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Ecological Consultants
Environmental and Rural Chartered Surveyors

Shadow Habitats Regulations Assessment

Stage 2 Appropriate Assessment
Flosh Meadows residential development

Flosh Meadows, Cleator, Cumbria
River Ehen SAC UK0030057

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Tel: 015395 61894
Email: info@envtech.co.uk
Web: www.envtech.co.uk
Envirotech NW Ltd
The Stables, Back Lane, Hale, Milnthorpe, Cumbria. LA7 7BL
Directors: A. Gardner BSc (Hons), MSc, MRICS, Dip NDEA
H. Gardner BSc (Hons), MSc, CEnv, MRICS
Registered in England and Wales. Company Registration Number 5028111

ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.

If in doubt, stop work and seek further professional advice.

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1 INTRODUCTION

This shadow Habitats Regulations Assessment considers 51 dwellings at Flosh Meadows, Cleator (application 4/26/2317/0F1). The site lies outside the River Ehen SAC (UK0030057). Site surface water drainage reaches the Ehen via an ordinary watercourse and a culvert under the A5086.

At Stage 1, likely significant effects from construction pollution and operational surface water cannot be excluded. Recreation and foul drainage are screened out on the basis described in Table 1. Stage 2 concludes that the assessed scheme will avoid adverse effects on River Ehen SAC integrity, alone and in combination, on the assessment basis below.

Envirotech NW Ltd has prepared this report for Thomas Armstrong Construction Ltd. It provides information for Cumberland Council, as competent authority, to undertake its assessment and consult Natural England.

1.1 Legal and assessment framework

Under regulation 63 of the Conservation of Habitats and Species Regulations 2017, as amended, the competent authority must assess likely significant effects, alone or in combination, against the conservation objectives. The development is unrelated to site management. Authorisation under regulation 63 requires the authority to ascertain that site integrity will be protected.

Stage 1 excludes measures intended to avoid or reduce effects on the SAC (People Over Wind, C-323/17). Stage 2 evaluates those measures against the conservation objectives. The integrity finding requires the removal of reasonable scientific doubt.

1.2 Evidence and limits

1.3

Evidence includes our PEA and BNG reports (both R3, ref. 9200), the CEMP P02 and the submitted drainage and consultation documents. The Council's ecology response of 22 October 2026 requests HRA and incorporation of the measures into the CEMP. See Appendix 1.

Assessment basis. This report assumes that the final drainage design and receiving pathways, public sewer connection and asset protection, discharge arrangements, CEMP and SuDS measures, and in-combination findings have been resolved and accepted by the relevant parties. It assumes that the accepted sewer arrangements avoid material effects on the SAC and the salmon migration route. This is the basis of the technical assessment.

Our survey on 7 September 2026 recorded sheep-grazed modified grassland, a native western hedgerow and buried drainage. We used engineering evidence to establish connectivity.

2 BRIEF DESCRIPTION OF THE PROJECT

The site is centred at NY 01755 14059, north of Cleator. The planning submission CEMP identifies the scheme as 51 houses and bungalows with access from the adopted Flosh Meadows road, internal roads, parking, utilities, public open space and landscaping. The CEMP references Green Swallow North drawing 1356-05 Rev H.

Works include clearance and soil stripping, earthworks, access and utility installation, replacement of on-site land drainage, construction of the detention basin, foul and surface water connections and landscape establishment. This assessment includes temporary drainage, any necessary sewer diversion, outfall works, occupation and future maintenance.

The BNG R3 proposes abandonment of the buried drains and a new ditch of approximately 221 m along the west, with an 8 m grassland buffer to either side. The engineering strategy describes an interception and conveyance swale on the northern and western boundaries. It diverts upstream land drainage and overland flows to the existing open channel in the south-west, separately from the

detention basin.
Roof, road, drive and other developed-site runoff is routed through the proposed surface water system to a detention basin, then to the same open channel. The strategy proposes a restricted discharge of 18.0 litres per second, equivalent to the calculated greenfield QBAR, and storage for the 1% annual exceedance probability event plus 50% climate change allowance.

The assessment assumes United Utilities has accepted the separate foul connection and that its requirements for the existing sewer beneath the proposed attenuation works are resolved in the coordinated drainage design. Surface water drains separately to the ordinary watercourse.

3 IDENTIFICATION OF THE DESIGNATED SITE

3.1 Source pathway receptor connection

The PEA places the SAC/SSSI approximately 275 m south-east of the site. The engineering strategy (section 2.6) traces the open channel in the south-west corner into a stone culvert under the A5086 for approximately 165 m, then into open water which ultimately joins the River Ehen.

