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SINDALL**

INFRASTRUCTURE

MORGAN SINDALL

4M3000 – PEAK EAST VIP

16866-MSI-1401-XX-PL-W-050005

TRAFFIC MANAGEMENT PLAN

nationalgrid

Revision	Date	Author	Checked By	Approved By	Revision detail
A	Dec 20	D. Swan	Z. Lonsdale	I. Maddison	Initial revision to incorporate NG outline TMP specifics

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)

Appendix. F Traffic Management Plan (TMP)

CONSTRUCTION PHASE**Health and Safety**

Morgan Sindall business unit / region:	Energy & Water		
Project name:	NG VIP Peak East 400kV		
Project no.:	4M3000		
Customer:	National Grid		
Location:	Dunford Bridge		
Revision no.:	RevA	Date:	December 2020

For full revision schedule see section one of Project Execution Plan (PEP) Part 1 for CPHSP.

Appendix F Traffic Management Plan (TMP)

Date	Section / Page No	Description of Amendments	Initials
16/09/2020	All	Initial revision to incorporate NG outline TMP specifics	DS

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1.0 Introduction

Morgan Sindall on behalf of National Grid are undergrounding part of the existing overhead line in and adjacent to a section of the Peak District National Park. The Peak East Visual Impact Provision (VIP) scope of works aims to reduce the visual impact of National Grid's overhead line near Dunford Bridge, west of Barnsley. As part of the Peak East scheme, new 400kV cables will replace a section of overhead line that passes through this area. The full scope of works entails the design, supply, installation, test and commissioning of a double circuit, 400kV underground cable system with a route length of approximately 2km, a 400kV Cable Sealing End Compound (CSEC). 8 towers will be permanently removed (4ZO 164 – 4ZO 157), and 1 tower shall be installed (4ZO 157R). The existing CSEC at Dunford Bridge shall be decommissioned and the area returned to grassland.

This Construction Traffic Management Plan (CTMP) has been produced for the Visual Impact Provision (VIP) Peak District (East) Project (hereafter referred to as the Proposed Project) at Dunford Bridge. This CTMP should be read in conjunction with Chapter 12 (Transport) of the Environmental Assessment Report (EAR). Further information on VIP and the Proposed Project is provided in Chapters 1 (Introduction) and 2 (Project Description) of the Environmental Assessment Report, however for context a summary of the key components of the Proposed Project is provided below:

The undergrounding of the VIP Subsection includes the following main elements that comprise the Proposed Project.

- Removal of the existing Dunford Bridge Sealing End Compound (SEC) to a depth of 1.1m below ground level.
- Removal of the existing VIP Subsection including approximately eight pylons (one of which will be replaced, see replacement tension pylon below) and 2km of OHL.
- Underground Cable 'here on referred to as the Cable Corridor' of approximately 1.8km along the Trans Pennine Trail from the entrance of the Woodhead Tunnel to a proposed new SEC.
- Construction of a new SEC (within Wogden Foot) and replacement tension pylon (with the circuits terminating onto two full tension gantries within the SEC) to connect the Cable Corridor to the remaining existing OHL. A permanent access off the Trans Pennine Trail will be required to the proposed SEC.
- Temporary laydown areas, access tracks (to the pylons to be removed and along the Trans Pennine Trail to the SEC at Wogden Foot) and site offices to facilitate construction activities. Two access tracks will require the temporary widening of a bellmouth.
- Construction and removal of a temporary Trans Pennine Trail diversion for use during the construction phase of the Proposed Project (the diversion will involve the use of two bridges, one being a permanent replacement of an existing bridge over the River Don; the other a temporary bridge to cross over the River Don). The diversion is proposed in farmland immediately north of the River Don.

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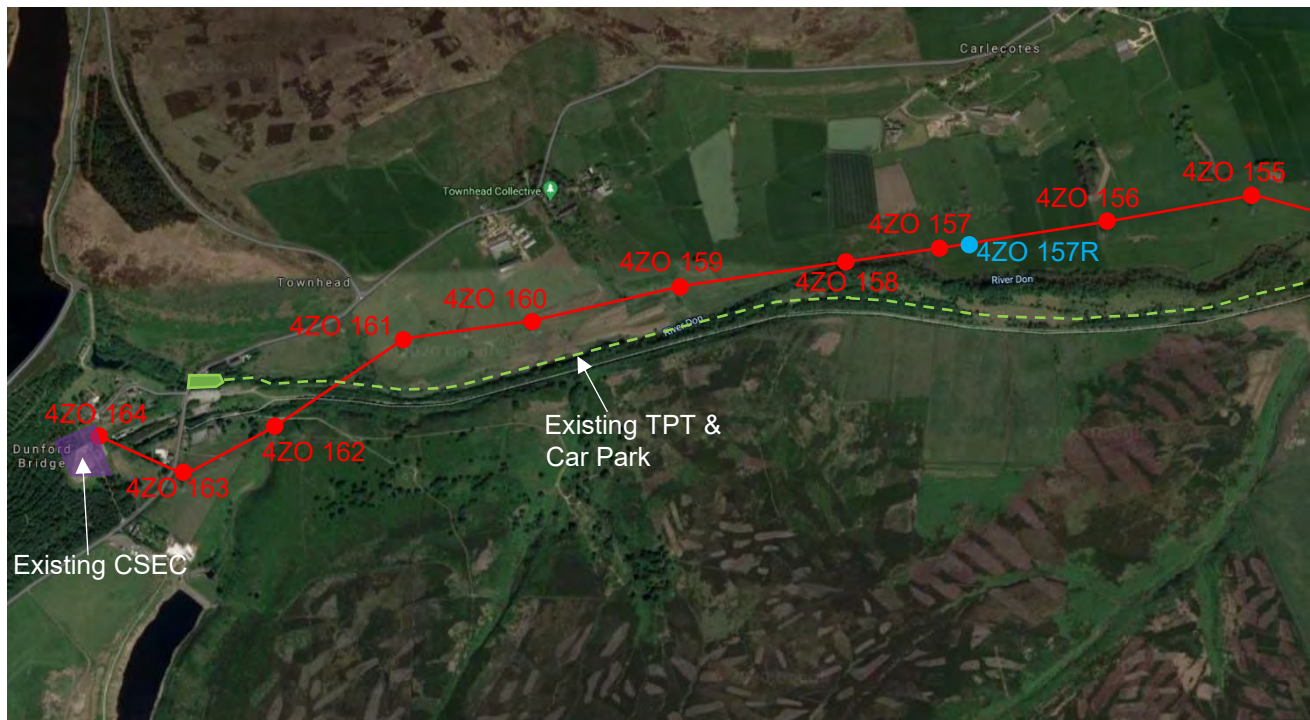


Fig.1 Overview of project area.

Full planning permission was approved by committee for the following development activities under the Town and Country Planning Act 1990 from Barnsley Metropolitan Borough Council (on 16.06.20 – decision notice issued 21.09.20) and Peak District National Park Authority (on 15.05.20 – decision notice dated 08.10.20).

- **Trans Pennine Trail Diversion** – including construction of Permanent Bridge 1 and Temporary Bridge 2, and associated laydown areas.
- **New Sealing End Compound (SEC)** - including associated laydown areas and construction of the permanent access to the SEC.
- **Access Point 7 and Northern Access Road.**

All other works related to the Proposed Project, including most of that which falls within the Peak District National Park, constitutes 'Permitted Development' under Schedule 2 of the Town and Country (General Permitted Development) (England) Order 2015, subject to the conditions in the order, are covered by an exemption under the Electricity Act or are considered not development as shown on the Consents overview drawing (Planning Drawing PKD_660952_001).

An outline CTMP was submitted with the planning application. This has been included and developed further into this final version and is submitted to discharge Planning Condition 11 from Barnsley Metropolitan Borough Council (2019/1013) as follows:

"No development shall take place, including any works of demolition, until the updated Construction Traffic Management Plan (CTMP) has been submitted to, and approved in writing by, the Local Planning Authority. The approved statement shall be adhered to throughout the construction period. The statement shall provide for:

- The parking of vehicles of site operatives and visitors*
- Means of access for construction traffic*

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- iii. Method of control of access to prevent queuing of site traffic on the public highway*
 - iv. Means of parking provision to prevent any parking on the public highway*
 - v. Loading and unloading of plant and materials*
 - vi. Storage of plant and materials used in constructing the development*
 - vii. Measures to prevent mud/debris being deposited on the public highway.*
- Reason: In the interests of highway."*

Throughout the planning determination process (August 2019 – June 2020) there has been ongoing liaison between National Grid and Barnsley Metropolitan Borough Council Highways department and recommendations made for the CTMP. Any suggestions made by the highways team have been incorporated within this final report.

The following planning conditions (Barnsley Metropolitan Borough Council) also relate to transport and highways matters:

Planning Condition 10:

Notwithstanding the details indicated on the submitted drawings no works shall commence on site until a detailed scheme for any off-site highway works has been submitted to and approved in writing by the LPA.

Details of work include:

- i. traffic signs*
- ii. road markings*
- iii. alterations to the highway in respect of carriageway resurfacing and verge hardening/drainage requirements.*

The development shall be carried out in accordance with the approved scheme for any off-site highway works.

Reason: To ensure that the highway works are designed to an appropriate standard in the interest of highway safety.

Planning Condition 12:

No development shall take place until a survey of the condition of the adopted highway condition to be used by construction traffic has been submitted to and approved in writing by the LPA. The extent of the area to be surveyed must be agreed by the LHA prior to the survey being undertaken. Additional interim surveys to be agreed prior to commencement of works (quantum dependant on project start date) and are initially expected to be required at approximately 4 monthly intervals and include both the start at end of the winter season (dependant on project start). Final survey to be undertaken on completion of the development. Each survey must consist of:

A plan to a scale of 1:1250 showing the location of all defects identified

A written and photographic record of all defects with the corresponding location references accompanied by a description of the extent of the assessed area and a record of the date, time and weather conditions at the time of survey.

