village – none of which have been considered by the Applicant.

The Applicant has used minimum workable infiltration rates to try to size infiltration pond structures but their surface areas are so large that the Applicant considers they are unviable. The required volumes are so big that they will almost certainly have to be constructed under the Reservoir Act, itself demonstrating the risk such above ground structures pose to the residential village below.

The Applicant has also provided attenuation pond outline designs for full discharge to the Friston watercourse – which fit within the site footprint. This approach does not follow the SUDS hierarchy and therefore is not accepted by SCC. This position is supported by SASES. Additionally, the design volumes calculated by the Applicant are very close (<0.2%) to the required volumes, and don't allow for any sensitivity or consideration of blockage risks, whilst the inclusion of further landscape derived volume means the total water volumes that could be stored are very close to the Reservoir Act.

Despite this clear need for heavily engineered containment bunds, the Applicant proposes the bunds be regulated by landscaping requirements and the ponds be allowed to become wetland habitat despite the obvious increased risk of creating blocking of the outfalls and the consequential risk of attenuation structure over-topping, potential catastrophic bund collapse and mass storage volume release. This is clearly unacceptable given the residential housing which dominates the village of Friston immediately downstream of the locations of these proposed impoundment structures.

SCC will require surface water management schemes that maximise infiltration and allow discharge to the Friston watercourse only when this has been overwhelmed. This will require multiple holding structures *i.e.* infiltration basins over-topping to attenuation ponds, which will increase the area required and has not been proven as viable by the Applicant.

Finally the Applicant has not demonstrated the attenuation pond discharge pipes can actually be constructed under the local roadways and enter the watercourse. The attenuation discharge option to the Friston watercourse therefore has also not been proven to be viable.

In conclusion, the Applicant has promoted two different types of operational phase flood risk mitigation scheme, both relying on questionable assumptions of adequate discharge rates, neither of each structure has been demonstrated to be viable and neither of which has been demonstrated will reduce flood risk to Friston village.

8. POST – OPERATIONAL PHASE

The Applicant has given an undertaking that they will operate the drainage management schemes all the time the sites are operational. This means there remains the possibility that the site will be abandoned in due course resulting in unmanaged drainage schemes which will at best not function as designed, and at worse either overtop and provide no attenuation increasing flood risk to Friston village or suffer from bund failure and catastrophic flooding of Friston. This is an unacceptable risk which is not addressed at all by the Applicant. There is no provision for the decommissioning of the site and its drainage arrangements. This presents a further unmitigated flood risk.

GWP CONSULTANTS
MARCH 2021

APPENDIX 3

Landscape briefing note 7 prepared by Michelle Bolger

(see attached)