TRU Hillhouse Construction Compound - s73 application

Appendix D: Surface Water Strategy

Document Ref 151667-TSA-00-TRU-REP-W-EN-001959

Network Rail

August 2025

Contents

1. INTRODUCTION

1.1 Background

1.2 Background

1.2.1 Planning Permission was granted for a temporary strategic construction facility with retaining wall, environmental mitigation measures and a temporary railway platform facilitate the construction works for the section of the Trans-Pennine Route Upgrade (TRU) between Huddersfield and Westtown (Dewsbury) ('the Scheme') at a site of Alder Street, Huddersfield namely the Hillhouse Yard.

1.2.2 This CTMP supports the submission under section 73 of the Town and County Planning Act 1990 made on behalf of Network Rail and seeks to vary details of the development set out under paragraph 1.1.1 and consented under planning reference 2021/94337 dated 30 March 2022.

1.2.3 It should be noted that certain elements of the proposed development fall under NR's Permitted Development privileges. These did not form part of the approved scheme and were supplied for information only; these include provision of the stabling sidings in the Yard for the train operating company, and the provision of a signing-on/mess facility to serve the sidings in question, along with associated internal access and car parking. It should also be noted that the existing GSM-R mast will remain in situ as part of this temporary works application. There is no change to these elements as part of this submission.

2. SCHEME DESCRIPTION

2.1 The Site and Surrounding Area

2.1.1 The Site is located at Hillhouse railway yard , Alder Street, Fartown is located wholly within the administrative authority of Kirklees Council.

2.2 The Proposal

2.2.1 The proposed Development is a construction facility to enable the construction works for the section of the TRU between Huddersfield and Westtown (Dewsbury).

2.2.2 The proposed Scheme will generally be delivered in line with the approved planning permission.

2.3 Phased development

2.3.1 The construction site will be used by the civils and rail systems engineers and will include laydown areas for the receipt and storage of the overhead line equipment (OLE) and trackwork. The laydown area for OLE would be located in the northern part of the compound. A laydown area is also proposed for permanent way works including an area where the trackwork will be fabricated. The Site will also be used for storage of waste and excavated material. Active plant and machinery would be present on site.

2.3.2 Construction and project management activities to service the wider Scheme will also be undertaken from the Site. The Site will make provision for welfare cabins for construction staff (see Section 2.5).

2.3.3 Works associated with the Proposed Development will be undertaken in two stages, comprising a number of elements within each stage:

- Stage 1:
  - Use of the Site for construction of Advanced Works to the Order;
  - Construction of retaining wall (works complete);
  - Construction of environmental mitigation measures (noise attenuation);
  - Construction of railway sidings (works complete);
  - Provision of welfare for civils and rail systems staff (works complete);
  - Material Storage (works complete);
  - Limited staff parking; and
  - Associated utilities/drainage work (complete).
- Stage 2:
  - Use of the Site as a strategic construction compound to facilitate the TRU works between Huddersfield and Westtown (Dewsbury);
  - Material Storage; and
  - Provision of welfare for civils and rail systems staff.

3. SURFACE WATER STRATEGY

3.1 General principles

3.1.1 The following details surface water management works undertaken during Phase 1. All surface water will remain within the Site until treated. During the development of the Site, earthworks will be staged, and several controls utilised including:

- Earthwork's sequencing using contours to create low points to attenuate surface water;
- Silt fencing and earth bunding around the perimeter, where necessary;
- Use of Witches Hat for gully protection;
- Siltbuster;
- Separator;
- Attenuation tank; and
- Jet wash facilities will be established along with the enabling compound to ensure vehicles leaving site are clean.

3.1.2 There are several internal management documents that will be utilised throughout the project to ensure compliance is achieved, this includes:

- NP27: Environmental Management;
- NP27.1 Water Management; and
- EG01: Controls for the prevention of water pollution.

3.1.3 Installation of earth bunds will be used where required to assist with the contouring of earthworks to control water flows on site. From attenuation areas any ponding water will be pumped through a silt buster, and either discharged initially into the public drainage network, and then into the buried attenuation system on Site (once constructed).

3.2 Phase 1

Drainage measures during establishment of enabling compound

3.2.1 The installation of the enabling compound is not expected to cause any changes to the current surface water runoff. All the existing hardstand areas will remain in place during this stage, with no change to the access proposed. The compound is established in a low area of the Site, where imported material will be placed and graded to ensure surface water remains on site and is in a location that can be pumped away if required.