Each survey is required to identify defects to the adopted highway attributable to the traffic associated with the development. It shall be submitted for the written approval of the Local Planning Authority. Any necessary remedial works shall be completed at the developer's expense in accordance with a scheme to be agreed in writing by the Local Planning Authority. Reason: To ensure that any damage to the adopted highway sustained throughout the development process is identified and subsequently remedied at the expense of the developer.

Reason: In the interests of highway safety and Local Plan Policy T4.

Planning Condition 13:

The vehicular access point from Windle Edge to Wogden Foot (AP7) shall be provided and retained for the duration of the project in at the position shown on the approved plan PDD-33492-LAY083 REV P5 AP7

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Visibility Splays and constructed in accordance with the BMBC highway specification, or other specification to be agreed with BMBC highways officers.

Reason: To ensure satisfactory access into the site and avoid the carriage of extraneous material or surface water from or onto the highway and in the interests of highway safety.

Planning Condition 14:

A visibility splay shall be provided in full accordance with the details indicated on the approved plan PDD-33492-LAY083 REV P5 AP7 Visibility Splays. The splay shall thereafter be maintained throughout the use of this construction access, free from any obstruction exceeding 1.05m above the level of the adjacent highway carriageway.

Reason: In the interests of highway safety and Local Plan Policy T4.

Planning Condition 15:

Upon completion of the development the land utilised for access point AP7 shall be fully reinstated, including the dry-stone wall along its existing route, to the satisfaction of the Local Planning Authority. A timetable and detailed plans for these works shall be submitted upon commencement of the development.

Reason: In the interests of the visual amenities of the locality in accordance with Local Plan Policy D1.

1.1 Aim

The aim of this plan is to describe the access / egress arrangements for vehicles and pedestrians onto the Peak East 400kV VIP scheme construction site including the movement of vehicles in and around site and the offloading of stores and materials. The main aim of this document is to keep disruption and nuisance from the construction activities to both local communities and the environment to a minimum and minimise construction traffic especially in peak periods.

It is intended that the Traffic Management Plan (TMP) is a standalone live document (and appendix to the Construction Phase Health and Safety Plan (CPHSP)) that will be updated and modified as agreed with the relevant authorities as the project progresses and as details are clarified prior to the start of works on site. The TMP may also need modification to reflect other developments in the area whose details are uncertain but, subject to their programmes and progress, may have a cumulative effect on the public highway network at the time of construction of the project.

The plan will be reviewed by Morgan Sindall's Traffic Management Group frequently and revised to allow for the development of the site and the environment. This will be done by the Transport Coordinator with the responsibility for logistics with assistance from the Project Manager and project safety advisor.

This TMP proposes mitigation for minimising disruption to existing users on the public highway network and Public Rights of Way (PRoW) caused by construction works for the project. These include managing construction Heavy Goods Vehicle (HGV) and Light Goods Vehicle (LGV) traffic along the main access routes to and from the site compounds.

This TMP sets out the strategy and measures to be adopted within the project in respect to construction traffic in order to:

- To ensure that the movement of people and materials are achieved in a safe, efficient, timely and sustainable manner;
- Facilitate site access points and routes for the delivery of construction materials and equipment;
- Provide temporary access routes within site working areas where necessary;
- Carry out construction activities within prescribed times as may be required within the planning consent;

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- Manage the impacts arising from temporary closure of roads and public rights of way required at times during the project, including the provision of alternative diversion routes where possible;
- Maintain communication with local authorities and residents throughout construction activities and monitor the conditions of the highway surfaces;
- To keep construction traffic to a minimum during network peaks to reduce the impact on the highway network during busy periods;
- To ensure that the impact and disruption to the local communities and visitors is minimised;
- To minimise construction trips where possible;
- To ensure the continued monitoring, review and subsequent improvement of the CTMP and measures contained herein;
- To limit the impacts on the Strategic Road Network (SRN) and Local Road Network (LRN); and
- Limit the impacts on the natural and built environment.

The main content of the TMP has been informed by the EAR and Outline CTMP that accompanied the planning application.

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The site is approximately 2 km long and sits roughly 19km West of Barnsley and 14km to the South of Huddersfield.



The existing cable route runs through the Woodhead tunnel and exits via a shaft to the existing CSEC. The above ground cables are routed mainly on agricultural land on the sides of the valley. The cables are proposed to be routed through the tunnel portal and placed in troughs and ducts along the route of the existing Trans Pennine Trail.

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2.1 Project Traffic Route Map – Access to the Strategic Traffic Network.

To provide safe and responsible construction access to the Proposed Project and to help achieve the objectives of this CTMP, the following principles have been used to draw up a suitable access strategy:

- Use the shortest route from the Proposed Project to the LRN, primary and SRN;
- As far as possible, reduce the construction traffic impact on settlements, farmsteads and sensitive receptors;
- Minimise travel on the LRN and maximise use of the haul roads and temporary access roads; and
- Use road sections with good forward visibility, adequate width and suitable gradient.

The A628, Goddard Lane, Windle Edge and Brook Hill Lane together will serve as the main access route to all Access Points. All Heavy Goods Vehicles (HGV) and Light Good Vehicles (LGV) would access the Proposed Project via the A628 and Goddard Lane/Windle Edge.

Emergency access to site will be taken via the site access roads identified in this CTMP (see Table 1 below), in the unlikely event of an incident. The access routes are shown on drawing PDD-33492-LAY-072 included in Appendix B. Further details of the access tracks are provided in a suite of drawings, the references to which are contained within PDD-33492-LAY-072 or contained in Appendix D. Appendix B also contains PDD-33492-LAY-055, which provides the details of the proposed Trans Pennine Trail construction..

The routing strategy proposed within this CTMP is subject to planning condition 11 and will therefore be discharged to comply with the statutory requirement. All access points are subject to landowner agreement and any changes to the proposed routing strategy would be agreed in consultation with the local highway authority. prior to its implementation.

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2.2 Project Traffic Route Map – Access to the Local Traffic Network.

The site interacts with the local traffic network via a series of access points as indicated on Figure 1. Their description and use are detailed in the table below and will form part of the induction pack indicating to all the access and egress to all parts of the site works.

Access Point Reference	Location of Proposed Access Point	Proposed Routing Strategy from the SRN
AP1	Access Point reference not used	
AP2	Windle Edge junction with an unnamed farmer's track. AP2 is on the eastern side of Windle Edge.	A628 – Goddard Lane – Windle Edge
AP3	Windle Edge junction with the private access track to the Dunford Bridge SEC. AP3 is on the western side of Windle Edge.	A628 – Goddard Lane – Windle Edge
AP4	Windle Edge junction with the pedestrian/ cyclist only access to the Trans Pennine Trail, skirting the northern perimeter wall of the Stanhope Hotel. AP4 is on the eastern side of Windle Edge.	A628 – Goddard Lane – Windle Edge
AP5	Windle Edge junction with the Trans Pennine Trail users' car park. AP5 is on the eastern side of Windle Edge	A628 – Goddard Lane – Windle Edge
AP6	Brook Hill Lane east of Dunford Road. AP6 is on the southern side of Brook Hill Lane.	A628 – Goddard Lane – Windle Edge – Brook Hill Lane
AP7	Brook Hill Lane, on the right-hand bend, to the north of the farmstead, and approximately 650m to the east of Dunford Bridge	A628 – Goddard Lane – Windle Edge – Brook Hill Lane

Table 1 – List of interactions with local traffic network

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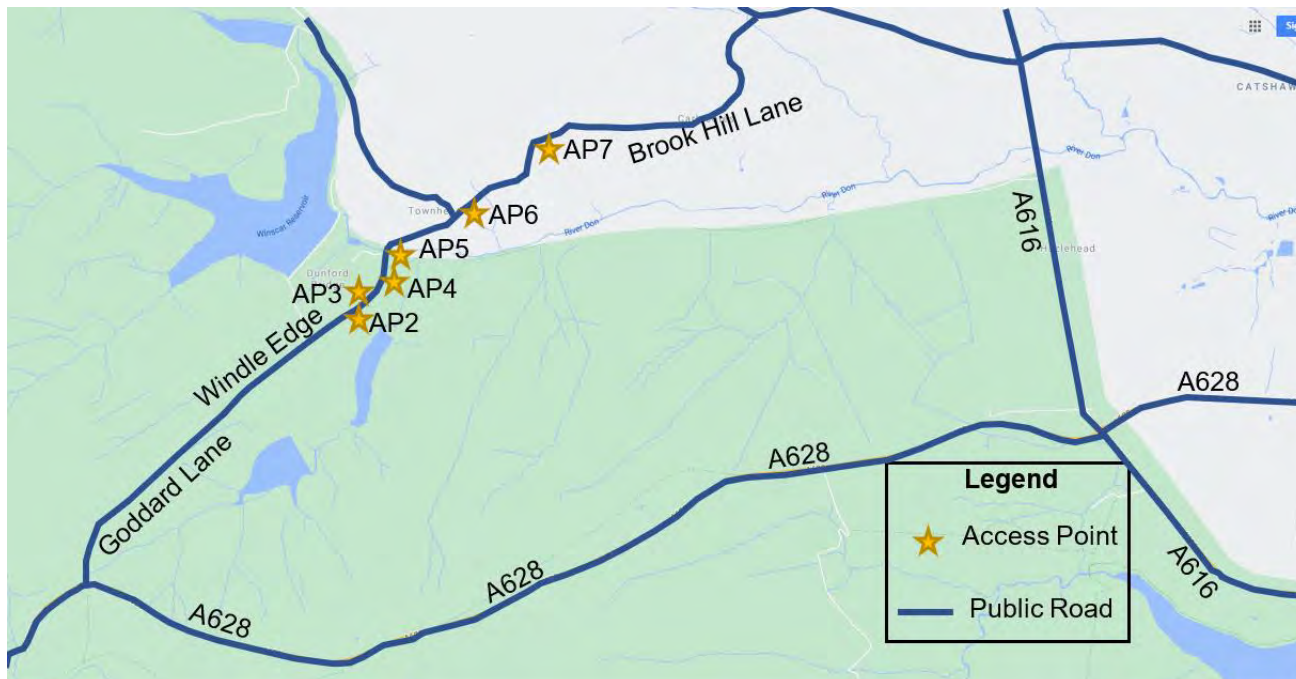


Figure 1. Location of proposed access & egress point to the surrounding area and highway network

For ease of reference, the bellmouth locations on the LRN, primary or SRN from where an access is taken to the Proposed Project have been designated as Access Points (AP). Where access roads meet the public highways, access points will be created unless they are already present, and in such cases, they will be enhanced.

