TRANSPENNINE ROUTE UPGRADE

Standedge Canal Tunnel MVL3/39A

24/03/2025

Overall Context

Bywash Underbridge (MVL3/39B)

Station Road overbridge (MVL3/39)

Public car park

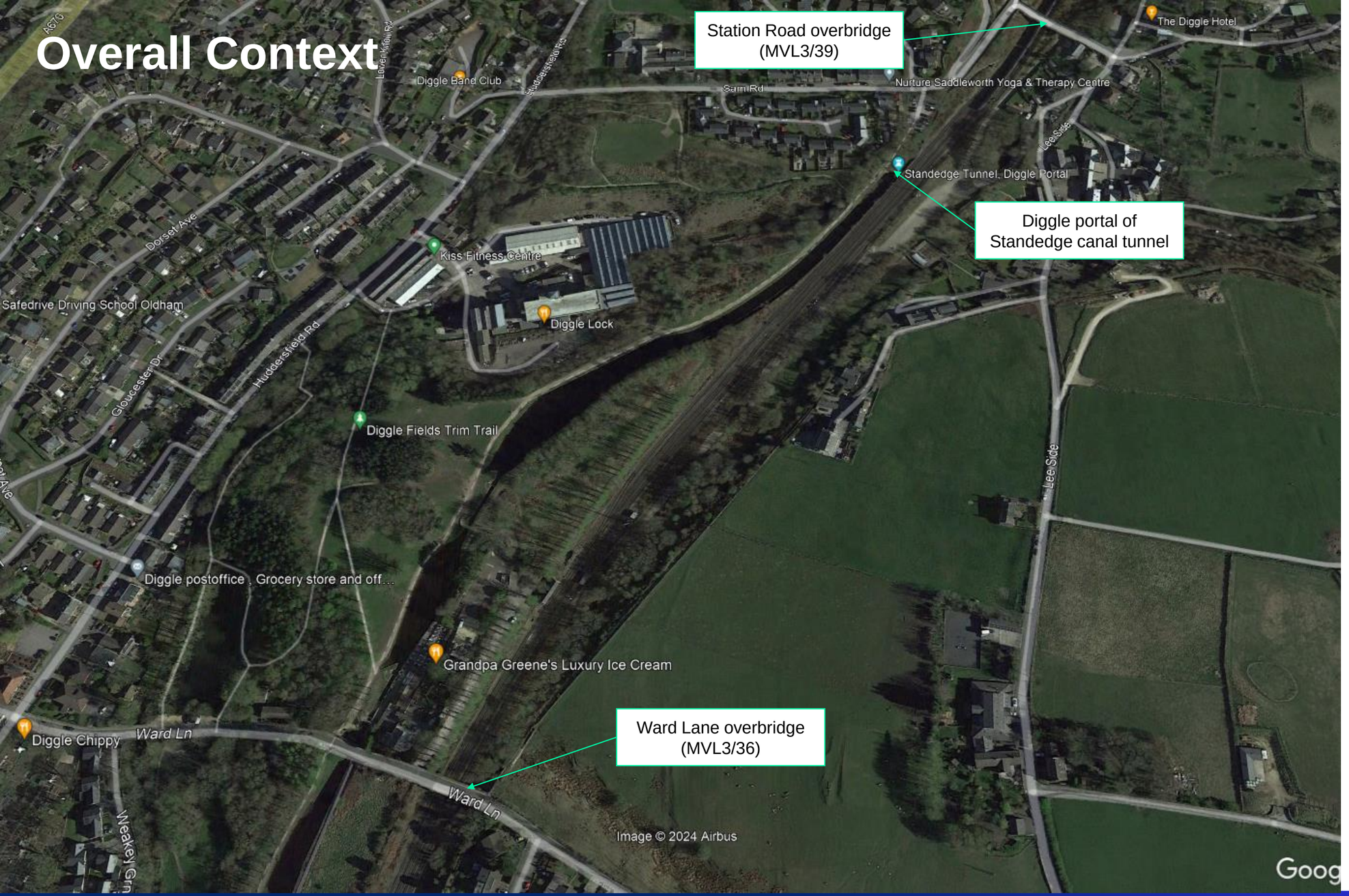
Photo P2

Diggle portal of Standedge canal tunnel

Photo P1

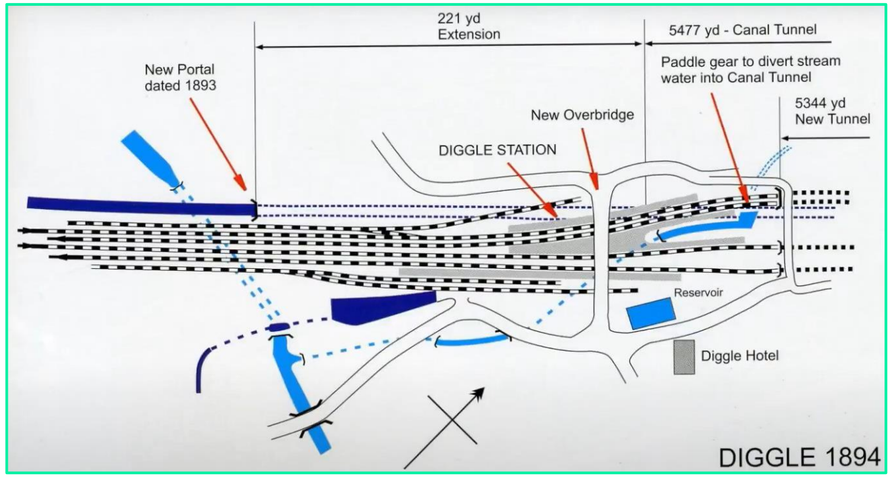
Access track parallel to railway

Overall Context



What we know about the tunnel

- Tunnel is partially owned and managed by Canals and Rivers Trust and partially by Network Rail
- Comprises mix of masonry arch structure and steel flat-span deck
- The tunnel structure (from Diggle portal) is initially masonry arch before transitioning into steel deck and then into concrete slab deck



In The Dark: The Standedge Tunnels - YouTube

General Description

Comment:	Date:
Original construction	1795 - 1811
