

River Condition Assessment Report of Ryebank Rife to the South-east of Bairds Business Park, Grevatt's Lane, Littlehampton, BN17 5RE.

Site	Bairds Business Park, Grevatt's Lane, Littlehampton, BN17 5RE. Approx. grid reference SU9951401189.
Surveyor	Heather MacIntosh BSc MSc
Qualification	RCA accredited 27.6.2023
View Certificate	https://app.cartographer.io/qualification/certificate/by8ZqF05?view=public
Survey Date	2.3.26
Weather Conditions	Dry, sunny; temperature 14°C
Limitations	The survey was undertaken in winter at the request of the client. Winter surveys are not generally recommended due to higher flows and vegetation senescence and dormancy. Although rainfall had occurred in the preceding week, the riverbed remained visible and could be entered safely. Most vegetation was identifiable; however, certain invasive non-native species (INNS), particularly Himalayan balsam, are typically only present or identifiable during late spring and summer. These and other INNS may therefore have been present but not visible, potentially affecting the results. The surveyor informed the client of the limitations of winter surveying in advance. As such, the surveyor accepts no liability for any data affected by the above conditions. Subreach 1 of the upstream section commenced opposite a locked gate adjacent to the track running parallel to the river. Upstream access above this point was restricted, preventing direct assessment of whether channel morphology and habitat characteristics were consistent with those observed in Subreach 1. However, it may reasonably be inferred that these characteristics persist longitudinally to the point at which the river is intersected by a roadway at Ryebank House (Fig. 1). On this basis, the upstream extent of the subreach could justifiably be delineated to this crossing point. Ryebank Rife exhibits bidirectional flow, draining both eastwards and westwards from a topographic high point. The Environment Agency LIDAR Composite Digital Terrain Model (DTM), 1 m resolution, available via the Environment Agency data portal https://environment.data.gov.uk/dataset/13787b9a-26a4-4775-8523-806d13af58fc, was utilised to identify the highest elevation along the channel, from which flow divergence potentially occurs. This elevation was subsequently adopted as the reach origin for the purposes of the river type survey. While the precise delineation of the reach starting point may be open to interpretation, minor positional variation is unlikely to materially affect the assigned river type classification, as the majority of Ryebank Rife demonstrates a high degree of superficial morphological uniformity.

For the purpose of this report, the red line boundary (RLB) in the field east of Bairds Business Park, Grevatt's Lane, Littlehampton, BN17 5RE and north of Ryebank Rife is hereafter referred to as *the site*.



Fig 1 Map of Ryebank Rife Subreaches (Contains OS data © Crown Copyright and database right 2026)

River Condition Assessment Methodology

The River Condition Assessment (RCA) is a habitat-based method for assessing river condition at a detailed scale, which can be applied to the Biodiversity Net Gain (BNG) Watercourse Metric. The RCA consists of MoRPh surveys and consists of 5 modules (a *subreach* in RCA terminology) which identify positive and negative indices and which represents a longer but similar, BNG length of river. Positive aspects of the river condition are the diversity (richness) and abundance (extent) of habitats offered by vegetation structure, sediment, and hydraulic habitats observed at low flow. Negative aspects of the river condition are representative of local human interventions or pressures.

The RCA followed the methodology which is outlined here <https://modularriversurvey.org/wp-content/uploads/RIVER-CONDITION-OUTLINE-Feb2020.pdf>

Ryebank Rife

The river within the proposed site RLB is Ryebank Rife, an historic drainage ditch or river that has been incised and partly embanked to carry water away from the adjacent fields. The embanked sections have mature trees growing on the sides and the tops indicating historical embankment. It flows bidirectionally. The western section flows eastwards and meets the westward flowing section (which includes subreach 1 and subreach 2) at the end of subreach 2 at which point they both flow into a south flowing section of Ryebank Rife. This enters the sea to the east of Middleton-On-Sea. Another section to the east of Ryebank House flows eastwards to join the River Arun. It is fed by drainage pipes from the adjacent fields.

The river appears on Environment Agency Statutory Main River Map, but the relevant lengths do not. The river does not appear on the Natural England Priority Rivers dataset (9.10.25). The river was classed as *other river and streams*.

Survey Summary

A walkover survey was carried out to determine how many RCA subreaches were required to assess the entire watercourse within the RLB. Two subreaches were identified as necessary to represent the full length.

- **Subreach 1** covers the upstream length from the east boundary, defined by the river section opposite a gate over the track, characterised by historic embanking on both of the river banks. This section also has natural 10m riparian zones.
- **Subreach 2** covers the downstream length from the end of the embanked river banks, extending downstream to the outflow on the left bank leading to the sea. This

includes a bridge culvert, and weirs created by log rounds. This section has minor encroachment by arable agriculture of the riparian zone.

Final River Condition Score

The final river condition score is generated from the RCA and entered into the Watercourse Metric. This takes account of river type and whether the river is overdeepened. According to the RCA, both subreach lengths of the of Ryebank Rife are classified as *overdeep*. Where a river is overdeep, its condition is reduced by one class.