The proposal has no identified connection to the qualifying upland habitats of the Lake District High Fells SAC upstream. Clints Quarry is a separately notified SSSI and the proposal has no identified aquatic pathway to it. The River Ehen is the European site taken forward.

4 NATURE CONSERVATION INTEREST AND OBJECTIVES

4.1 Qualifying features

River Ehen SAC qualifies for freshwater pearl mussel Margaritifera margaritifera (S1029), the primary reason for selection, and Atlantic salmon Salmo salar (S1106). Both species are assessed. The SAC supports a nationally important pearl mussel population.

4.2 Conservation objectives relevant to the project

Natural England's objectives concern the extent, distribution and functioning of qualifying species' habitats, the processes that support them, and the populations and distribution of both species. The assessment considers whether the scheme could impede maintenance or restoration of those attributes.

Pearl mussel recruitment depends on clean, oxygenated substrate and suitable salmonid hosts for its larval stage. Fine sediment can reduce oxygen exchange in river gravels. Nutrient enrichment and chemical pollution can degrade habitat quality. Salmon depend on clean spawning gravels, adequate flows, oxygenated water and an unobstructed migration route.

Relevant pressures for the assessed works include suspended sediment, concrete and hydrocarbons, urban runoff, accidental pollution, changes to flow and sediment transport and interruption of migration. Natural England’s Site Improvement Plan provides context for existing pressures.

4.3 Conditions at Flosh Meadows

The PEA and BNG R3 describe the buried features as land drains or culverted ditches. The drainage strategy records agreement in principle with the Lead Local Flood Authority to treat the upstream stone culverts as culverted ordinary watercourses. Their BNG classification does not determine their regulatory status.

The development footprint is predominantly pasture and provides no identified spawning or pearl mussel habitat. The short open channel and receiving network are relevant as pathways. The PEA does not establish the distribution of qualifying species within the receiving channel or the River Ehen.

5 INITIAL SCREENING WITHOUT MITIGATION

Before allowing for CEMP or SuDS controls, significant effects on both qualifying species cannot be excluded from construction pollution, land drainage changes or operational surface water. Table 1 records the separate screening outcomes for recreation and foul drainage.

Table 1 Potential effects before mitigation

Potential harmful effect	Source and receptor	Screening outcome	Mitigation requirement
Direct land take	Application footprint outside the SAC. No main-river works proposed.	No likely significant effect identified through direct land take.	**No direct SAC habitat loss.**
Sediment and pollution	Stripping, excavation, cement, oils and dewatering can reach the River Ehen through site drainage.	Likely significant effect cannot be excluded for both species.	**CEMP and SuDS construction controls.**
Land drainage change	Drain abandonment and swale tie-in can interrupt clean flow or cause erosion and sediment release.	Likely significant effect cannot be excluded.	**Maintain flow and protect the receiving channel.**
Operational surface water	Roads, roofs and drives add runoff, with a route through the culvert to the Ehen.	Likely significant effect cannot be excluded.	**Secure treatment, attenuation and maintenance.**

Table 1 continued

Potential harmful effect	Source and receptor	Screening outcome	Mitigation requirement
Operational foul drainage	Separate foul drainage to the United Utilities public sewer. No private treatment or site foul outfall. Published evidence places the Cleator works discharge in the Keekle, below the designated reach.	No likely significant effect, alone or in combination, on the assumed accepted public sewer arrangements. The scheme has no direct foul discharge to the river.	**Standard sewer connection. Public network operation and treatment by United Utilities.**
Accidental releases	Sewer diversion, misconnections, spills or failure of drainage controls could pollute the receiving water.	Likely significant effect cannot be excluded.	**Coordinate design, testing and incident response.**
Recreation and disturbance	51 dwellings may add local visits. The layout provides on-site open space, with no new river access or facilities likely to increase in-channel use. Ordinary walking is unlikely to affect mussel beds, salmon spawning or migration.	No likely significant effect, alone or in combination. No credible material increase in disturbance to either feature.	**No SAC recreation mitigation required.**
Airborne effects	There is no identified separate airborne pathway to qualifying habitat from the assessed local works. Dust reaching drainage is assessed as sediment.	No separate likely significant effect identified.	**Construction dust and runoff controls.**

6 APPROPRIATE ASSESSMENT AND MITIGATION

Construction mitigation is based on CEMP P02, particularly sections 2, 4.7, 4.8 and 7, read with the RG Parkins SuDS Construction Management Plan and construction runoff drawing. The Site Manager is responsible for implementing and recording these controls. The design team must coordinate the drainage and utility works, and the appointed Ecological Clerk of Works should review sensitive works and breaches of the controls.