To create a suitable AP off the LRN, existing accesses from public highways will be widened, if needed, to allow the longest construction vehicle (12m to 16.4m in length) to exit/enter the highway safely and without causing an obstruction to other road users. All APs will be gated and access during the works may be controlled by on-site security. Each AP shall be individually designed to meet local conditions and this may involve the removal of topsoil/subsoil and possibly removal (or height reduction/ laying of vegetation) and/or existing boundary fences and gates.

The AP references and the proposed routing strategy from each AP to the nearest point on the SRN are detailed in Table 1. All APs identified in Table 1, are existing apart from AP7, which is located slightly to the east of the existing farmers access gate. The highway geometric requirements for the new temporary APs, and the need for upgrading the existing APs, to enable construction traffic to safely enter and exit the site, is covered in a separate access point schedule included in Appendix B, and in drawing numbers PDD-33492-LAY-027, PDD-33492-LAY-28, PDD-33492-LAY-29 & PDD-33492-LAY-083_P5, also included at Appendix B.

The proposed access points have been assessed and meet the required visibility requirements, subject to a few minor works being carried out. AP3 requires the existing vegetation to be trimmed back and a slight height reduction of the existing dry-stone wall. AP5 the existing vegetation is to be cleared and the sign re-located. It has been proposed to reduce the height of the existing adjacent stone wall; however, this will result in reduced height edge protection for pedestrians using the bridge on Windle Edge. Further consultation with BMBC to be

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held to provide suitable solution, if required. AP6 & AP7 will require the removal and part removal of sections of the existing dry-stone walls.

It is proposed that the main access points will be manned by a suitably qualified banksman (e.g. LANTRA accredited), to ensure that all vehicles can access and exit the Proposed Project in an adequate, safe and orderly manner without detriment to the public highway.

Access point AP6 currently has a single gate to enter the site. The width of this access point shall be increased to allow for double gates to be installed and to enable vehicles to enter and leave the sites in a safe manner. These gates will be set back from the highway to allow vehicles to turn off the highway and park in the area prior to opening the gates and gaining access to the sites. At AP07 the existing stone wall shall be taken down to create to access onto the haul road. Double gates are located significantly down the haul road, so three HGV's can pull off the LRN and not cause congestion. It is worth noting that all access points will be temporary access points, which will be returned to their current layout at the end of the construction period.

To minimise any effects on non-motorised users speed restrictions proposed are shown on PDD-33492-LAY-072. Where the Trans Pennine Trail follows Goddard Lane/ Windle Edge there will be a number of speed restrictions in place. A 20mph speed limit will be introduced along sections of Goddard Lane and Windle Edge/Brook Hill Lane between the access road entrance to Winscar reservoir (west of Access Point 2) and Access Point 7 for the duration of the works. Additionally, between the access road entrance to Winscar reservoir and the A628 a 40mph speed limit will be introduced

Consents Required

Section 171 licences shall be required for the following access points AP2, AP3, AP5, AP6 and AP7. S184 notices shall also be required for the works at AP2, AP3, AP6 and AP7.

A planning condition has been imposed by BMBC, stating that a road condition survey shall be carried out prior to the works commencing and at regular intervals throughout the duration of the scheme and another post completion of the works. The road condition survey has been discussed with Lee Francis from BMBC and a site visit was arranged for 14th October 2020. It was agreed that the road condition survey shall be split into two sections. The first will commence 100m west of AP2 and extend to 100m east of AP5. The second section shall commence 100m west of AP6 and extend to 100m east of AP7.

2.3 Primary Construction Site Access Points

There will be two locations for site access. AP7, will give access to the proposed Wogden Foot CSEC and the proposed temporary bridge via the northern haul road. AP5 will give access to the main site offices and compound, Woodhead tunnel, permanent bridge replacement and the west end of the Trans Pennine Trail. Site offices at both locations allow all personnel to sign in. Inductions will be carried out at the main site compound and will include briefing on traffic routes and procedures. Staff and visitors will access site from AP5 and park at the site office. The following vehicle types are expected to use this access point:

- Light Goods Vehicle (LGV),
- 10m rigid truck,
- 16.5m articulated lorry,
- 18m low loader (Plant Transport)
- 20m All-Terrain mobile crane, (200 tonne lift capacity)
- Low Loader with 45t cable drum

Expected vehicle movements have been forecast for the project and can be seen in Appendix C.

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2.4 Deliveries

Deliveries to site shall be scheduled to working times of the site. No delivery vehicles shall be permitted prior to 08:00 or after 18:00hrs Monday-Friday, unless it has been pre-arranged with site management and agreed in advance with the Local Planning Authority. Contact shall be made with suppliers prior to arrival on site and the set hours discussed and agreed.

All delivery drivers will be provided with a Delivery Drivers Briefing Pack which will direct them to the required access point). All delivery drivers are required to stop at the security point upon arrival, to be instructed on the delivery procedure for their relevant area and to complete their Delivery Drivers Induction. A check of the drivers PPE will also be completed. We aim to have all deliveries going straight to the appropriate working area but where this isn't possible, delivery material can be stored at the main site compound to await 'just in time' delivery'.

Where a delivery vehicle requires travelling to site, the gateman will brief the driver on the approved route to the area. The gateman shall then make contact with the delivery recipient to ensure a meet and greet for the driver. The driver will then travel to the area where the plant and vehicle marshal shall meet them and direct them to the unloading area. The security hut/access gate will be set back from the LRN allowing vehicles to pull off the public road to check in.

Deliveries to work areas along the Haul Road at AP7 and along the LRN will be given a laminated Delivery Driver Induction Card showing the work areas, access points and PRow crossing points.

All deliveries shall report to the main site compound, via AP5 and await further directions prior to unloading or moving to other access points.

All deliveries shall take account of any Local Authority restrictions.

2.5 Specific Requirements for Deliveries to Site

The following are specific requirements for deliveries on both sites:

- Any vehicles used for routine delivery of materials to site shall be fitted with a reversing alarm and provisions for all round vision.
- All reversing delivery vehicles must be under the control of a nominated Plant and Vehicle Marshal, irrespective of any alarms or visual aids fitted.
- All delivery drivers will be issued a Delivery Driver Induction Card.
- Small deliveries, such as letters, will be handed in at the gatehouse at AP5.
- Delivery drivers will be instructed to display flashing beacon or hazard lights whilst driving through the site and to adhere to the 5mph site speed limit and a Haul Road speed limit of 15mph where no works are taking place.
- All delivery vehicles, where access to the load area of the vehicle may be required, MUST be fitted with fall prevention devices, e.g. handrails.

No delivery drivers will be permitted to carry out loading/unloading activities on site prior to being briefed on the safe loading/unloading procedures. The delivery driver briefing pack shall include requirements for the delivery driver to:

- Prior to unloading, ensure that the vehicle is braked and/or stabilised to prevent any unsafe movement during loading/unloading.
- Ensure that the loading/unloading area/storage area is free from tripping hazards.
- Ensure that the necessary checks are made to ensure that there has been no load shift during transit, prior to opening curtains or removing restraints.

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- Ensure that loading/unloading is carried whereby the load is evenly spread to avoid the vehicle/trailer becoming unstable.
- Ensure that all personnel involved in unloading remain in a safe position until all load restraining straps have been removed and the vehicle is fully prepared for unloading.
- The removal of all load restraining straps will be the responsibility of the delivery driver.
- Ensure that they remain in a position of safety whilst the vehicle is being off-loaded.
- Where possible no personnel will access the vehicle bed. If access is required then fall arrest system to be in place prior to entering (edge protection, harness with fixed lanyards, bean bags etc.).

2.6 Offloading Using Hi-abs

The following must be in place when using hi-abs on site:

- Lorry Loader Checklist will be completed prior to use of hi-ab.
- Lift plan must be in place agreed with temporary works coordinator and appointed person.
- Driver / operator must have a valid Construction Plant Competence Scheme (CPCS) or Associated lorry Loader Manufacturers and Importers (ALLMI) card which will be checked by a Morgan Sindall member of staff.
- Certification must be in place for all lifting equipment and accessories.

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3.0 Site Works

The project involves the construction of a new underground cable system, associated civil works, replacement of 1 pylon and the permanent removal of 8 pylons.

The construction works that will influence the traffic network are:

- Survey Works – ecological, topographical, etc.
- Construction of the access road and access bellmouths.
- Delivery of plant and equipment for construction works.
- Delivery of materials for construction works.
- Travel to and from work by staff/operatives.
- Travel to sites by visitors etc.

There will be abnormal loads associated with cable drum deliveries, see Section 4.4 for abnormal load movements.

