

BLACK BRIDGE 100

the history of the North Seaton Viaduct

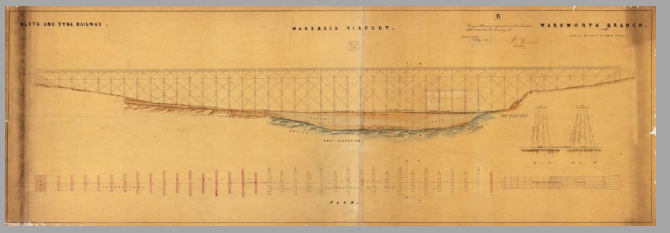
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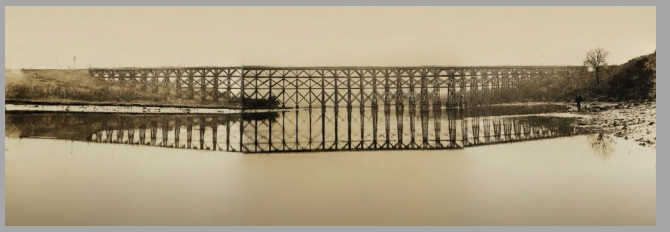
Exhibition Justification

Historical Significance & Timing

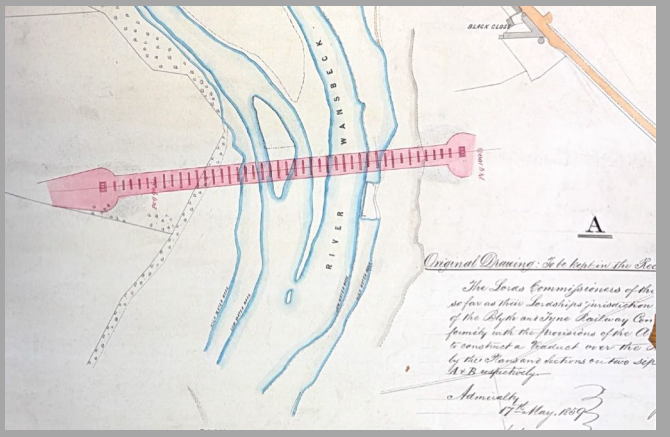
The Black Bridge is a symbol of the North East's industrial resilience. Despite its iconic silhouette, the history behind it is often misunderstood.

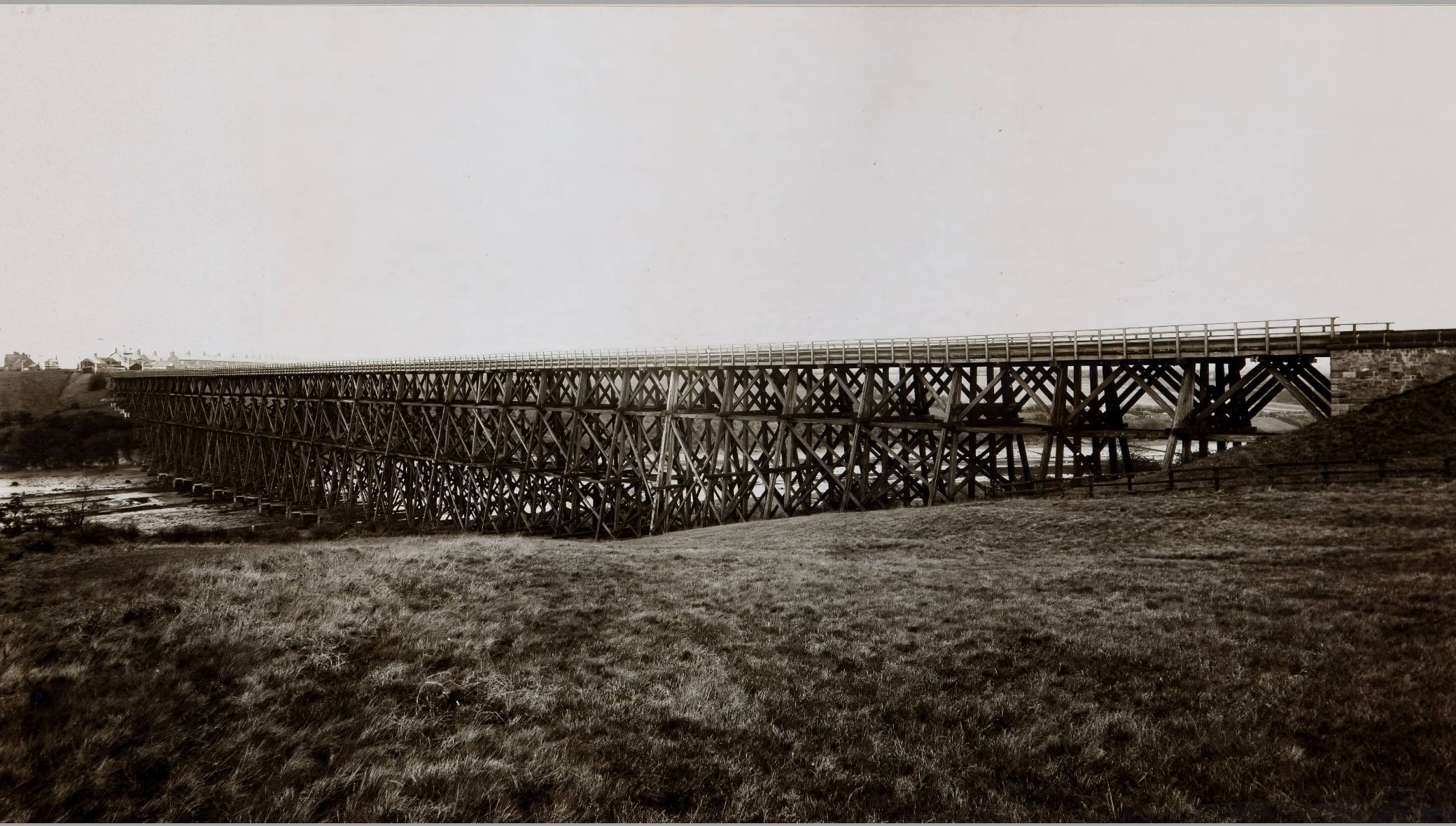
- **The Second Bridge:** Few realise this is the *second* rail crossing at this site, built to replace an 1858 wooden structure.
- **The 1927 Milestone:** While construction began in 1925, photographic evidence confirms the final span was installed in **May 1927**, with the official inauguration occurring on **11th September 1927** (Newbiggin to Bedlington service).
- **A Living Monument:** With passengers crossing the Wansbeck again in 2026, there is a peak in public curiosity regarding the bridge's origins.