6.1 Construction runoff and silt

Phase stripping and earthworks to minimise exposed ground. Install clean-water diversion and dirty-water interception before major earthworks, with protection already in place while excavating the basin or working near the open channel. The submitted runoff plan provides for cut-off drainage at the access, a southern bund and temporary settlement in the basin. Keep stockpiles away from drainage routes and protect or stabilise exposed soils.

The CEMP protects the permanent basin and swales from construction damage. Where the SuDS Construction Management Plan uses the basin footprint as a temporary stilling basin, manage it as a construction treatment facility, isolate its permanent components as necessary, then remove accumulated silt, restore the design profile and verify performance before commissioning. The temporary hay-bale filter supplements settlement. Demonstrate effective fine-silt removal and provide additional filtration or contained removal where needed.

The CEMP identifies temporary drainage routes, treatment capacity, discharge points, isolation and contingency arrangements on the construction logistics and runoff plans. Maintain adequate storage and stop exposed-ground or drainage work when forecast conditions threaten containment. Keep silty or contaminated water out of the receiving channel and public sewer. Where no such route is available, contain and remove the water to an authorised facility.

Follow the CEMP inspection regime, including daily checks, weekly records and additional inspections after heavy rain, spills or phase changes. Inspect interception and treatment during high-risk earthworks, pumping and tie-ins. Apply the accepted discharge and stop criteria, with turbidity and pH checks where relevant. Visible plumes, bypass, failed containment or an out-of-limit reading trigger isolation, work stoppage, investigation and corrective action before restart.

6.2 Fuels concrete and incident response

Implement CEMP sections 4.7 and 4.8. Use impermeable secondary containment, designated refuelling away from drains, drip trays, stocked spill kits and lined concrete washout. Prevent cement, wash water, oils and contaminated sediment entering drains or the ground. Mark the open channel, culvert inlets and outfall on the site plan and brief contractors on their connection to the Ehen.

The Site Manager must stop the source, isolate affected drainage, contain and recover any spill, and notify the relevant authorities promptly where pollution reaches or threatens the watercourse. Complete CEMP Appendix D with named contacts and escalation arrangements. Log incidents, remedial measures and sign-off before affected work resumes.

6.3 Land drainage diversion and outfall

Trace active connections before any drain is opened or abandoned. Install and stabilise the replacement swale and verify its connection to the receiving channel before transferring flows. Maintain existing upstream through-flow during the changeover, keeping clean flows separate from construction runoff. Protect the downstream culvert and open channel from blockage, scour and

sediment release.

Implement the accepted outfall and sewer protection or diversion method, including temporary flow management and protection of the open channel. The assessed design involves no works in the River Ehen. Clean equipment used in wet channels and prevent transfer of invasive species.

6.4 Permanent surface water drainage

The outline strategy uses a detention basin with sediment interception and planted treatment areas. The CIRIA Simple Index assessment addresses routine suspended solids, metals and hydrocarbons from residential surfaces. The indices support the treatment concept
.
The accepted surface water design is assumed to incorporate the detention basin, separate clean land drainage diversion, flow control, treatment, safe exceedance routing and protection of the receiving channel against erosion and polluted bypass. The accepted layout resolves the interface with the public sewer.

Keep inspection, desilting and defect records and provide access for maintenance. The approved scheme must protect treatment and conveyance during any phased occupation.

6.5 Public sewer connection and protection

The applicant is responsible for the separate on-site foul system, connection arrangements with United Utilities and protection of the public sewer during the works. United Utilities operates the public sewerage network and wastewater treatment. No private treatment plant or foul outfall forms part of the project.

Test the development drainage for misconnections before occupation. Implement the agreed sewer protection or diversion arrangements and maintain service continuity to prevent accidental sewage releases.

6.6 Findings for each qualifying feature

Freshwater pearl mussel. The works avoid direct removal of known mussel habitat. Silt, alkaline water and hydrocarbons could degrade substrate and water quality. Operational surface runoff could add sediment and contaminants, and effects on host salmon could reduce recruitment. The assessed construction controls and permanent surface water treatment protect supporting water quality and substrate.

Atlantic salmon. There is no proposed main-river crossing or barrier. Deposition, poor oxygen conditions, toxicity and altered flow could affect spawning or migration. Maintain flow during the drain changeover and protect the receiving water from construction and surface water pollution.