3.1 Key Traffic Locations

3.1.1. Windle Edge – AP2: (August 2022 – November 2023)



The following activities are planned for this location:

- Bellmouth improvements where required (including management of drainage across main access point).

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- Localised improvement to existing access track if required.
- Fencing modifications if required
- Demolition and reinstatement of OHL tower 4ZO163
- Maintenance of access points during the construction phase

The following measures will be put in place at the location:

- Traffic Management and Signing
- Wheel cleaning facilities (if required)
- Security checkpoint

3.1.2. Windle Edge – AP3: (April 2022 – August 2022)



The following activities are planned for this location:

- Bellmouth improvements where required
- Track repairs to compound if required
- Temporary fencing where required
- Demolition and reinstatement of the existing National Grid CSEC and tower 4ZO164
- Maintenance of access points during the construction phase

The following measures will be put in place at the location:

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- Traffic Management and Signing Wheel cleaning facilities (if required)
- Security checkpoint

3.1.3. Windle Edge – AP4. (August 2022 – November 2023)



The following activities are planned for this location:

- Temporary fencing where required.
- Demolition and reinstatement of tower 4ZO162
- Temporary removal of the timber Trans Pennine Trail sleeper posts.

The following measures will be put in place at the location:

- Vehicle Marshall Point
- Traffic Management and Signing Wheel cleaning facilities should they be required

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3.1.4. Windle Edge – AP5. (April 2021 – February 2023)



The following activities are planned for this location:

- Main access point to site compound including AIL deliveries and access to Woodhead Tunnel
- Temporary fencing where required
- Modifications to the existing stone walls where required
- Demolition and reinstatement of OHL tower 4ZO158

The following measures will be put in place at the location:

- Vehicle Marshall Point
- Traffic Management and Signing Wheel cleaning facilities should they be required

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3.1.5. Brook Hill Lane – AP6 (August 2022 – November 2023)



The following activities are planned for this location:

- Bellmouth construction
- Modified gate location.
- Localised existing highway resurfacing
- Temporary fencing where required
- Modifications to stone walls to improve visibility splays in both directions
- Installation of track way system from access point to tower during removal
- Demolition and reinstatement of OHL tower 4ZO161

The following measures will be put in place at the location:

- Vehicle Marshall Point
- Traffic Management and Signing
- Traffic I for access point construction.
- Wheel cleaning facilities should they be required

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3.1.6. Brook Hill Lane – AP7 (April 2021 – February 2023)



The following activities are planned for this location:

- Bellmouth construction including pull in area to hold three HGV's
- Modified gate location.
- Localised existing highway resurfacing
- Temporary fencing where required
- Modifications to stone walls to improve visibility splays in both directions
- Construction of haul road to Wogden Foot CSEC and tower 4ZO157. Trak way to be laid from Tower 4ZO157R to 4ZO155
- Demolition and reinstatement of OHL towers 4ZO160, 4ZO159, 4ZO157 towers
- Construction of tower 4ZO157R and re-stringing OHL between towers 4ZO157R to 4ZO155

The following measures will be put in place at the location:

- Vehicle Marshall Point
- Banksman will control movements of vehicles on the access track to ensure clear
- Banksman will be in contact with operatives receiving the vehicle
- Deliveries will be staggered to prevent too many vehicles arriving at the same time

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- Traffic Management and Signing.
- Traffic Management for access point construction
- Wheel cleaning facilities should they be required

3.2 Public Rights of Way (PRoW)

Public rights of way (PRoW) i.e. public footpaths, bridleways or restricted byways are highways protected by law. To divert a PRoW (in this case the affected stretch of the Trans Pennine Trail), a Traffic Regulation Order (TRO) will need to be requested from Barnsley Metropolitan Borough Council. Barnsley Metropolitan Borough Council only has powers to make a TRO for 6 months and hence an application to the secretary of state to request an extension will be required to fulfil the requirements of the construction programme and allow site works to be carried out safely.

Impact of the temporary access tracks on existing PRoWs within the defined Study Area used in the Traffic Assessment is illustrated in drawing PDD-33492-LAY-072, which is included at Appendix B.

Temporary diversions, closures or managed crossings will be required where the Proposed Project affects a PRoW. Table 2 below outlines PRoWs affected by the Proposed Project, and the likely durations, with respect to the locations identified in drawing PDD-33492-LAY-072 (Appendix B).

Due to the location of the scheme it crosses PRoW along its route at 4 locations:-

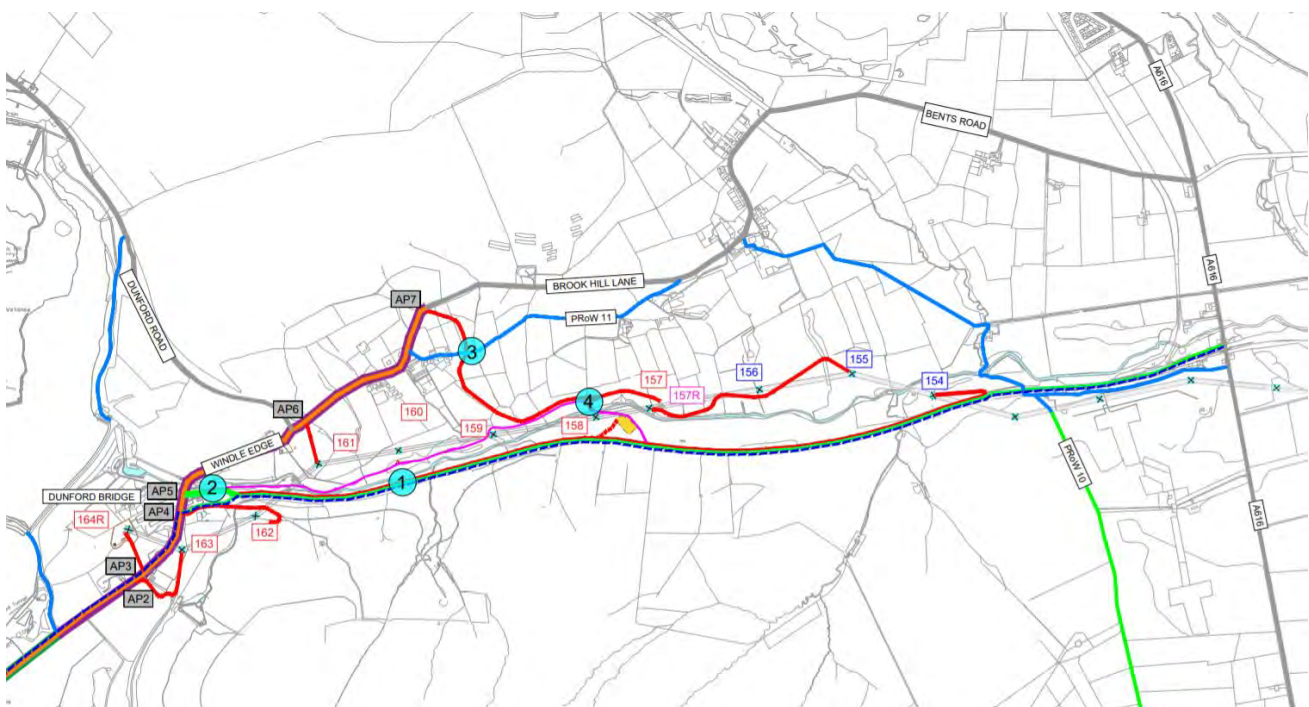


Figure 2 – PRoW Conflicts (Extract from Drawing PDD-33492-LAY-072)

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Map Ref:	PRoW Ref	PRoW Conflict	Works Location	Durations
1	25	The section of Trans Pennine Trail	Cable Corridor, Proposed SEC, Pylon 4ZO158, 4ZO154, 4ZO162	Temporary diversion (purpose built) throughout the duration of works
2	26	Footpath passing through the Trans Pennine Trail Car Park, which ties into the Trans Pennine Trail alignment	Cable Corridor, proposed SEC, Pylon 4ZO158, 4ZO154	Footpath to remain open during the duration of the works
3	11	Bridleway crossing the proposed haul road via AP7	SEC, Trans Pennine Trail diversion, Pylons 4ZO157R, 4ZO156, 4ZO155	Temporary closure during construction of haul road (application submitted to BMBC). Further closure will be required during the removal of the haul road. Crossing managed with gates for the duration of the project.
4	n/a	Trans Pennine Trail diversion coincident with the access track	SEC, Trans Pennine Trail diversion, Pylons 4ZO157R, 4ZO156, 4ZO155	Managed crossing for 12 – 18 months

Table 2 – PRoW crossing with proposed dates effected

PRoW will be managed during construction of the Proposed Project. Drawing PDD-33492-LAY-072 in Appendix B identifies the locations where there is a conflict between the Proposed Project and a PRoW. The conflict points are described below.

Temporary Trans Pennine Trail diversion (Location 1 in PDD-33492-LAY-072) – The section of Trans Pennine Trail affected comprises the footpath forming the pedestrian and cyclist access into the Trans Pennine Trail, bordering the northern perimeter wall of Stanhope Hotel (official route into the Trans Pennine Trail), and Wogden Foot which would be used by the construction traffic.

During construction of the Proposed Project, the Trans Pennine Trail will be diverted for approximately 12-18 months along a temporary route north of the River Don to allow for the installation of the Cable Corridor along the existing route of the Trans Pennine Trail. The temporary route will be taken via the existing Trans Pennine Trail car park before following an existing farm track which will be upgraded to make it suitable for construction traffic prior to it being used by users of the Trans Pennine Trail diversion.