3.2.2 During this stage, water will either be:

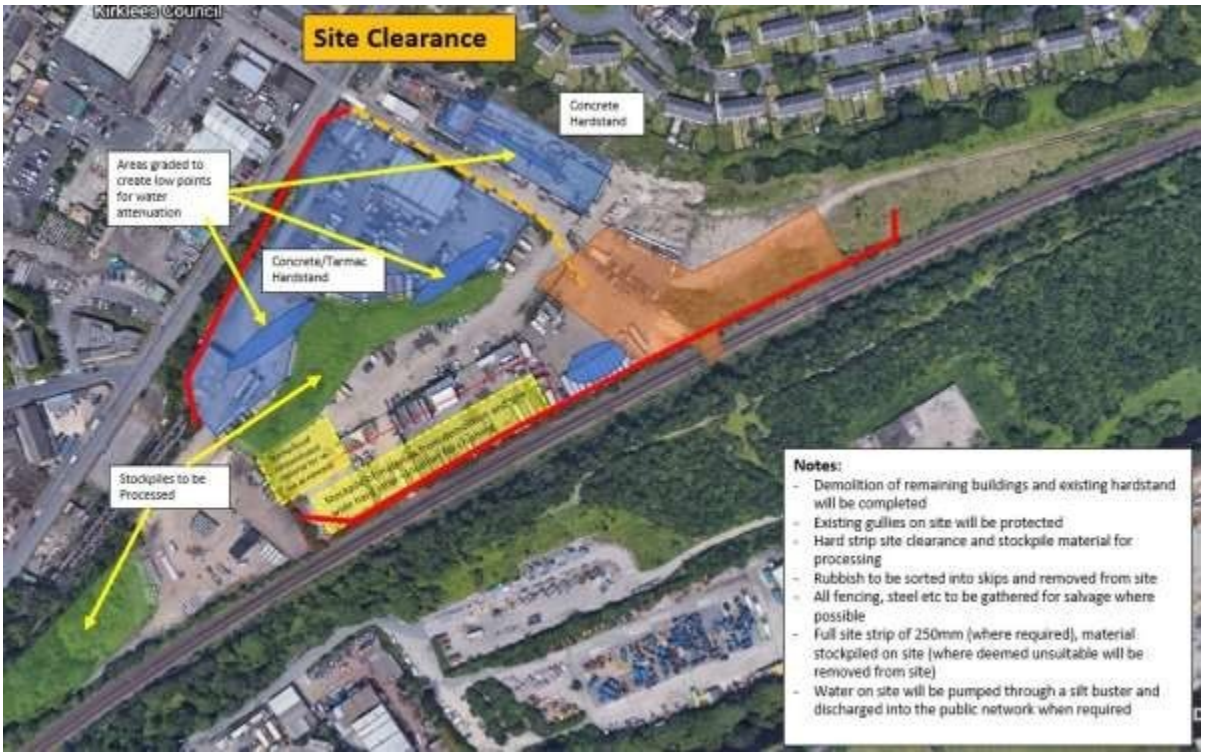
- Collected in a vacuum truck and removed from site for disposal;
- Pumped from the low point to a grass/vegetated area to remove sediments in the water. This will be monitored to ensure that pumped water drains naturally and to ensure the quality of water discharge from site; or
- Treated through a silt buster and discharged into the public network;
- Discharge to the public sewer will be restricted to 2.5l/sec per ha.

Insert 3-1 Drainage arrangements during establishment of Enabling Compound

Drainage measures during site clearance phase

3.2.3 During this stage, water will be controlled on site by:

- Earth bunding will be extended if required to cover other perimeters of site;
- All existing drains will be investigated prior to work disturbing the existing surface. Any redundant pipes will be removed and filled to ensure unwanted water is not discharge from site through these;
- All gullies on site will be protected using witch's hats, and where feasible removed and infilled;
- The existing ground will be contoured to ensure water naturally flows to designated low points within site and any ponding water can be treated from there. A GPS will be on site and will be used by the site team to ensure levels are controlled; and
- Ponding water will be removed from site by controlling the sediment content with a silt buster, and the clean water will be pumped into the existing public drainage network. Discharge to the public sewer will be restricted to 2.5l/sec per hectare



Insert 3-2 Drainage arrangements during site clearance works

Drainage measures during preparation of site to formation levels

3.2.4 As with the previous activities, the earthworks will be contoured to ensure that there is no unwanted discharge of sediment laden water off site.

3.2.5 In this phase, the surface water controls will include:

- Bunding, contouring, silt fence installation, as necessary;
- Installation of an oil separator and an attenuation tank connected to a temporary manhole; and
- 2" submersible pump to enable discharge to manhole near Red Doles Underbridge.