6.7 Securing the assessment measures

The CEMP and the SuDS construction method form the basis for delivering the measures in this assessment. The assessment assumes that those measures have been incorporated into the accepted CEMP and secured for implementation. The CEMP evidence register is to reference PEA and BNG R3.

The Site Manager will implement and record the approved responsibilities, temporary drainage controls, inspections and stop-work triggers in the CEMP. The drainage operator will maintain the permanent SuDS in accordance with the accepted operation and maintenance plan.

7 IN COMBINATION EFFECTS

Projects sharing receiving waters may add construction sediment or operational runoff. Candidate schemes include Cleator Mills (Copeland Local Plan allocation OCL01), Parkside Road (4/25/2110/0F1) and Keekle Meadows variation 4/26/2135/0B1.

For this assessment, the in-combination review is assumed complete and accepted. Its assumed outcome is that the identified schemes and other relevant plans and projects do not combine with Flosh Meadows to cause a material increase in sediment, polluted runoff, altered flows or wastewater effects on either qualifying feature, including along the salmon migration route.

8 CONCLUSIONS AND RECOMMENDATIONS

River Ehen SAC is screened in for construction pollution and operational surface water effects on freshwater pearl mussel and Atlantic salmon. The CEMP and SuDS documents provide the basis for avoiding construction pollution. Recreation is screened out for both features, alone and in combination. Direct operational foul discharge is screened out because the scheme connects to the public sewer.

On the stated assessment basis, the scheme will have no adverse effect on the integrity of the River Ehen SAC, alone or in combination. The CEMP and SuDS measures form part of the assessed scheme and are to be implemented and maintained throughout the relevant construction and operational phases.

APPENDIX 1 SOURCES AND ASSESSMENT RECORD

Envirotech NW Ltd. Preliminary Ecological Appraisal, Flosh Meadows, Cleator, R3, ref. 9200, updated 9 October 2026. Field survey 7 September 2026. See Figure 1 for location and Figure 4 for statutory sites.

Envirotech NW Ltd. Biodiversity Net Gain, Flosh Meadows, Cleator, R3, ref. 9200, checked 9 October 2026. See the post-development habitat proposals for the ditch, buffer and retained or created habitat.

Thomas Armstrong Construction Ltd. Construction Environmental Management Plan, The Flosh, P02, 8 October 2026, including proposed site plan 1356-05 Rev H. Relevant sections are 2, 3, 4.7, 4.8, 5 and 7 and Appendix D.

RG Parkins & Partners Ltd. Flood Risk Assessment and Outline Drainage Strategy RGP-2026-0032-FRA-001, sections 2.5–2.6 and 4–6, and outline drainage drawing 2026-0032-41. SuDS Construction Management Plan RGP-2026-0032-CMP-003, runoff drawing RGP-2026-0032-45 and SuDS Operation and Maintenance Plan RGP-2026-0032-OM-002.

Cumberland Council planning register, 4/26/2317/0F1. Ecology Team response dated 22 October 2026 and United Utilities response DC/26/2892 dated 2 November 2026.

https://www.cumberland.gov.uk/planning/application/42623170f1
Environment Agency. Cleator Wastewater Treatment Works environmental permit application 017470025/V003. Identifies the River Keekle as the treated effluent receptor.

https://www.gov.uk/government/publications/ca22-2tb-united-utilities-water-limited-environmental-permit-application-advertisement-017470025v003

River Ehen Freshwater Pearl Mussel Conservation Management Plan, LIFE 11 NAT/UK/383. Identifies the Cleator works discharge route below the SAC and provides context for the assessment of the public sewer pathway.

Natural England. River Ehen SAC citation and conservation objectives, UK0030057.
https://publications.naturalengland.org.uk/publication/4544671464292352
Natural England. Site Improvement Plan for River Ehen, SIP192.

https://publications.naturalengland.org.uk/publication/6203335036108800
JNCC. River Ehen SAC site account, UK0030057. https://sac.jncc.gov.uk/site/UK0030057

Planning Practice Guidance, Appropriate Assessment. https://www.gov.uk/guidance/appropriate-assessment

Conservation of Habitats and Species Regulations 2017, as amended, regulation 63. https://www.legislation.gov.uk/uksi/2017/1012/regulation/63

Cumberland Council. Copeland Local Plan HRA requirements for allocated sites, Appendix H. https://cumberland.moderngov.co.uk/documents/s21497/Appendix%20H%20-%20HRA%20Requirements%20for%20Allocated%20Sites.pdf

APPENDIX 2 SITE LOCATION AND DESIGNATION CONTEXT

Figures A and B reproduce Figures 1 and 4 of the R3 PEA. The engineering drainage strategy establishes the connection from the site to the River Ehen. The maps show the application site in relation to the designated reach.