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A final Trans Pennine Trail Management Plan was submitted to Barnsley Metropolitan Borough Council on 28th May 2020. Planning Condition 9 requires that the diversion shall be carried out in line with this Plan. The Trans Pennine Trail Management Plan details how users of the Trans Pennine Trail will be managed and co-ordinated with construction activities (see Figure 2.1 of the Environmental Assessment Report for the proposed Trans Pennine Trail diversion and LAY055 for the temporary diversion construction detail).

The proposed Trans Pennine Trail diversion will leave the existing Trans Pennine Trail to the east of the car park at Dunford Bridge and follow the route of an existing farm track, crossing onto the northern side of the River Don across a proposed new permanent bridge and following the course of the river across the fields. The diversion will then cross back to the southern bank over a newly constructed temporary bridge from where, the diversion passes east around the proposed SEC before re-joining the existing Trans Pennine Trail route. The existing track will be upgraded to meet the gradient requirements espoused by the Equality Act 2010, as far as possible. As outlined in the Trans Pennine Trail management plan there are two areas (short sections at Wogden Foot and close to the Yorkshire Water compound) where it's not achievable to meet the 1:20 gradient requirements, in these areas handrails will be considered and a resting point with bench will be installed at the Wogden foot location. A resting point at the section close to the Yorkshire Water compound is not possible due to width constraints.

Access tracks coincident with PRoW (Locations 2 and 4 in PDD-33492-LAY- 072) – When the temporary Trans Pennine Trail diversion becomes operational, there will be a short section of the Trans Pennine Trail diversion (location 4), near the SEC, including temporary bridge 2, where the Trans Pennine Trail diversion will be shared with the construction vehicles (PDD-33492-LAY-055). The movement of construction traffic along this section will be controlled during this period by means of manned gate/barrier to prevent potential conflict between Trans Pennine Trail users and the construction traffic that will move between the SEC and the north side of the River Don. For most of the time, the access gates will be open to allow the free movement of pedestrians and other users along the diversion. As per discussions with Barnsley Metropolitan Borough Council during upfront stakeholder engagement this is typically only likely to be in the region of up to 10 HGV movements per day using this shared section when the diversion is in use by the Trail users.

With regards to the footpath passing through the Trans Pennine Trail car park (Location 2), (PDD-33492-LAY-082), warning signs will be placed on the approach to the car park access to make HGV drivers aware of the pedestrian and cyclist movements in the area. This footpath will effectively remain open throughout the duration of works.

Managed crossings of temporary access track (Location 3 in PDD-33492-LAY-072) – The bridleway (PRoW 11) to the north of the river crosses the construction access track, the access which is taken from AP7. It would be disproportionately disruptive to close or divert this PRoW for the full duration of the projects construction phase given that the risk to the public is likely to be lower than crossing a public road due to the relatively low traffic volumes and anticipated low footpath use. However, Barnsley Metropolitan Borough Council has advised that a Traffic Regulation Order to temporarily close the footpath to allow the construction of the northern access road and TPT diversion will be required. As per the correspondence received from Barnsley Metropolitan Borough Council, when the Trans Pennine Trail diversion construction is completed, Dunford footpath no. 11 will be reopened to the public. Signs will be installed to warn construction vehicles of the location of the footpath. Authorisation will be sought from Barnsley Council to install gates at either side of the access road to help manage the crossing point (authorisation is required for any new gates on a public right of way).

The following signs will be in place as a minimum:

- Construction Traffic
- Pedestrian arrows
- Footpath Open

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- Information sign showing location, overview of work and emergency contact.
- No access onto construction site
- Danger Plant Crossing

The pedestrian management setup will be installed and maintained and inspected by a Morgan Sindall representative weekly.

3.3 Project Working Hours

In line with Planning Condition BMBC4 the following restrictions have been imposed on the scheme:

“Construction or remediation work comprising the use of plant, machinery or equipment, or deliveries of materials shall only take place between the hours of 0800 to 1800 Monday to Friday and at no time on Sundays or Bank Holidays. Saturday working may be agreed subject to submission and prior agreement of the following details: works to take place, hours to be worked and best practice measures to be used to reduce noise. For the avoidance of doubt Saturday working may be allowed on 1 day every rolling 4 weeks of the construction period.

Reason: In the interests of the amenities of local residents and in accordance with Local Plan Policy Poll1.“

“Except in the case of emergency, any work required to be undertaken outside of agreed core hours (not including repairs or maintenance) will be further agreed with Barnsley Metropolitan Borough Council prior to undertaking the works. Any proposed changes to the core working hours set out above will be discussed and agreed with the LPA.”

To avoid congestion on the public road network deliveries or movements of abnormal loads through congested highways may be required outside peak times or outside site working hours. Approval for any out of hours working will be gained from Barnsley Local Planning Authority prior to any works commencing.

3.4 Road Condition

As per Planning Condition BMBC12 (see introduction), a road condition dilapidation survey shall be carried out prior to any CDM work activities taking place in order to establish existing road conditions. The extent of this survey has been agreed with relevant stakeholders, see Section 2.2. A baseline survey will be undertaken prior to construction. The road condition shall then be monitored throughout the contract and any necessary remedial works shall be agreed in consultation with the Local Authority Highways Department. A final survey will be completed at the completion of the project and any areas identified that need repair or reinstatement shall also be agreed.

Prior to the works commencing on site BMBC have stated that the existing carriageway is resurfaced at each of the proposed access points.

Morgan Sindall and National Grid have agreed with Barnsley Metropolitan Borough Council to carry out a joint inspection, to record the before and after condition of the public highway at the access point so that any damage sustained can be repaired to original condition. Digital images or video will be taken with date stamp to detail the condition of the LRN (including access tracks and connections to the LRN) and PRoW prior to commencement of the works.

Any architectural features (e.g. walls, gate posts etc.) taken down, across the works locations, shall be stored and reinstated at the end of the construction period.

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3.5 Public Highway and Traffic Management Signage

All construction traffic will be routed to minimise, so far as reasonably practicable, disturbance and inconvenience to local residents and road users.

To minimise any effects on non-motorised users speed restrictions proposed are shown on PDD-33492-LAY-072. Where the Trans Pennine Trail follows Goddard Lane/ Windle Edge there will be a number of speed restrictions in place. A 20mph speed limit will be introduced along sections of Goddard Lane and Windle Edge/Brook Hill Lane between the access road entrance to Winscar reservoir (west of Access Point 2) and Access Point 7 for the duration of the works. Additionally, between the access road entrance to Winscar reservoir and the A628 a 40mph speed limit will be introduced

Appropriate road signs will be provided and maintained by the traffic management contractor to guide construction traffic into and out of the site working areas in accordance with New Roads and Street Works Act (1991) NRSWA Guidance and as a minimum with the following signage:-

- Directional signage for construction vehicles
- Site entrance and exit
- Highway speed limits
- 5mph or 15mph site speed limit,
- Construction vehicles turning
- Pedestrian warning signs
- Pedestrian crossing signs
- Caution construction traffic
- Public Right of Way diversion signs
- One way signage (where appropriate)

The traffic management contractor will be required to co-ordinate temporary traffic signs with any other concurrent works to avoid conflict, confusion and clutter of signs.

As detailed on the access point schedule (Appendix B), work will be required to improve the existing access points with regards to the visibility and manoeuvrability. The need for suitable temporary traffic management (TTM) would be designed by the appointed contractor in accordance with Chapter 8 of the Traffic Signs Manual during the detailed design stages and agreed with the BMBC Highways Department, prior to commencement of works. Any TTM required would apply to the construction as well as being employed while the Access Points are removed and returned to their original condition. This will include the use of banksmen when required to assist the egress and ingress of traffic accessing the Access Points as applicable.

Traffic surveys on Windle Edge and Brook Hill Lane shown that the 85th percentile speed on parts of the proposed construction access route varies between 55kph and 85kph. This translates to an equivalent visibility requirement of 54 to 120m for vehicles emerging from the access points on Windle Edge and Brook Hill Lane. Visibility for the exiting vehicles onto the main carriageway have been reassessed, refer to the Access Point Schedule in Appendix B for details. Visibility compliance will be achieved at AP2, AP3, AP4, AP6 and AP7. AP5 is the only access point where visibility compliance is not achieved, specifically in the northbound direction. However, through the use of appropriate mitigation measures the visibility at the location will be improved from the existing situation and will be made acceptable. The potential mitigation measures may involve vegetation clearance, partial stone wall removal and resiting of a sign.

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3.6 Access Point Signing

Prior to the commencement of construction activities detailed traffic management layouts, showing the proposed temporary signing, will be installed as required.

3.7 Signing of Road Works

The temporary signing of road works will be in accordance with Chapter 8 of the Traffic Sign Manual. During the construction of the bellmouths, temporary traffic signal control will be required while plant and site operatives are working in the carriageway and highway verges.

Access Route and Point Signing

Temporary signage will be erected along the proposed construction traffic routes on the LRN to provide access (directional) routing information. These will be placed to ensure that construction vehicles and staff are able to travel directly to the Proposed Project from the SRN. Locations of the temporary signage will be drafted in plan format and approved by the Barnsley Metropolitan Borough Council ahead of installation as part of the discharge of planning conditions and remain throughout the scheme.

This temporary signage will be provided in the vicinity of the Proposed Project and will provide warning to other road users of the likely presence of construction vehicles. Temporary signage will be produced and agreed with Barnsley Metropolitan Borough Council.

The methodology of installation will be discussed within the access point and haul road construction method statements.

Access Track Signing

Similar to the above access routes on the public highway, temporary signage will also be erected along temporary construction access tracks where necessary. The signage will provide drivers with information on speed limits and warning (hazard) information relating to potential vehicle conflict areas (cross over points).

Locations of the temporary signage will be drafted in plan format and approved by Barnsley Metropolitan Borough Council ahead of installation as part of the discharge of planning conditions.