The original wooden viaduct



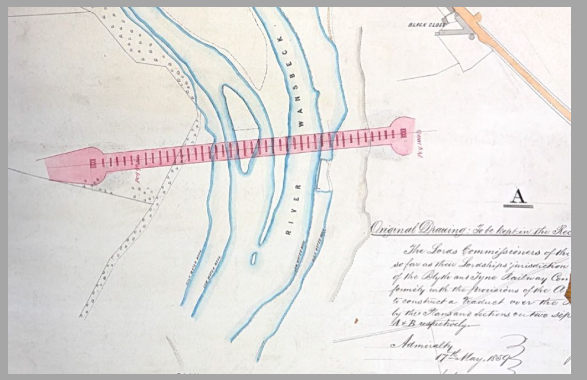


AI Enhanced image of the original timber viaduct.

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Educational & Regional Impact

- **Community Identity:** The exhibition provides a "biography" for a landmark that defines the Ashington and North Seaton skyline.
- **Regional Promotion:** It positions the North East as a leader in both industrial heritage and modern creative technology (AI/Digital Media).
- **Tourism Catalyst:** By linking the exhibition to the Northumberland Line, it encourages rail travel and increases footfall to local venues.





Placing the last span in position of the new London and North Eastern Railway steel viaduct, which is to replace the old trestle bridge over the River Wansbeck, near North Seaton.

Feasibility Study Findings

An initial feasibility study has determined that :

- **Content & Asset Readiness** High-quality primary source material is available and ready for production.
- **Archival Inventory:** High-resolution scans of the original 1857 plans and 1920s construction sequences have been secured.
- **AI Photo Restoration:** Pilot tests have proven that AI upscaling allows these images to be printed at scales up to **2m^2** with stunning clarity, revealing details like individual rivets and the faces of the 1927 workers.
- **Digital Avatars:** Prototypes of AI-narrators (e.g., a miner, a colliery house doorway) have been developed to provide a human connection to the technical history.

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AI Photo Enhance

3.2 Technical Delivery & "Zero-Footprint" Model
The exhibition is designed to be highly professional yet entirely portable:

- **Backlit LED Panels:** Lightweight Aluminium frames with inbuilt LED illumination professional quality displays. They are "flat-packable" and require no permanent wall mounting or additional lighting.

- **Large Screen Display panels:** can bring to life the history and heritage of our region.

- **Infrastructure Requirements:** The entire exhibition is "plug-and-play," running off standard 13A domestic sockets with a minimal power draw.



Backlit LED Panels



100’ Video TV



Pile Driving into the Riverbed

Concrete Piles

From around 1900 reinforced concrete piles replaced timber and iron where durability was critical, driven by steam hammers to support heavier steel bridges and viaducts.

In this image concrete piles, constructed on site, are being pushed deep into the exposed Wansbeck riverbed. The original wooden viaduct is seen behind.

The view is looking upriver.