Construction of strengthening brick 'Jack-arches'	During construction of railway tunnels
Extension at ends to take 'live' railway tunnel	c.1893
Closed by Act of Parliament	1944
Extensive restoration and re-opening	1999 - 2001

Assessment

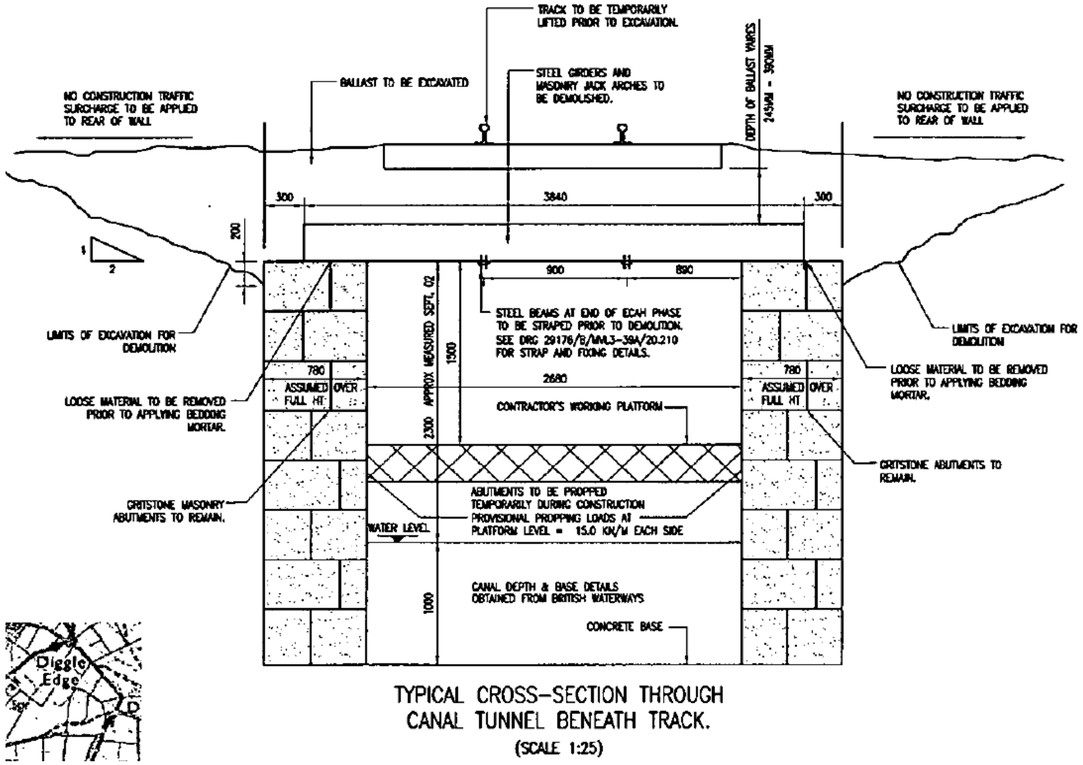
Name:	**Standedge Tunnel**
Inventory number:	HN-01267
Functional Location:	**HN-013-011**
National Grid Reference:	403958 411911 (North-east portal)
	400599 407925 (South-west portal)
Location:	Between Marsden and Diggle
Date of Construction:	1795 - 1811
Construction Engineer:	John Rooth
Heritage status:	Grade II* Listed NE Portal
Length:	**5190m**
Min. width:	**1.95m**
Min. headroom:	**2m** estimated
Depth of cover:	**184m** max.
Towpaths:	0
Air Shafts:	8 (including 5 in CRT ownership)
Construction shafts:	9 possible
Construction material:	**Masonry**
Condition Grade:	C
Consequence of Failure:	3
Serviceability Grade:	2

