



2WS NEW SITE ACCESS SPALDING, LINCOLNSHIRE

Flood Risk Assessment and Drainage Strategy

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Revision Control:

Revision	Date	Authored by:	Checked by:	Changes:
Draft	05/06/2025	LW	DC	Initial Draft
1	07/0/2025	LW	DC	Updated due to Client Comments

1. Introduction

The development site is located off West Marsh Road, Spalding, Lincolnshire (postcode PE11 2BB), adjacent to Spalding Power Station. The current use of the site is undeveloped grassland forming part of the operational landholding of the applicant. According to the Environment Agency Flood Map for Planning, the site lies within Flood Zone 3, indicating a high probability of flooding from fluvial sources. The South-East Lincolnshire SFRA (2017) also identifies the area as being susceptible to residual and climate-change-driven flood risks.

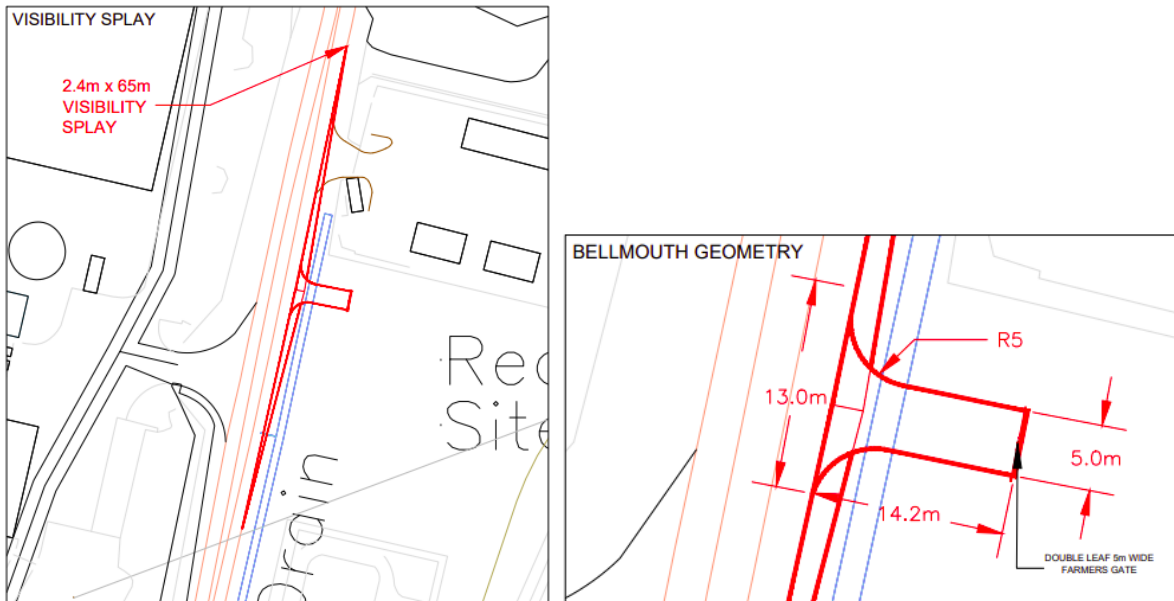
This Flood Risk Assessment (FRA) supports a full planning application for a new vehicular access to land owned by Spalding Power Station (Intergen), located adjacent to and opposite the main site entrance off West Marsh Road, Spalding (PE11 2BB).



W3W - <https://w3w.co/durations.pressing.treaty>

The proposed access will facilitate safe and secure entry for maintenance activities related to critical Overhead Line (OHL) infrastructure operated by both Spalding Power Station and National Grid Electricity Transmission (NGET). The application site lies within Flood Zone 3, as defined by the Environment Agency, and is therefore considered to be at high risk of flooding.

The new access will comprise a 13m wide bellmouth at its junction with West Marsh Road, narrowing to a 5m wide track into the land parcel. The access road construction will incorporate permeable materials to ensure that surface water runoff is managed sustainably and without increasing flood risk.



Importantly, the slope of the new access will be designed to fall away from West Marsh Road and back toward the land parcel within the applicant's control, minimising the risk of surface water runoff entering the public highway.

In terms of flood risk vulnerability, the proposed development is classified as 'Essential Infrastructure' when considered in the context of its operational function serving Spalding Power Station and associated NGET infrastructure. The expected design life of the access is consistent with the operational timeframe of the adjacent infrastructure (at least 50–100 years). This FRA assumes a 100-year planning horizon.

2. Site Description and Development Proposal

The site lies on the eastern side of West Marsh Road, opposite the main entrance to Spalding Power Station. It currently comprises undeveloped grassland and is within the landholding of the applicant.