Temporary Diversion Signing

No diversions are envisaged, however in the unlikely event that any diversions of traffic along the construction traffic routes are required, temporary signage will be installed by Morgan Sindall in liaison with Barnsley Metropolitan Borough Council.

Signing of Road Works

It is not envisaged that road works will need to be carried out on the public highway. However, should this be recommended by the contractor as part of the detailed traffic management proposals, the temporary signing of road works will be in accordance with Chapter 8 of the Traffic Sign Manual.

Construction Traffic Exclusion Areas

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All construction vehicles will use only the routes set out in this CTMP. Information on the access routes will be communicated throughout the construction phase to site personnel using site notice boards and staff briefings, including their initial site induction.

4.0 Site Hazards with Vehicle Movements

General hazards associated with the vehicle movements include;

- Access and egress off public roads leading to site compound
- Other users on the access road
- Pedestrians, cyclists and horse riders
- General Public
- Weather Conditions e.g. High winds
- Street furniture

See Appendix J for more detail on identified hazards.

4.1 Vehicle Access and Egress

All traffic accessing or egressing site will have to strictly follow site rules. Site rules and one way system map will be sent to all suppliers in the form of a Driver Flash Card, a typical example can be found in Appendix I. Organisations intending to make deliveries to site will be required to survey the access route in advance, taking into consideration weight and height restriction etc. Heavy loads shall be controlled by specific traffic movement plans developed by individual contractors in advance and approved by the Morgan Sindall Project Manager. Site rules will also be affixed to site entrance hoarding/fencing.

Wheel washing facilities will be at the site exits as required to control the spread of debris from the site and stop debris being carried onto public roads. Road sweeper facilities will be available when needed on call. All vehicles transporting soil, loose and or dusty materials on public roads will be fully sheeted to reduce the risk of air pollution.

All vehicles shall carry a "Project Identity Card" clearly visible at all times whilst manoeuvring onsite and access areas via the Haul Roads.

Vehicle Identity Card, This vehicle is working on behalf of:- MORGAN SINDALL Working on behalf of National Grid On PEAK EAST VISUAL IMPACT PROJECT Any issues please contact Tel	  
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Fig 3 – Typical Project Identity Card

4.2 CDM Area Traffic Movements and Pedestrian Segregation

Traffic movements within the CDM areas will be as per the site CDM Plan (CDMP). Where necessary, barriers and signage will be positioned at suitable points within working areas in order to establish clear pedestrian segregation.

Plant and Vehicle movements on internal roads within the Morgan Sindall CDM area will be in accordance with the CDMP. Plant and vehicle marshals will lead HGVs and other plant to and from work places in a safe manner whilst maintaining segregation between vehicles and pedestrians.

There will be a 5 mph speed limit within all compound areas. Speed limits along the haul road will be variable (5-15 MPH) depending upon activity and conditions. Private vehicles (operatives) may be allowed on the haul road from AP7 to the small welfare facility by the temporary bridge and park in the small designated area. Reverse parking rule to be enforced.

4.3 Management of Deliveries

Where practicable, advance notification of materials and equipment to be delivered to site shall be provided to the Morgan Sindall site team 3 weeks prior. This notification shall include details of the company, the date and time of the delivery, the type and size of the vehicle, and an itemised list of material or equipment. Deliveries of large items of equipment requiring mechanical offload must be coordinated with the relevant parties. The Morgan Sindall site team shall ensure that all deliveries are made at pre-arranged times, when its personnel, or appropriate subcontractors, are present to accept such deliveries. Morgan Sindall site team will not accept delivery of materials on behalf of contractors other than by prior arrangement. This process will ensure deliveries to the sites will be spread across the whole day where possible. This will minimise the impact of HGV traffic during the network peak periods. This booking schedule will also form part of and inform the monitoring process of the TMP.

Local residents, who may be affected by large vehicle movements along Goddard Lane, Windle Edge and Brook Hill Lane, shall be kept informed. Appropriate advanced notice shall be given to the delivery of large items, e.g. cable drum deliveries. National Grid has a third-party communications agency that will be coordinating communications with the local residents.

Transport briefings and detailed logistics plans will be issued to all plant and material suppliers to ensure the appropriate routes and timings are complied with. Deliveries to site shall be planned, coordinated and managed and reasonable care will be taken so there is no stopping or queuing on the public highway.

4.4 Abnormal Loads

The cable drums will be the largest pieces of equipment to arrive on site. They will be Abnormal Indivisible Loads (AILs), through size and weight. Said deliveries will only take place after seeking approvals and having agreement with the strategic Stakeholders (Highways England, Barnsley Metropolitan Borough Council, Police and Bridge Authorities and structure owners i.e. Network Rail).

Approximately 12 AIL movements are anticipated on the Proposed Project during the cable installation phase, to transport the cable drums. An 'Abnormal Indivisible Load Access Study' detailing the route strategy for AILs

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has been prepared and is included at Appendix G of this report. The following paragraphs summarise the key points highlighted in the report.

Due to the overall transport weight of the loads being considered (plus carrying trailer) being between 80 tonne and 150 tonne gross weight, the load will be moved under Special Types General Order (STGO) Category 3 legislation, but will not require a Special Order from Highways England.

These STGO Category 3 loads are expected to be delivered by road from a UK port of delivery. Ports on the eastern coast could potentially include Hull, Immingham or Goole, whereas Liverpool and Avonmouth are potential contenders for delivery from the west. The preferred port of delivery is currently unknown and would only be finalised in the subsequent stages of the project. However, the AIL Access Report asserts that there are no significant negotiability limitations to egress from these ports, since they are regularly used by AILs delivered into the UK at STGO and also Special- Order category. Regardless of the port of delivery, the routing will be via the major UK motorway and A-road network to junction 36 of the M1. A route from the west would see the AILs travelling east over the M62 and then south on the M1. This is due to the unsuitability of Woodhead Pass for the transport of AILs. The AIL route considered therefore focuses on the potential routes from the junction 36 of M1 to the site.

The preferred route from junction 36 of the M1 will consist of the A616, A628, Goddard Lane/Windle Edge and Trans Pennine Trail Car Park, where the cable drums will be offloaded on to the designated area. The route is depicted in Figure 4. It is worth noting that HGVs and AILs are to avoid the route to the Trans Pennine Trail car park via the A616, the B6106 Bents Road and Brook Hill Lane due to poor forward visibility, unsuitable carriageway width and steep gradients.

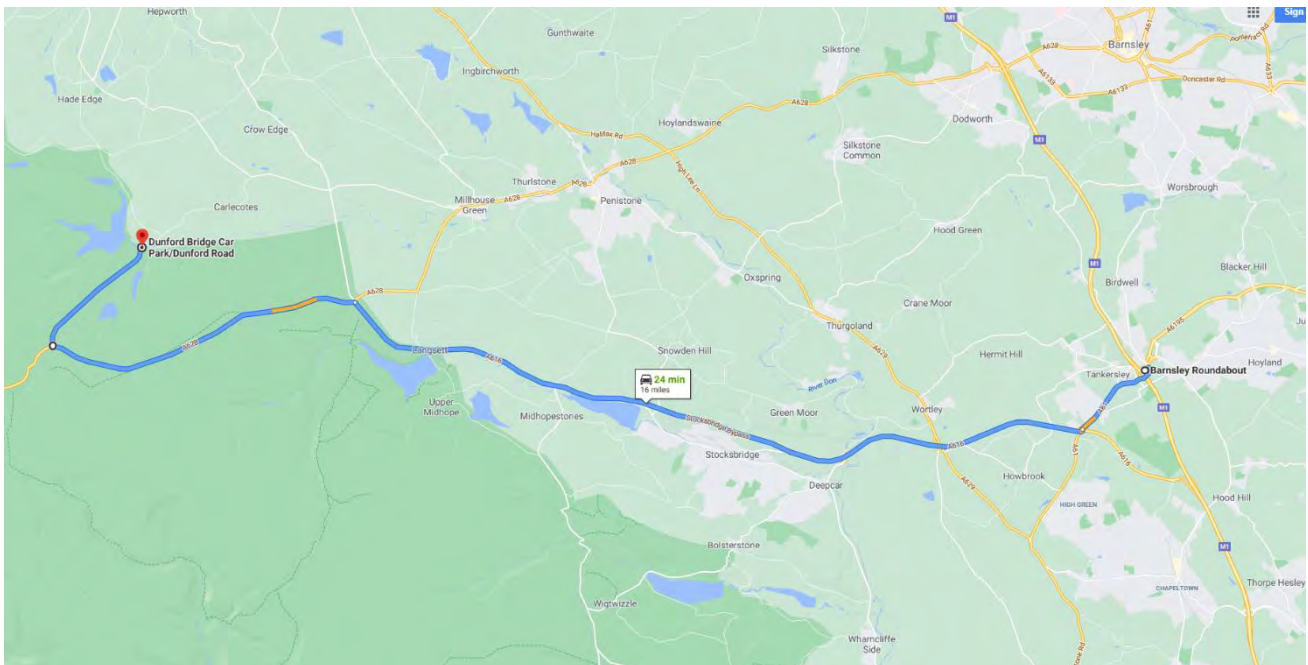


Figure 4– Proposed AIL Route from M1, Junction 36

With regards to negotiating Windle Edge, the South Yorkshire Police have confirmed that the AIL would be permitted to travel along this section under self/private escort, which removes the need to obtain a Temporary Traffic Regulation Order (TTRO). The overall width of 4-axle low bed trailer, carrying the drum, would be 3m. The width of Goddard Lane and Windle Edge varies between 6-7m, along its length. Therefore, full accommodation of Goddard Lane/Windle Edge would not be required whilst the AIL negotiates this section.