C&RT PI HN-013-011 Standedge Tunnel 2024

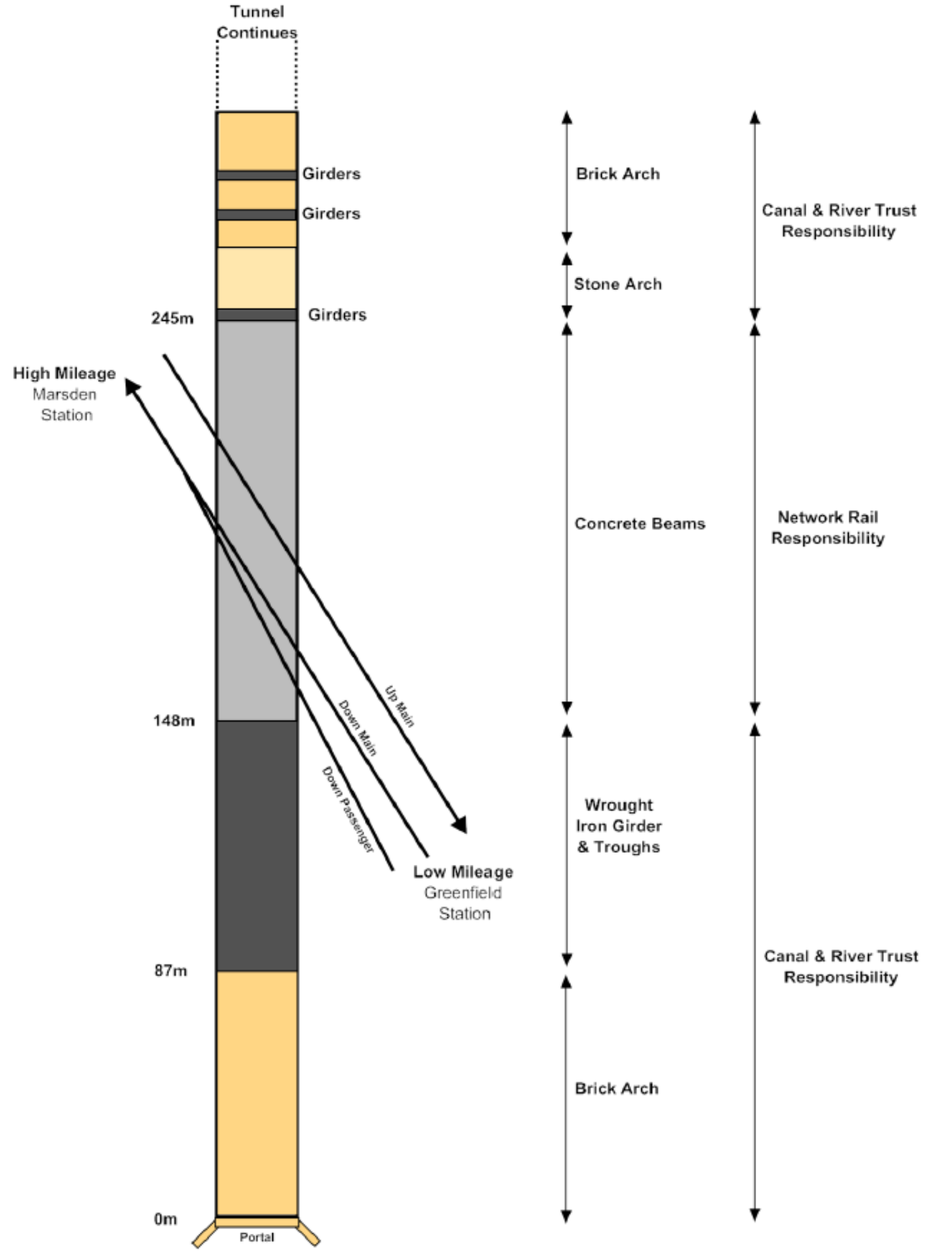
272. The deepest, highest, longest canal tunnel in Britain - YouTube

What we know about the tunnel

- Tunnel is partially owned and managed by Canals and Rivers Trust and partially by Network Rail
- The portion below the railway was reconstructed in early 2000s, replacing the steel deck with concrete slabs