The preliminary condition score for both subreaches was *moderate*, but following the required adjustment for overdeepening, the final condition score is **fairly poor**.

Table 1 *MoRPh Subreach*

Subreach	Grid Reference MoRPh MidPoint	Approx. BNG Length (m) it represents	Final Condition Score	Grid Reference Start of Subreach	Grid Reference End of Subreach
1	SU 99668 01224	185	Fairly Poor	SU9973801250	SU9956801198
2	SU 99330 01172	303	Fairly Poor	SU9956801198	SU9926701177

Uplift Potential

Both positive and negative indices were recorded, consistent with a balanced assessment of river condition and useful for informing future enhancement opportunities. As the assessed watercourse lies within the site RLB, any improvements would qualify as on-site uplift.

The site RLB has been delineated as a narrow corridor on the right bank to accommodate the proposed drainage channel from the adjacent pond. Under the Statutory Metric, “on-site” habitat is defined as that occurring within the site RLB; accordingly, any required habitat uplift would need to be implemented within the site RLB, parallel to the river, on both banks. Notwithstanding this minimum requirement, it is recommended that riparian enhancement measures be applied along the full extent of both banks to maximise ecological benefit and functional connectivity. It is assumed that land on both sides of the watercourse is owned by the applicant.

Subreach 2 length presents comparatively greater potential for enhancement. Riparian encroachment is present on both banks. The Statutory Metric User Guide states that *encroachment features outside of the project boundary can be assessed from either bank. Riparian zone encroachment is any feature or intervention (within the riparian zone) that reduces the quantity, quality or ecological function of the riparian habitat.*

This includes:

- *buildings or hardstanding*
- *management practice (including agriculture)*
- *structures that prevent wildlife from accessing the riverbank*

The following features are exceptions and should not be recorded in the baseline:

- *established canal or river navigation towpaths*
- *established footpaths and existing river crossings*
- *existing small amenity features and utility units where the total footprint is less*

than 5% of the riparian zone area

The footprint of riparian zone encroachment is the cumulative area of these features or interventions.

In subreach 2 length, there is minor encroachment associated with arable cultivation extending into the riparian zone on both sides of the channel. Additionally, a vehicular track is present on the right bank. This track comprises predominantly grass cover with areas of exposed earth and gravel confined to wheel ruts. The surface is largely permeable and vegetated, does not constitute a permanent engineered structure, and did not prevent wildlife from accessing the riverbank. On this basis it could be classified as an established footpath.

Within subreach 2 length, there is a section of the river culverted to convey the vehicular track. Although this could be classified as *an established river crossing* under riparian encroachment, this culverted section should more appropriately be classified as a major watercourse encroachment. The Statutory Biodiversity Metric User Guide states *watercourse encroachment can be any feature or action that adversely affects the natural function of the watercourse, or results in localised changes in habitat, species and migratory pathways*. This structure functions not solely as a crossing, but as a culverted channel section, resulting in modification of channel morphology and disruption of natural fluvial processes and ecological continuity.

Potential ecological uplift could be achieved through the removal or reduction of riparian encroachment on one or both banks. This may be accomplished by setting back the cultivated field margin to a minimum distance of 10 m from the top of the bank. Where the bridge culvert lies within the site RLB, the structure could be redesigned as a clear-span, bank-to-bank bridge, eliminating the need for culverting, revetment, or infilling that constrains channel flow. In such circumstances, residual impacts would be limited to riparian encroachment, the classification of which would depend on the proportion of the bridge and track footprint falling within the site RLB.

Additional enhancement measures may include reprofiling the right bank to reduce slope gradient and height at the point of pond outfall connection, establishing native marginal vegetation, and promoting the development of native aquatic macrophyte communities within the channel.

In contrast, Subreach 1 would present greater technical challenges to achieve uplift. Enhancement would likely necessitate engineered interventions to remove existing embankments, reduce bank gradients, and raise the channel bed to re-establish hydraulic connectivity between the river and its floodplain. Establishing and thereafter encouraging native marginal and aquatic vegetation should also be considered. Selective thinning of trees and branches would allow more sunlight to reach the river. This is particularly relevant to subreach 1 where the river is deeply incised. This would aid vegetation establishment and longevity.

Any enhancement requires to be secured for 30 years. This includes encroachment reduction.

Watercourse Metric

Data input into the Statutory Watercourse Metric was not requested and is therefore excluded, falling beyond the stipulated terms of reference for this report.

References

Department for Environment (2025) The Statutory Biodiversity Metric User Guide

England, J., Wharton, G., Shuker, L. and Gurnell, A. (2022) The MoRPh Survey Technical Reference Manual

Environment Agency (2023) LIDAR Composite Digital Terrain Model (DTM) - 1m.
<https://environment.data.gov.uk/dataset/13787b9a-26a4-4775-8523-806d13af58fc> Accessed 2026

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Natural England (2025) Priority River Habitat - Rivers (England) <https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::priority-river-habitat-rivers-england/about>
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