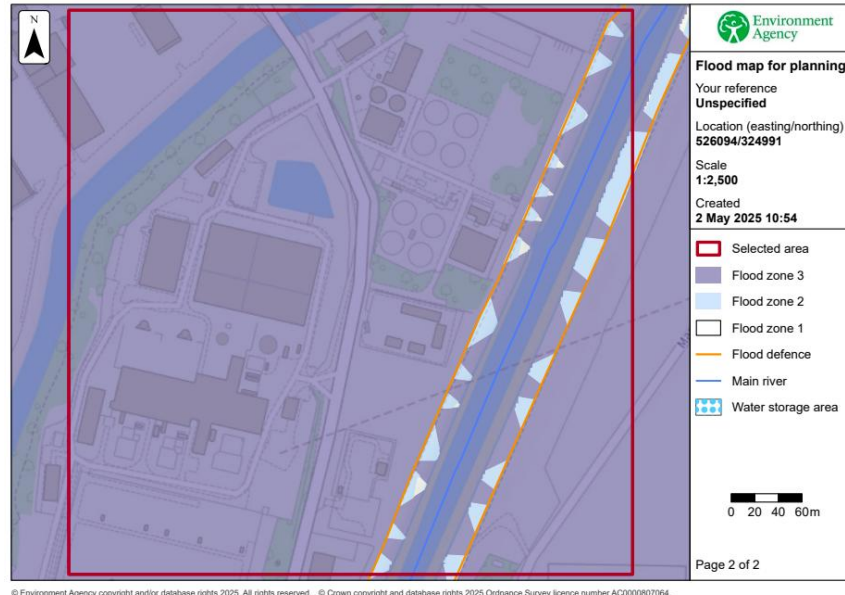
The proposed access is required to facilitate critical maintenance and upgrade works associated with Spalding Power Station and National Grid Electricity Transmission (NGET) overhead line infrastructure. The site is expected to experience minimal vehicle movements, limited to 2-3 visits per year.

The principal flood risk to the site arises from the River Welland. There is also some surface water flood risk in the surrounding area as per Environment Agency Surface Water Flood Maps. However, the site itself is not located within a critical drainage area, and no significant groundwater or sewer flooding history has been recorded for this location.

The proposed development consists of a bellmouth access point constructed with permeable materials, with a graded slope falling back toward the site to prevent any discharge onto West Marsh Road.

3. Flood Zone Classification and Risk Assessment

According to the Environment Agency's flood map for planning, the site is located within Flood Zone 3, denoting a high probability of fluvial flooding (greater than 1 in 100 annual probability).



Hazard and depth mapping from the South-East Lincolnshire Strategic Flood Risk Assessment (SFRA, 2017) classifies the site as "Danger for All", with indicative flood depths exceeding 2 metres in extreme flood scenarios. This reinforces the need for appropriate drainage and access slope design to mitigate on-site and off-site flood risk.

In selecting the site, it was determined that no alternative lower-risk sites exist that can achieve the operational proximity requirements to Spalding Power Station and associated National Grid assets (span between OHL Towers 2WS001 and 2WS002). Other sustainable development objectives, such as maintaining national energy resilience, further justify the proposed location despite the presence of flood risk.



Table 1 – Flood Risk Summary

Risk Source	Flood Zone	Estimated Depth	Hazard Rating	Return Period
Fluvial (River Welland)	Zone 3	>2.0 m (SFRA)	Danger for All	1 in 100 year or greater

4. Sequential and Exception Tests

The development is functionally linked to existing infrastructure (Spalding Power Station and NGET) and must be located in proximity to this infrastructure to support its operation. Therefore, the Sequential Test is considered passed.

According to the South-East Lincolnshire SFRA (2017), development such as minor infrastructure works and non-residential ancillary access under 250m² may not require a full Sequential Test. Given the nature of this proposal—a small access track functionally linked to Spalding Power Station—it is appropriate to consider this advice. Nonetheless, justification has been provided demonstrating why the proposed location is operationally essential.

The Exception Test is also passed as:

- The proposal enables continued operation of nationally significant infrastructure.
- The access is non-habitable, infrequently used, and does not introduce people or vulnerable receptors to flood risk.
- A site-specific FRA and drainage strategy are provided to mitigate any residual risks.