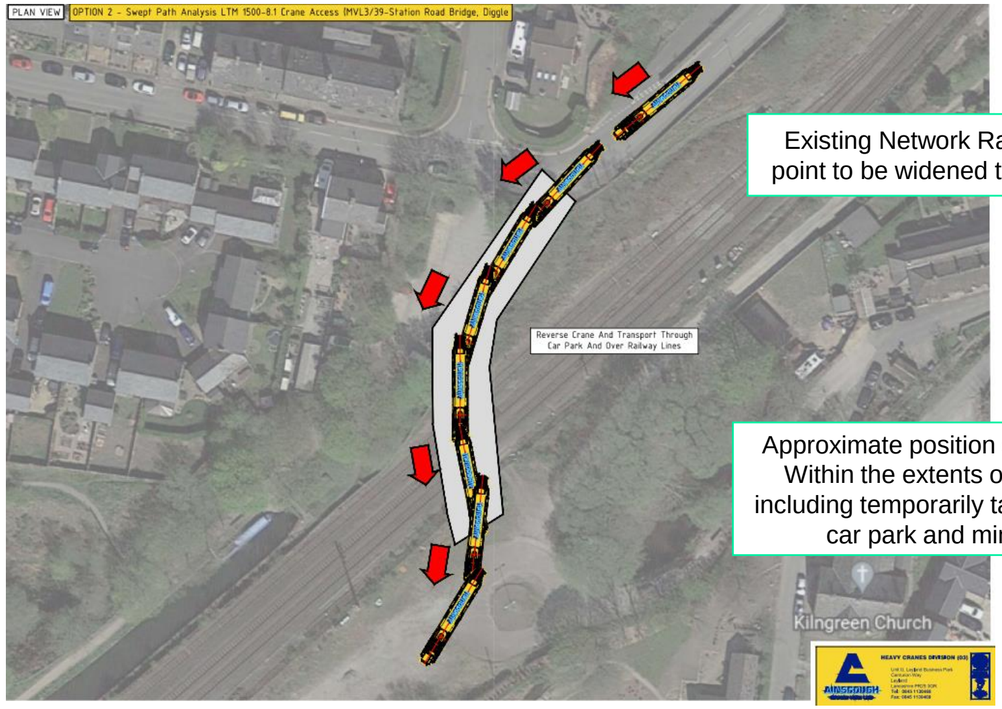


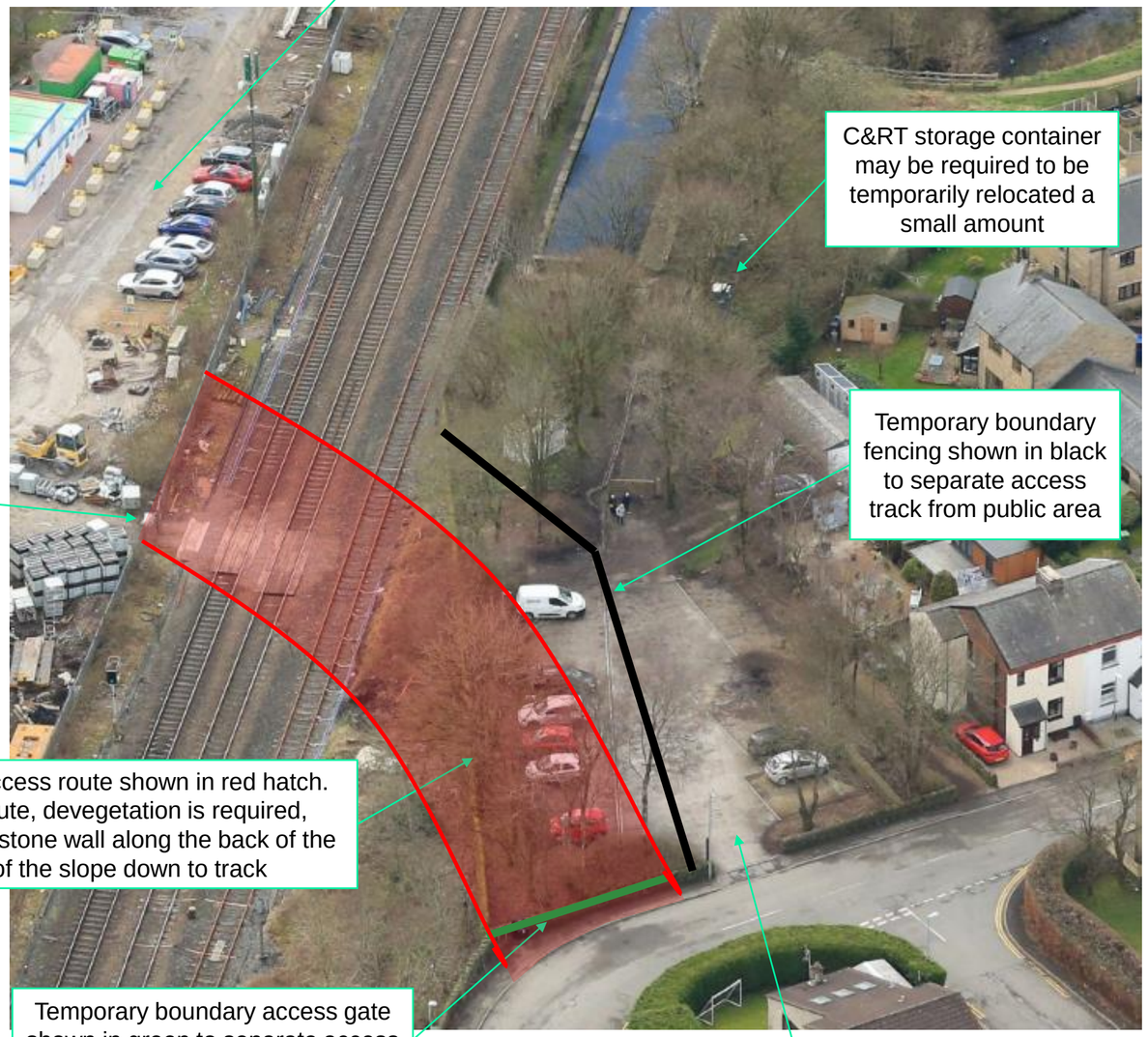
TYPICAL CROSS-SECTION THROUGH CANAL TUNNEL BENEATH TRACK.
(SCALE 1:25)