Figure A Site location from the PEA

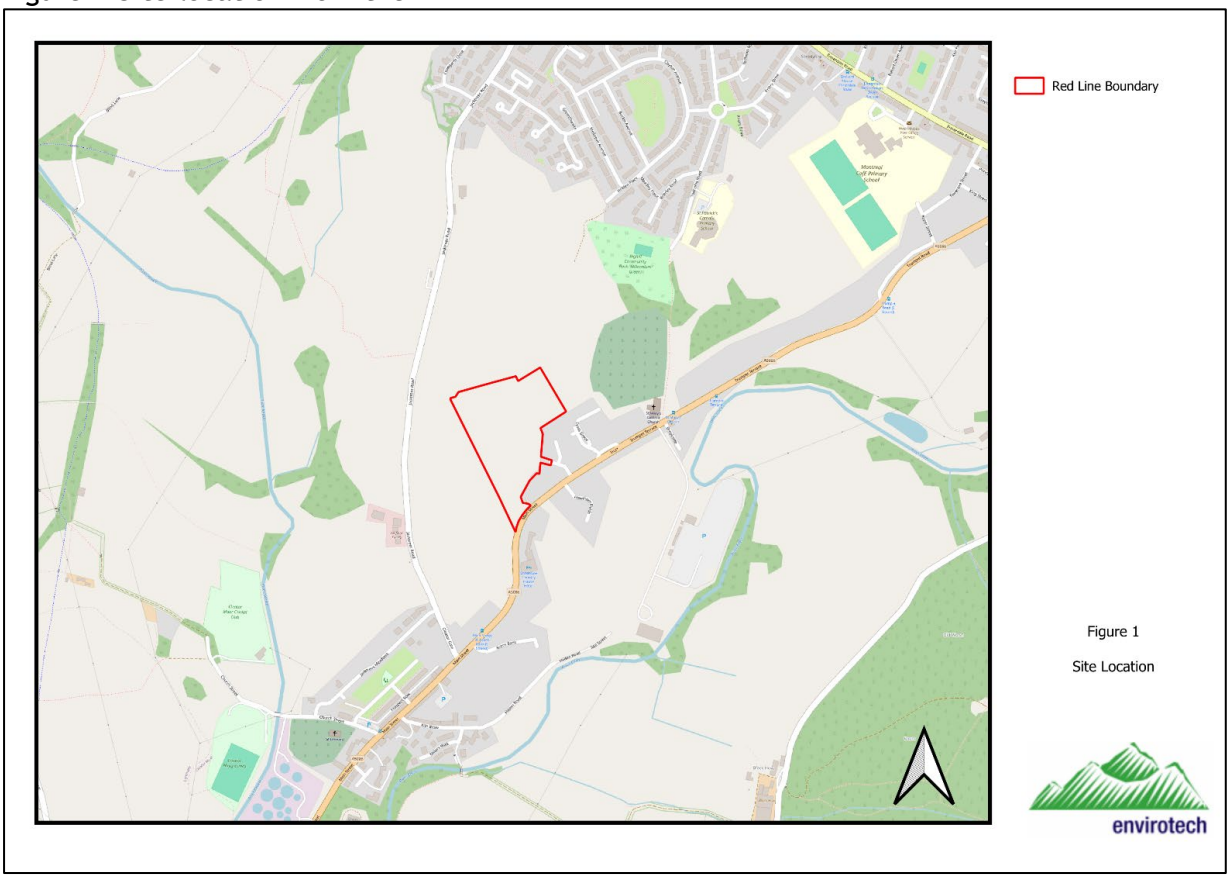


Figure B Statutory sites from the PEA



APPENDIX 3 RIVER EHEN SAC CITATION

Natural England's designation citation identifies the stretch from Ennerdale Water to the River Keekle confluence and its component SSSI. Freshwater pearl mussel is the primary qualifying feature. Atlantic salmon also qualifies.
Designation citation and site description
https://publications.naturalengland.org.uk/file/5670571371134976

APPENDIX 4 RIVER EHEN SAC CONSERVATION OBJECTIVES

Natural England's objectives are to maintain or restore site integrity and the site's contribution to favourable conservation status. For both qualifying species this covers habitat extent and distribution, habitat structure and function, supporting processes, population and distribution within the site.
Published conservation objectives
https://publications.naturalengland.org.uk/file/5005957801443328