Table 3 – Sequential and Exception Test Compliance

Test	Requirement	Justification	Compliance
Sequential Test	Locate development in lowest risk area	Operationally essential access adjacent to Power Station, SFRA confirms minor works exempt	Yes
Exception Test Part 1	Provide wider sustainability benefit	Supports nationally significant energy infrastructure operation and maintenance	Yes
Exception Test Part 2	Safe for lifetime without increasing risk elsewhere	Permeable design, runoff directed to land parcel, no impact to third parties	Yes

5. Surface Water Drainage Strategy

The proposed construction will use Sustainable Drainage Systems (SuDS) principles. The design includes a permeable grass reinforcement system over a Type 3 granular sub-base, allowing surface water to infiltrate naturally. Construction detail includes: Charcon Grass Grid blocks, geotextile separation fabric, and Tensar geogrid.

Table 2 – SuDS Design Summary

Layer	Material	Thickness	Function	SuDS Compliant
Top Surface	Charcon Grass Grid Blocks	100mm	Permeable load-bearing surface	Yes
Bedding	Uncompacted Sand	30–50mm	Level surface and filter layer	Yes

Separation Layer	Terram 1000 Geotextile	-	Prevent subgrade migration	Yes
Reinforcement	Tensar TX160 Geogrid	-	Structural stability	Yes
Sub-base	Type 3 Granular (CL 805)	300mm	Free-draining support layer	Yes

The access is designed to drain back toward the land parcel and will not discharge directly onto the public highway or into surrounding watercourses. As infiltration is the preferred method of drainage, no discharge to sewers is anticipated. Should further discharge be required, consultation with the Welland and Deepings Internal Drainage Board and the Environment Agency will be undertaken.

Proportionality of Drainage Assessment

The proposed development comprises a modest field access constructed using permeable materials (Charcon Grass Grid over a Type 3 sub-base), designed specifically to allow infiltration and avoid discharge onto the public highway or nearby drains.

The surface area is minimal and will be used infrequently (2–3 times per year) for operational maintenance access only. The track falls toward the applicant's land, preventing any overland flow toward West Marsh Road. As such, it will not materially increase the rate or volume of surface water runoff from the site.

Residual flood risks relate to overtopping of defences or breach scenarios. These are mitigated through limited usage frequency, permeable surfacing, and sloped grading. An operational management plan will include delaying access during extreme weather events and maintaining site signage and barriers.

Given the nature and scale of the proposal, the low runoff risk, and the embedded drainage mitigation through SuDS design, it is considered disproportionate to require a full Drainage Strategy Report. This FRA demonstrates compliance with the intent of local and national drainage policy.

6. Climate Change Allowance

The drainage design accounts for increased rainfall intensity due to climate change, in line with Environment Agency guidance recommending a 40% uplift for surface water runoff calculations.

The proposed access area is approximately 83 square metres/0.0083 hectares, surfaced with permeable materials designed to promote infiltration. However, for illustrative purposes, the peak runoff volume can be estimated using the Modified Rational Method, assuming a 1-hour critical rainfall event.

Calculation of Runoff Volume Increase due to Climate Change:

- *New Site Access Area (A) = 83 m² / 0.0083 hectares*
- *Rainfall Intensity (I) = 50 mm/hr (baseline 1-hour storm)*

- Climate Change Allowance = 40% increase
- Runoff Coefficient (C) = 1.0 (worst-case, impermeable)

$$\text{Baseline Runoff Volume} = A \times I = 83 \times 0.050 = 4.15 \text{ m}^3$$

$$\text{Climate Uplifted Volume} = 4.15 \times 1.40 = 5.81 \text{ m}^3$$

Result: The increase in runoff volume due to climate change is approximately 1.66 m³ for a 1-hour 50 mm storm event.

However, because the access surface is fully permeable (Charcon Grass Grid system on Type 3 sub-base), the actual runoff is negligible. The above volumes are a worst-case impermeable scenario used to demonstrate resilience in design.

7. Flood Mitigation and Emergency Planning

Given the infrequent operational use of the access (2–3 times per year), the risk to people is minimal. No buildings or flood-sensitive equipment are proposed on site. In the event of forecast flooding, all access activities can be postponed. Emergency egress is available via West Marsh Road.

8. Consultation and Policy Compliance

Pre-application discussions have been held with Lincolnshire County Council Highways and South Holland District Council. This FRA has been developed in accordance with the National Planning Policy Framework (2024), South East Lincolnshire Local Plan (Policies 1, 4, 5, 30), and EA Standing Advice for developments in Flood Zone 3.

While the proposed access lies within the Welland & Deepings Internal Drainage Board (IDB) district, there are no IDB-owned ditches, drains or watercourses affected by the proposed works.