TRU Project proposal

- During reconstruction of bridges at Ward Lane and Station Road, and potentially other TRU works, access to the railway is required for mobile crane and material/component deliveries
- Due to narrow lanes and junctions leading to existing railway access point, a temporary access route through the existing C&RT car park and over Standedge canal tunnel is necessary
- Temporary partial closure of car park and separation from the public required





Diggle compound with access track running parallel to railway

C&RT storage container may be required to be temporarily relocated a small amount

Temporary boundary fencing shown in black to separate access track from public area

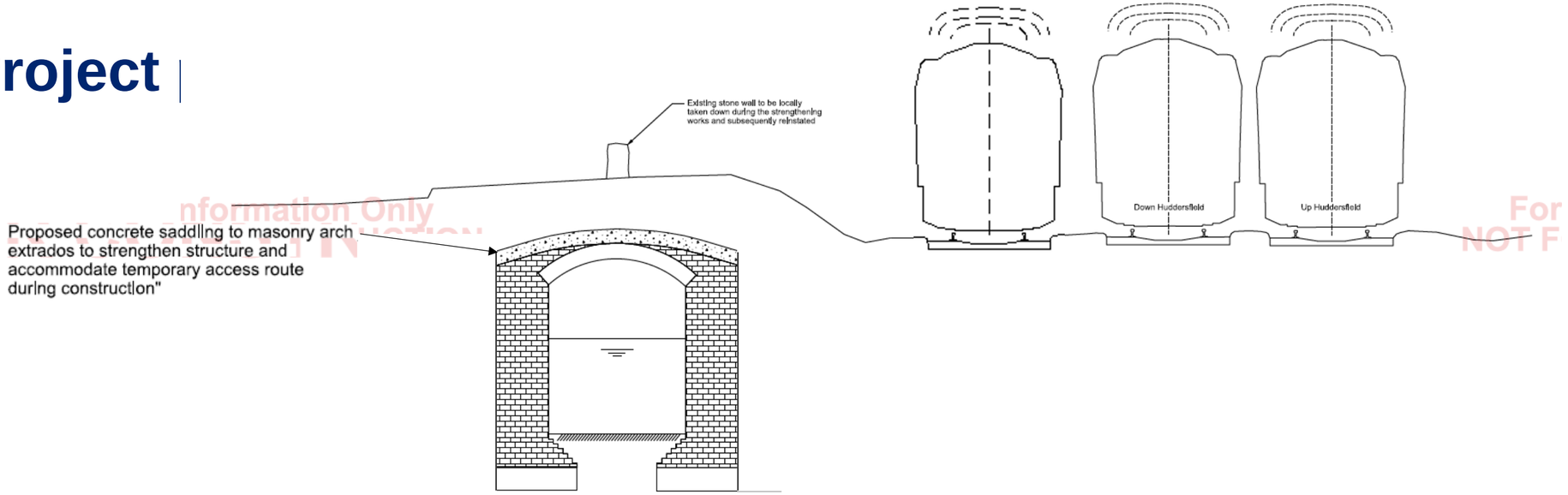
Existing Network Rail access point to be widened temporarily

Approximate position of temporary access route shown in red hatch. Within the extents of this access route, devegetation is required, including temporarily taking down the stone wall along the back of the car park and minor re-profiling of the slope down to track