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Additionally, there are several passing places along Goddard Lane, which could potentially be used for temporary layover, if this is required.

A swept path analysis undertaken confirms that the AIL could safely enter the site in reverse gear and exit in forward gear without the need for any access modifications or street furniture removal. This is illustrated in drawing no. 19-970.SPA.01, which is appended to the AIL Access Study report, included at Appendix G. Liaison with Barnsley Metropolitan Borough Council during the determination phase confirmed that the Highways department will require the AIL's to reverse into the car park at AP5.

These movements will be carefully planned so that any empty cable drums can be removed from site on each return trip to minimise the total number of AIL trips to and from site.

The exact requirements for any street furniture removal would depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements prior to delivery.

The preferred route from junction 36 of the M1 has been structurally cleared by the following structural authorities:

- Highways England Historical Railways Estate
- Network Rail
- Canal and Rivers Trust
- Barnsley Metropolitan Borough Council

The Highways England Area 12 team have provided written confirmation that the identified AIL route proposed during feasibility is acceptable to them for the vehicles that shall be used, Goose Neck 4+4 axles and also Goose Neck 4+5 axles vehicles, subject to the following:

- Agreement of the police and any other bridge authorities involved.
- Movement may take place once Morgan Sindall / haulier has notified Area 12.
- Vehicle to proceed at minimum height when passing under structures.

See Appendix G for confirmation letters.

The two railway bridges (71 & 71A) on Windle Edge at Dunford Bridge have been subject to a load bearing assessment. The assessment reports concluded that the structures had adequate capacity for 40/44 tonne Assessment Live Loading in accordance with BD21/01 'The assessment of highway bridges and structures', with some limitations. These limitations were: the footway was not assessed on Dunford Railway Bridge 71A due to lack of information and the parapets for both bridges were not assessed. In addition, a further assessment has also been undertaken to assess the suitability of these bridges to carry Abnormal Indivisible Loads (AILs). The assessment has been confined to 4-axle and 5-axle low bed trucks, with specific dimensions and axle weights, carrying a cable drum. The two bridges were assessed to have adequate capacity for the AILs, provided a number of specific conditions are met. Details of the assessment and the conditions are set out within the report titled Abnormal Loads Assessment – Dunford Railway Bridges No.71 and 71A, which is included at Appendix F.

A Technical Note has also been prepared to detail the initial assessment of the River Don bridge, which consists of a load comparison with the previous assessment and the proposed AIL movement. By comparing the proposed AIL axle weights and spacing to those in the previous assessment, it was concluded that the proposed loads of 4 axle goose neck low bed trailer and tractor vehicle is less onerous than the assessed capacity from the Assessment Check Reported dated November 2000 and the AIL can partially pass onto the Dunford River Bridge as shown in the Abnormal Indivisible Load Access Study by Wynns dated 1st May 2019.

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4.5 Plant, Vehicle and People Interface

The following site rules for plant, vehicle and people interface apply on this project:

- Site pedestrians , cyclists and horse riders must not go through any closed barriers or move any cones preventing access.
- Site pedestrians, cyclists and horse riders must only cross at designated crossing points when crossing from one route to another, or when accessing a work task area.
- Site pedestrians, cyclists and horse riders must remain in a position of safety whilst mobile plant or vehicles are being manoeuvred.
- Site pedestrians, cyclists and horse riders must follow any instructions given by the Plant and Vehicle Marshal.
- The opening/closing of tail gates must be carried out by the vehicle driver.
- Exclusion zones to be set up, to segregate works from access routes/pedestrian walkways.
- The site speed limit is maintained at 5mph (15mph on Haul Road with no work being undertaken).
- Plant may only be operated by those who have been suitably trained, are experienced and hold the relevant qualifications. Copies of these qualifications must be maintained on site.
- Daily and weekly checks of plant and vehicles shall be carried out using Morgan Sindall check sheets which will be maintained in site files. These checks will be to specifically cover the following:
 - Mobile plant/vehicle mirrors, camera lenses and other visibility aids must be kept clear at all times
 - Audible reversing alarms must be fitted to all mobile plant and maintained
 - Mobile plant operators and vehicle drivers must not go through any closed barriers or move any cones preventing access. Site pedestrians must keep to the designated pedestrian routes provided
 - Ensure all windows (front, side & rear) are clean and free of damage / obstructions
 - Camera lens is clean and fit for use

4.6 Reversing

Reversing will be eliminated, wherever practical, by incorporating a one-way system into the site layout.

All turning and reversing areas will be clearly marked and Plant and Vehicle Marshalls will control areas where there is the potential for people plant interface.

4.7 Parking

Car parking will be located at the main site compound. A minimal amount of car parking will also be made available at the temporary bridge welfare / compound.

All vehicles must reverse into marked bays. Pedestrians will be eliminated from the area by placing walkways within the car parking areas using barriers. Plant and Vehicle Marshalls will also be on hand to manage pedestrian traffic.

All reversing and turning areas will be clearly marked. Using line painting and signs in the compound and signs at locations along the route.

Onsite parking will be located at Towers and Joint Bay locations for workforce at these positions, these will be designated in the individual permits.

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Some off site works will need to take place e.g. water monitoring and may involve parking on the Local Road Network. These will be Risk Assessed for each location when identified.

4.8 Compound Signage

Clear displayed signs in the compound and approach and exits shall define segregation where possible from people and vehicle / plant. Walkways and crossing points installed with, whenever possible, physical segregation barriers between people and plant.

Signage shall include but not limited to:-

- Speed Limit Signs
- One Way Signs
- Reception
- Parking
- Reverse Parking
- PPE Board
- Safety Notice
- Loading and Unloading area
- Access to Haul Road
- Exit
- Pedestrian Crossings
- Turning Area

5.0 Maintenance and Inspections

All traffic management will be installed, maintained and removed by our Traffic Management supply chain partner. This will include the following:-

- 24/7 Emergency call out response
- National Company with locally based on call operatives
- Weekly inspections of all locations including cleaning and replacement as required.
- All operatives trained to relevant qualifications

Along with the above, a Morgan Sindall representative will carry out weekly inspections recorded on the form shown in Appendix K. A weekly drive through of the site from the viewpoint of a member of public using the highway will be undertaken and recorded with results passed to the Transport Coordinator.

Weekly inspections will be carried on the fences and gates installed to be recorded and stored. Any defects reported and rectified.

6.0 Other Traffic Management Issues

6.1 Public Transport – Bus and Cycle Routes

There are bus services on the site access route, but these are not directly affected as none of this Projects accesses/egresses infringe on any bus stops. The requirement for bus stop relocation is not envisaged as part of the construction works. A swept path analysis has been undertaken to ensure that single decker buses that

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currently serve the Trans Pennine Trail car park would be able to safely enter and exit the car park in forward gear, within the car park layout (drawing included at Appendix E).

Bus services have been identified that interact with construction routes as follows:

Bus Service	Location	Disruption	Mitigation	Remarks
25a	Windle Edge, Brook Hill Lane	Potential for raised traffic levels	Construction traffic to avoid peak times where possible.	Bus only attends twice a day

Table 3 – Local bus service

There is a national cycle route, No.62, running on the existing Trans Pennine Trail. Contact shall be made to local cycle clubs to inform them of potential works..

See Section 3.2 for reference to other Public Rights of Way.

6.2 Communications Strategy for Traffic Management

A Traffic Management Group (TMG) will be established on site to implement and monitor this plan. This will comprise of:-

- Morgan Sindall
- National Grid
- Any other Key Stakeholders (Emergency Services, etc)

Local residents that may be adversely affected by the works will be contacted by the Traffic Management Group (Transport Coordinator) following discussions with, and agreement from, National Grid, to inform them about the scope and extent of the construction works. Any communication, if required, will be aligned to National Grids communication strategy. A table of hazards and mitigation measures have been listed in Appendix N to explain how the increased risk caused by increased vehicle movements will be reduced.

Point of contact for local community/ wayleaves issues will be the Transport Coordinator.

Traffic Management meetings shall be held with the Transport Co-ordinator, National Grid, Highways England and Barnsley Metropolitan Borough Council as well as any other relevant parties responsible for the public roads and Rights of Way, when required.

6.3 Incident Management

Should an incident occur on the public road network affecting traffic flow along any of the routes that adjoin the Peak East VIP project the following shall be undertaken:-

- Contact National Grid.
- Contact Barnsley Metropolitan Borough Council for the LRN.
- Discuss with BMBC actions (if any) that need to be taken, i.e Suspension of deliveries and or HGV traffic for site.

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

Call Priority	Title	Name	Phone	E Mail
1st	Transport Coordinator / Project Manager	Philip North / David Swan	07970 846682 / 07794 212586	phil.north2@morgansindall.com david.swan@morgansindall.com
2nd	Senior Project Manager	Zoe Lonsdale	07718 516874	zoe.lonsdale@morgansindall.com
3rd	Operations Director	Ian Maddison	07790 813326	ian.maddison@morgansindall.com

Table 4 - Contact details for Incident Management and Escalation

6.4 Emergency Services

The Police, Fire and Ambulance service will be informed of the planned road traffic management, any associated inconveniences and how to avoid them.

7.0 Responsibilities and Duties

An experienced team will manage all aspects of vehicle and driver processes associated with transport operation. The Project Manager will hold ultimate responsibility, seeking assistance from the Transport Coordinator, Plant and Vehicle Marshalls and Gateman where required.