3.2.6 A 200m³ attenuation tank will be constructed (the tank will be located to the southeast of the site entrance and will measure 10m x 10m x 2m). The tank will be connected to a temporary manhole using a control flow regulator; and a 2" submersible pump will be installed in the manhole, and layflat hose extended to a discharge manhole near Red Doles Underbridge (Red Doles Road). Details of the location of the attenuation tank are provided in drawing 151667-TSA-31-MVL-DRG-D-DR-062001 (see Appendix A). The storage capacity is based on a peak discharge rate of 92l/s for the 1 in 100 year storm event plus 40% climate change, based on 30% betterment of the assumed brownfield discharge of 123l/s (based on impermeable area of 0.88ha at 140l/s/ha. The remainder of the compound area (total area (within red line boundary) is 1.3ha) area will remain relatively unchanged to present and so will remain free draining.

3.2.7 Details of the modelling demonstrating the appropriateness of the proposed attenuation is included at Appendix B.

Insert 3-3 Drainage arrangements site preparation works

3.3 Drainage measures during access /spine road construction

3.3.1 This work involves construction of a spine road through site, access to the southern end of site past our construction compound, construction of a bellmouth and improvement to the entrance onto Alder Street.

3.3.2 During this stage, surface water measures will include:

- Full site wide drainage network with both stormwater and foul sewer being connected into an existing combined sewer network near the entrance in Alder Street;
- Installation of a permanent separator; and
- A 200m³ attenuation tank.

3.3.3 The completion of this section of works provides the opportunity to connect the site-wide stormwater controls into the permanent design.

3.4 Phase 2

<u>Drainage measures during the Site's use as a strategic construction compound</u>

3.4.1 The completion of this compound will include a drainage network designed to take water flows from within the Site as required prior to tarmac surfacing being completed on the remainder of the Development. This network will:

- Provide a series of gullies within the compound area to task away any surface water;
- Water from gullies will go through buried interceptor and attenuation tank. Attenuated water will be removed from site via a flow regulator manhole and discharged into the site wide drainage network;

- All water within the site-wide drainage network will be discharged into the public system via an additional attenuation system installed as part of the permanent works design. Discharge to the public sewer will be restricted to 2.5l/sec per ha.
- All remaining surface water on site will be pumped through a silt buster and through the interceptor/attenuation system; and
- Management of compound construction water will be detailed in a temporary works design to ensure suitable flows, attenuation and outfalls are accounted for.

3.4.2 Further details relating to site drainage have been submitted pursuant to conditions 23, 24 and 25 of the original permission (2021/94337). These were approved under planning refs 2023/91827 and 2022/92438 25 July 2024 on 14 August 2024. There are no impacts on those approved conditions as a result of this application.

APPENDICES

APPENDIX A: DRAINAGE DRAWING

NetworkRail

Authorised		Signed	Date
Contractor(s)	TRU West Alliance		
Location	STALYBRIDGE STN - HEATON LODGE JN (HUDD-MANC LINE)		
Type	CAD Drawing	Sub-type	General Arrangement
Role	Drainage and Highways Engineer	Sub-Role	Drainage
Zone	Hillhouse and Fartown		
Phasing	Proposed	Project Stage	GRIP 4
Project	Transpennine Route Upgrade		
Contract No.	151667		
Contract Title	West of Leeds		
Drawing Title	W3 - 31 - Hillhouse Sidings Drainage General Arrangement Sheet 1		
Designed	M.Canalsmir	Signed	Date 03/05/22
Drawn	C.Taylor	Signed	Date 03/05/22
Checked		Signed	Date
Approved		Signed	Date
Scale(s)	1:250	ELR & Mileage	026.0500 to 026.1484
Alternative Reference		Sheet	1 of 2
Drawing Number	151667-TSA-31-MVL3-DRG-D-DR-062001	Revision	P03.1

Sheet Size A0+8 841 x 2869

APPENDIX B: FLOOD MODELLING

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)		Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)		Minimum Backdrop Height (m)	0.200
Ratio-R		Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)		Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Storage	0.700	5.00	100.000	0.000	0.000	2.000

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	20	0	0

Node Storage Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	98.000	Product Number	CTL-SHE-0054-1800-2000-1800
Design Depth (m)	2.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.8	Min Node Diameter (mm)	1200

Node Storage Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	199.9	0.0	1.000	199.9	0.0	1.001	0.0	0.0

Results for 2 year +20% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Storage	1350	98.959	0.959	8.2	198.3540	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Storage	Hydro-Brake®	1.3	105.2

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