Temporary boundary access gate shown in green to separate access track from public area

Existing car park vehicular access and a portion of vehicle parking retained. Pedestrian walking route between canal tow path and Sam Road maintained throughout the works

TRU Project



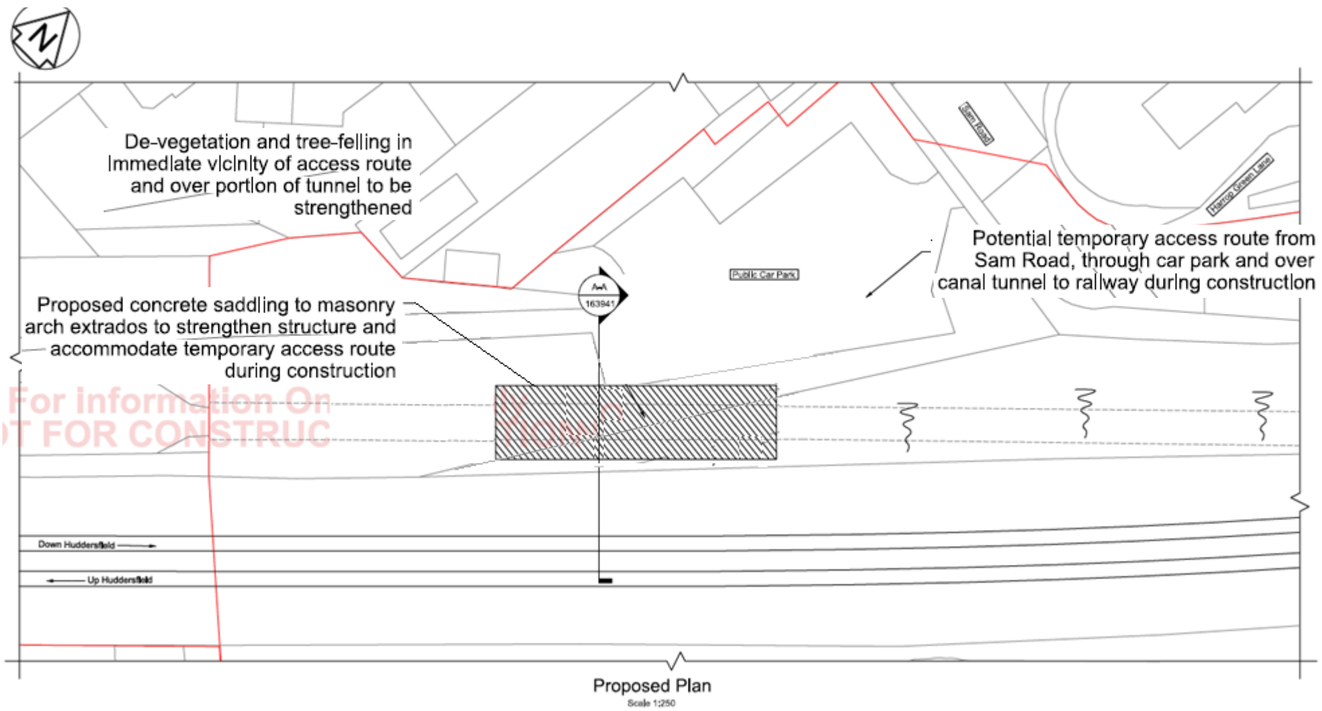
Note: Precise thickness of concrete saddling to be determined at detailed design following numerical assessment of structure

Simplified construction sequence:

1. Take temporary possession of the public car park and create separated area
2. Devegetate work area and take down stone wall.
3. During night-time closures of the canal excavate soil over portion of structure to be saddled.
4. Clean up surface of arch extrados, fix steel reinforcement and cast concrete saddling.
5. During operational canal, backfill over arch up to temporary ground profile and with appropriate materials for us as the access route.

Decommissioning sequence:

1. During operational canal, reinstated original ground profile
2. Rebuild dry stone wall
3. Plant trees
4. Remove temporary fencing and hand back car park.



Discussion

- 02/12/2024

The Trust's position is that we would not want any works with the 'zone of influence' of the tunnel and would not support any works or loading within this area. (Under normal circumstances an area of ground is said to be in the area of influence of a tunnel; this area is calculated by taking a 45 degree line from the tunnel invert and projecting this line to the surface. The area of influence is inside this 45 degree line where it reaches the surface).