POTENTIAL DISPLAY PANEL FORMAT EXAMPLE: A consistent style combining image with explanatory text



Building the Foundations

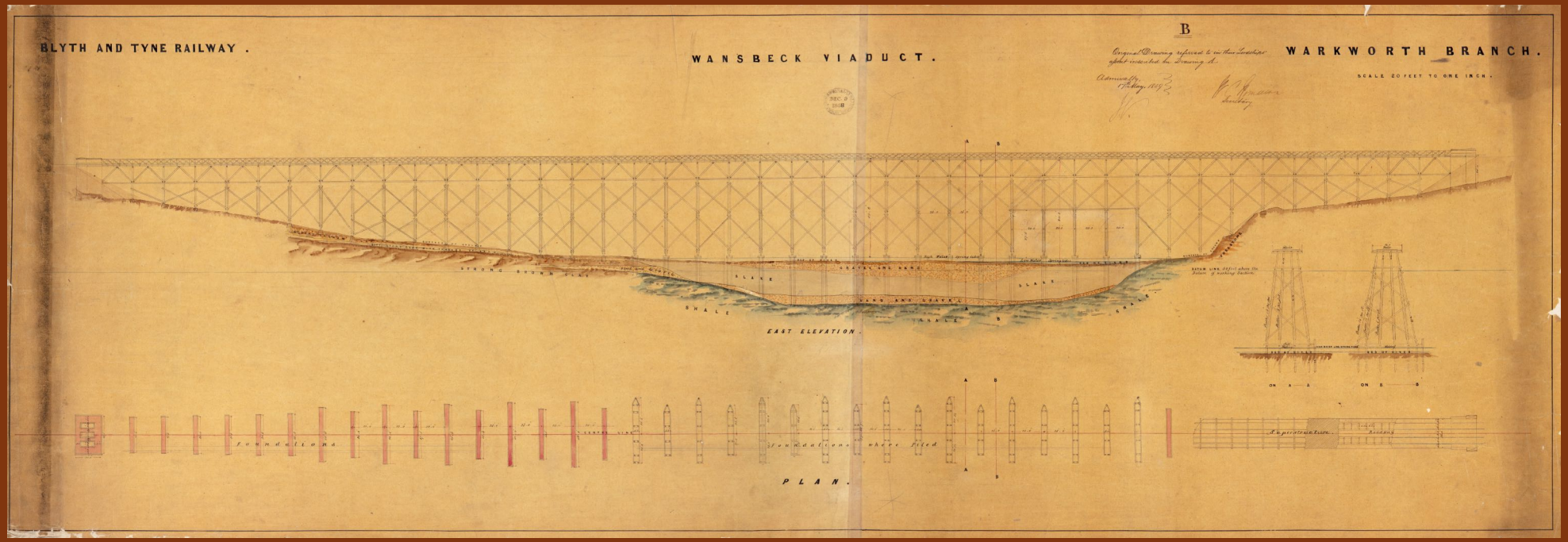
The original wooden viaduct continues in service as the new one is constructed. A temporary railway built from the south side of the river provides a route for the transfer of materials used for the construction of the new viaduct.

In the foreground is a substantial crane mounted on the structure, with angled jib and cables. In the foreground shuttering is being constructed to form a pier on the south bank. In the background work is progressing with piers on the north bank.

The houses are those of Coronation Terrace along with North Seaton Station.

POTENTIAL DISPLAY PANEL FORMAT EXAMPLE: A consistent style combining image with explanatory text

Plans for the original North Seaton Viaduct



The plans for the original wooden viaduct were approved by the Admiralty on the 17th May 1859.
In the 19th century the Admiralty controlled all matters affecting navigation, tidal waters, and coastal defence, and the River Wansbeck estuary was legally classed as navigable tidal water, even though it appears modest today.



- **100’ Screen mounted vertically is the doorway.** Different characters can appear and speak.

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Conclusion & Recommendations

The project is **fully feasible** and highly timely. The combination of local pride in the new Northumberland Line and the centennial of the bridge's completion creates a unique "marketing moment" for the region.

ADM Automation, based in Gateshead, is prepared to support this initiative with a combination of funding and technical support. ADM is the creator and manufacturer of the **iCart** automated guided vehicle, currently in use by organisations including Royal Mail, Tesla, and Warburtons. (see: www.icart-logistics.com)

While the core business of ADM is contemporary automation, they have a strong interest in supporting this local heritage project that demonstrate how AI and digitally enabled techniques can be applied to appreciate local history in a novel way. They have significant expertise and experience in the application of AI directly applicable to this project.

iCart





POTENTIAL OUTCOMES

- An exhibition that celebrates Ashingtons biggest monument and raises awareness of our engineering heritage and the impact that coal had on our community

- Developing in-house skills in modern presentation techniques and building a knowledge base of using AI to support museum activities

- Attract funding to support the event and develop new technologies for visitor involvement in future museum activities



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