Table 5 – Stakeholder Consultation Summary

Organisation	Date Contacted	Subject	Response Summary
Lincolnshire County Council Highways	April 2025	Access layout, visibility splays	Confirmed planning application required
South Holland District Council	June 2025	Pre-app advice on location, policy	Supportive in principle with justification
Welland & Deepings IDB	June 2025 (via Phone)	Drainage board assets nearby	No IDB assets affected

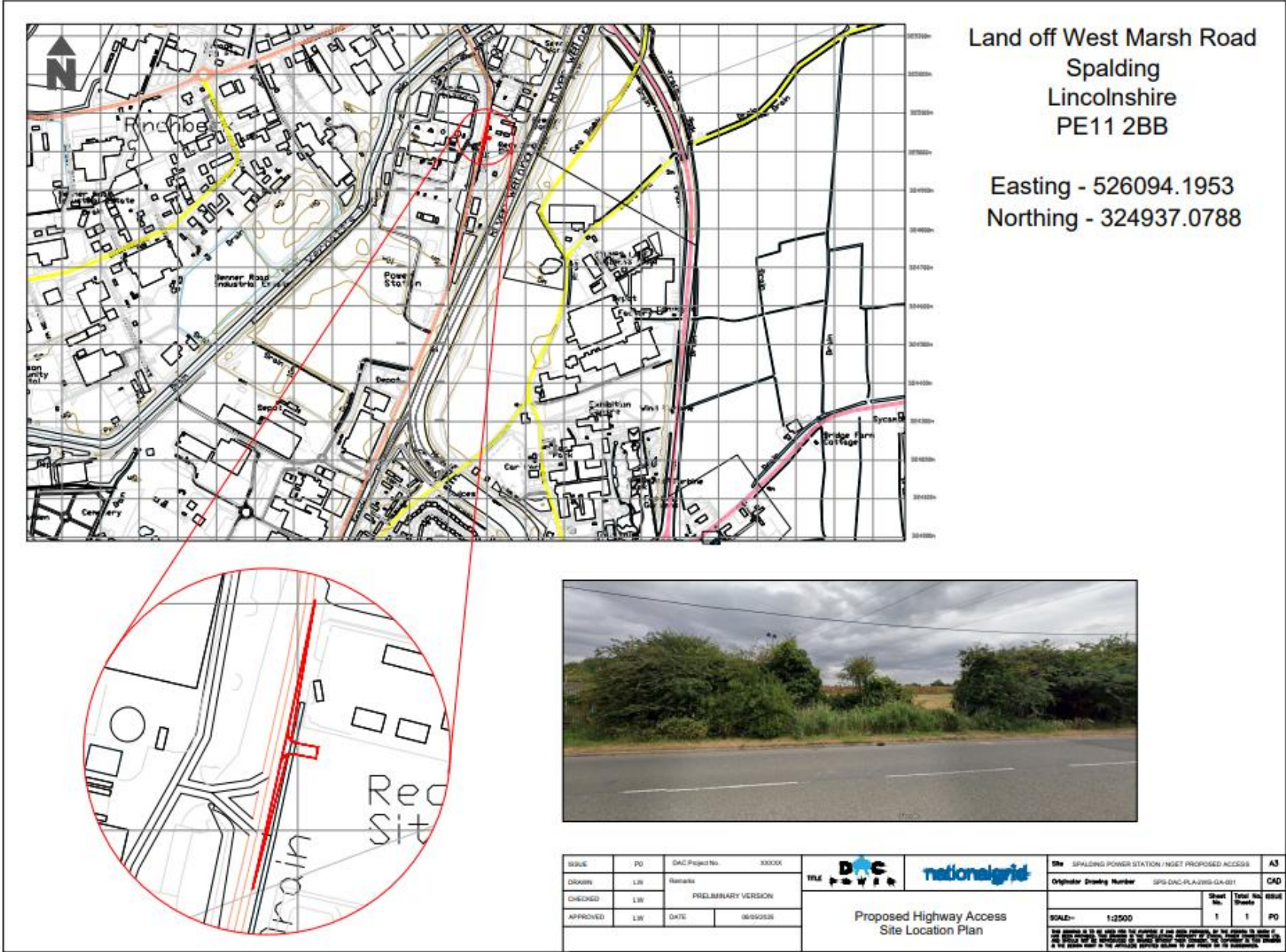
9. Conclusion

This Flood Risk Assessment demonstrates that the proposed new site access is:



- Essential infrastructure directly supporting planned maintenance/asset replacement relating to nationally significant assets;
- Designed to be safe for its operational lifetime;
- Constructed using permeable materials to ensure greenfield runoff is maintained;
- Located and sloped appropriately to prevent impact on the public highway;
- Fully compliant with relevant flood risk and drainage policy.

Appendix A – Location Plan



Appendix B – Topography Survey