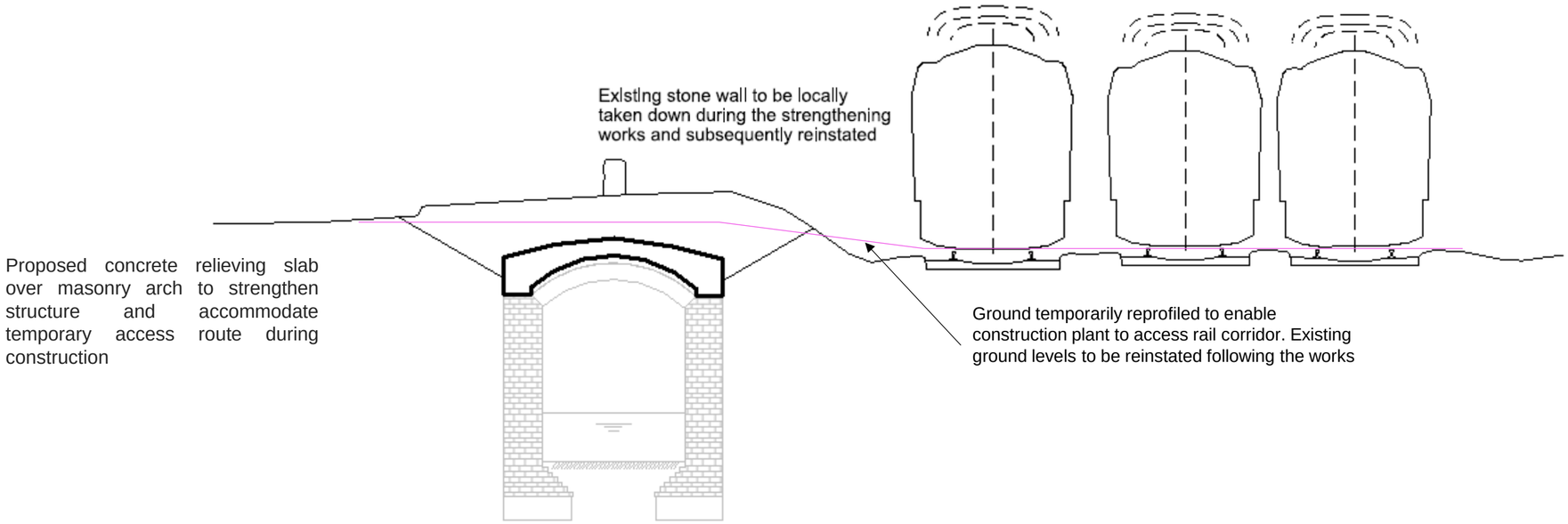
Therefore, any temporary access/structure to be provided here spanning the tunnel needs to be self-supporting and not put any additional loading on the tunnel. We would suggest a Bailey bridge/independent structure with a deck bridging over the tunnel would be more appropriate to guarantee there is no detrimental impact on the tunnel. We would want to see details to demonstrate that the temporary structure to be provided would be independently supported and not place any loading on the tunnel.

- 04/02/2025

In summary the Trust only offers right of support from its Tunnels to the natural land above or any structures that were present at the time of the construction of the tunnel. This applies to all land within the zone of influence of the tunnel. Therefore, the Trust will only accept new construction over its tunnels where the tunnel will not be subjected to new or additional loading.

Saddling the tunnel may provide additional strength to the tunnel but will subject the tunnel to additional dead load as well as the live loading that the saddling has been designed to take. As a result, the Trust would look to see that any structure built over our tunnels is supported on independent foundations that do not impart any loading on the tunnel itself and is not supported by the ground within the zone of influence of the tunnel.

TRU Project proposal – Updated



Note: Precise thickness of concrete relieving slab to be determined at detailed design following numerical assessment of structure

Solution – Relieving Slab

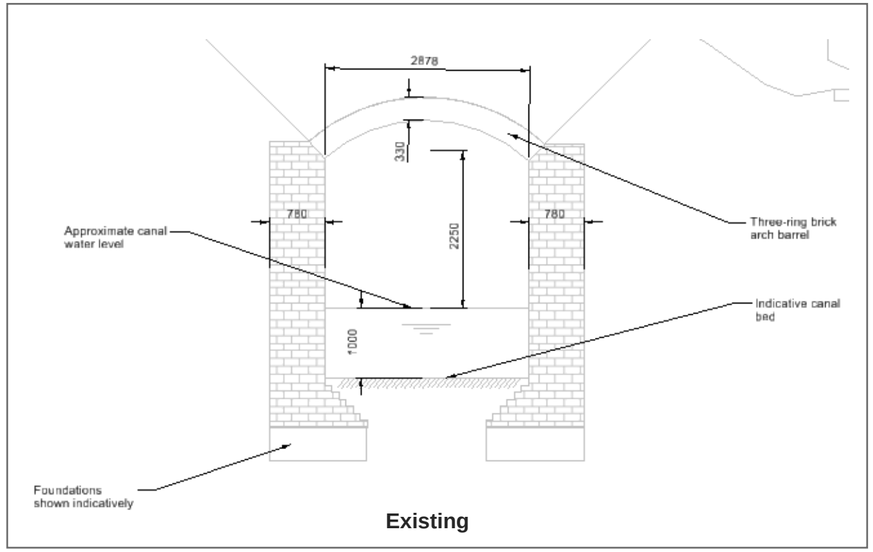
Use existing abutments to support relieving slab.

Compressible board between existing arch barrel and proposed relieving slab such that existing arch barrel is not loaded.

New waterproofing installed and relieving slab provides long term protection for section of tunnel.

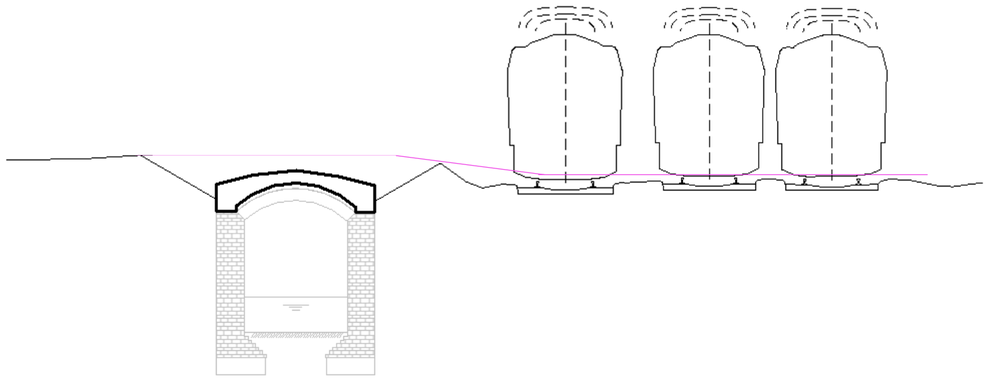
At foundation level of abutment		
Existing load		
Proposed load (temporary case)	+3% *	Includes permanent and temporary live load

* Based on 45 degree load distribution along length of abutment walls



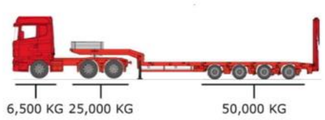
Existing

TRU Project proposal – Updated

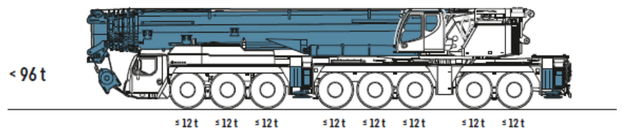


An STGO Category 2 vehicle must not exceed 80,000kg. There are a number of other conditions that apply to the category. Category 2 vehicles must have a minimum of 6 axles, with the combined axle weight not exceeding 12,500kg.

EXAMPLE 2.2

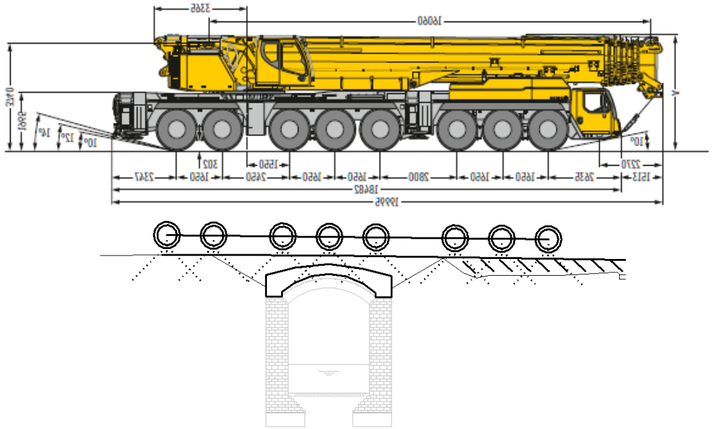


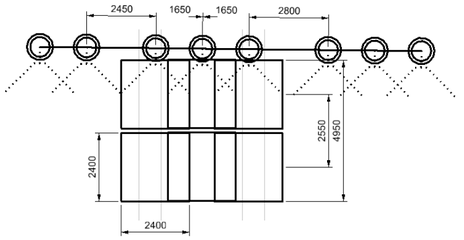
Assuming: Tractor Tare – 9,000KG and Trailer Tare – 13,000KG
then max payload approx 58,000KG



Simplified construction sequence:

1. Take temporary possession of the public car park and create separated area.
2. Devegetate work area and take down stone wall.
3. During designated closures of the canal excavate soil over portion of structure.
4. Clean up surface of arch extrados, install compressible board separation between existing arch barrel and proposed relieving slab such that existing arch barrel is not loaded. Install new waterproofing.
5. Fix steel reinforcement and cast concrete relieving slab.
6. During operational canal, backfill over arch up to temporary ground profile and with appropriate materials for us as the access route.



Decommissioning sequence:

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