The Project Manager is responsible for ensuring that effective controls are in place to manage the risk associated with the interface between vehicles, plant and people for the works associated with the 400kV Peak East VIP project. Roles and responsibilities detailed below:

Role	Name	Responsibilities
Project Manager	David Swan	- Responsible for reviewing the TMP - Ensure all arrangements as set out within the TMP are in line with other documentation. - Ensure that the responsibilities of the roles set out within the TMP communicated - Ensure that the requirements of/any changes to the TMP are communicated to all stakeholders including vehicle drivers and plant operators

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)

Appendix. F Traffic Management Plan (TMP)

		Work with the Quantity Surveyor to schedule deliveries alongside the Procurement Tracker and in line with the Programme
Transport Coordinator	Phil North	- Responsible for the development of the site TMP - Ensure all arrangements as set out within the TMP are in place and maintained. - Ensure that the responsibilities of the roles set out within the TMP are adhered to - Ensure that the requirements of the TMP are communicated to all stakeholders including vehicle drivers and plant operators. - Review and revise the TMP as necessary. - Work with the Quantity Surveyor to schedule deliveries alongside the Procurement Tracker and in line with the Programme. - Engage with supply partners for a traffic management needs and ensure compliance. - Report weekly inspection findings to TMG. - Ensure safety issues are logged onto Morgan Sindall's SHEQ tracker, monitored and closed. - Ensure quality issues are logged on Morgan Sindall's Non Conformance Report (NCR) monitored and closed.
Quantity Surveyor	Gavin Fisher	Ownership of the Procurement Tracker
Section foreman	Various	Organise and coordinate plant and vehicle movements within the site and arrange pedestrian routes to avoid conflict
Plant and Vehicle Marshall	Various	- Assist mobile plant operations and vehicle drivers to safely manoeuvre and reverse their vehicles - Prevent pedestrians from putting themselves at risk whilst mobile plant or vehicles are being manoeuvred - Direct mobile plant or vehicles to prevent injury to people, damage to property or materials, and stop operations if necessary - Always position themselves in a position of safety, avoiding the direct route of reversing plant or vehicles, and within an unobstructed walking route - Maintain eye contact with the plant operator/vehicle driver either directly or via mirrors - Maintain control of the mobile plant/vehicle movement throughout

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

		- Control gates and public at Haul Road access points. - Keep a check on the Traffic Management within their area
Main Compound Gateman	TBC	- Controlling access into the compound - Management of Delivery Drivers Inductions and zone specific instructions - Monitoring deliveries - Handover to security guard

Table 5 – Roles and Responsibilities

7.1 Plant and Vehicle Marshals

Only competent and appointed Plant and Vehicle Marshals are permitted. Personnel shall not control reversing operations or the movement of plant or vehicles unless they have received Morgan Sindall Vehicle Marshall Training or equivalent external training course and have understood the Traffic Management Plan to carry out the role on the Project.

Duties such as cleaning or daily maintenance to mobile plant and vehicles, opening/closing tail gates, changing attachments, working with any materials including loading/unloading shall not be carried out by the Plant and Vehicle Marshal.

Plant and Vehicle Marshals will be identifiable on site by having “Marshal”, “Vehicle Marshal” or similar on the back or their Hi-Vis vests.

7.2 Supply Chain

Morgan Sindall will provide all subcontractors with a full briefing on site rules and all aspects of the TMP. All subcontractors will be required to manage their own drivers and ensure all drivers hold the appropriate licence to enable them to operate a vehicle.

All subcontractors will be required to perform daily checks on all vehicles owned and operated by them.

7.3 Communication of the Plan

The arrangements for vehicle and pedestrian management will be communicated through the site induction. When further specific information needs to be communicated, additional tool box talks will be given to the relevant site personnel.

Staff who may require a specific brief on a section or all of this plan are to include;

1. All drivers entering / leaving the site
2. Staff arranging deliveries
3. Staff responsible for the management of deliveries on site
4. Plant and Vehicle Marshals
5. Security Teams
6. Subcontractors – a full briefing will be required which will be discussed at pre award meetings

All delivery drivers will receive a Delivery Drivers Induction and will be provided with a Delivery Drivers Induction Card. Please see Appendix M for an example Delivery Drivers Induction.

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

It is intended that the TMP site layout drawing(s) will form a significant part of the plan and will be displayed in prominent positions on relevant site notice board(s). Should there be a need for traffic routes to change, these will be updated and relevant personnel will be briefed on new routes

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.0 Appendices

8.1	Appendix A	Traffic Routes
8.2	Appendix B	Access Points and Public Rights of Way Plan
8.3	Appendix C	Vehicle Movements
8.4	Appendix D	Proposed Haul Road Drawings
8.5	Appendix E	Altered layout of the Trans Pennine Trail Car Park during Construction
8.6	Appendix F	Railway Bridges Structural Assessment
8.7	Appendix G	Abnormal Indivisible Load Access Study
8.8	Appendix H	Proposed Main Compound Layout
8.9	Appendix I	Driver Flash Card
8.10	Appendix J	Hazard Identification and Control Measures
8.11	Appendix K	Traffic Management Inspection Sheet

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)
Appendix. F Traffic Management Plan (TMP)

16866-MSI-1401-XX-PL-W-050005 RevA

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)
Appendix. F Traffic Management Plan (TMP)

8.2 Appendix B – Access Points and Public Rights of Way Plan



Date: 04/05/2020

FEED Doc: Number - PDD-33492-REP-015

Prepared By - Harry Williams, Amended Peter Rabone

ACCESS POINTS CONSTRAINTS SCHEDULE - PEAK DISTRICT EAST SCHEME		
Access Point 1		
Constraints		Comments
Access point no longer required		
Access Point 2		
Constraints		Comments
Widening Required	No	
Utilities Present	No	
Visibility Compliant	Yes	DMRB desirable minimum visibility requirement achieved (120m to the north east and 160m to the south west).
Structures Affected	No	
Environmental Constraints	Yes	Situated within the Western Moors Local Wildlife Site (LWS) and Peak District National Park. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 3		
Constraints		Comments
Widening Required	No	
Utilities Present	No	
Visibility Compliant	Yes	DMRB desirable minimum visibility requirement achieved (120m to the north east and 160m to the south west), but dry stone wall height reduction and vegetation trimming required.
Structures Affected	No	
Environmental Constraints	Yes	Site (LWS) and Peak District National Park. Adjacent to tree protection buffer zone, trees could require pruning under ACOW supervision. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 4		
Constraints		Comments
Widening Required	No	
Utilities Present	Yes	May require protection

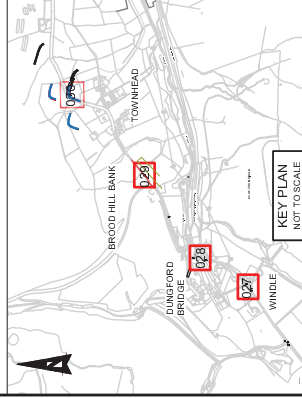
Visibility Compliant	Yes	Manual for Streets visibility requirement looking north achieved (54m). Manual for Streets visibility requirement looking south (56m) not achieved to nearside edge of carriageway. Property wall blocks required visibility splay to the nearside channel looking south. However, acceptable visibility is provided to a distance 1.6m into the carriageway from the nearside edge of the carriageway. Therefore all oncoming traffic will be within the visibility splay at the required distance and therefore it is acceptable.
Structures Affected	No	
Environmental Constraints	Yes	Situated within Peak District national park, area is considered at risk of flooding from reservoir failure, AP shared with PRow 25 (part of TPT), adjacent to area of rhododendron that may need removal ahead of construction. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 5		
Constraints		Comments
Widening Required	No	
Utilities Present	Yes	May require protection
Visibility Compliant	No	Manual for Streets visibility requirement looking north (54m) not achieved. This is however an existing public access which seems to operate without any issues even with reduced visibility. However, in order to improve the existing visibility to the north, the following measures are proposed: vegetation clearance, partial stone wall removal and resiting of the existing sign. Looking south, Manual for Streets visibility requirement (56m) is not achieved. The existing bridge parapet blocks the visibility splay to the nearside channel looking south. However, acceptable visibility is provided to a distance of 0.6m into the carriageway from the nearside edge of the carriageway. Therefore all oncoming traffic will be within the visibility splay at the required distance and therefore it is acceptable.
Structures Affected	Yes	Along the temporary trail
Environmental Constraints	Yes	Situated within the Peak District National Park. Area is considered at risk of flooding situated within Flood zone 2 and 3, and at reservoir flood risk. AP shared with PRow 26 (part of TPT). Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 6		
Constraints		Comments
Widening Required	Yes	Existing access to be improved
Utilities Present	TBA	No statutory undertakers data available for this area

Visibility Compliant	Yes	DMRB one step below desirable minimum visibility requirement achieved (70m in each direction).
Structures Affected	No	
Environmental Constraints	Yes	Presence of Wall providing reptile refuge will require removal under ECOW supervision. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 7		
Constraints		Comments
Widening Required	Yes	Existing access to be improved
Utilities Present	TBA	No statutory undertakers data available for this area
Visibility Compliant	Yes	Manual for Streets visibility requirement achieved (59m). Refer to drawings PDD-33492-LAY-088 and PDD-33492-LAY-089 for visibility splay details.
Structures Affected	No	
Environmental Constraints	Yes	Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	

1. THIS IS A 4:2 DRAWING AND IS FOR DEVELOPMENT PURPOSES ONLY.
2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
3. BACKGROUND MAPPING IS BASED ON THE TOPO SURVEY, DATED 2000.
4. RADII DETAILS ARE FOR GUIDANCE ONLY.

KEY:

- | | | | | | | | | | | | | |
|---------------|---------------|----------------------|--|-------------------------------|-------------------|----------|-----------------------|-----------------------|--------------------------|------------|---------------------|--------------|
| EXISTING KERB | EXISTING ROAD | EXISTING CARRIAGEWAY | PROPOSED WIDENING SUBJECT TO CONFIRMATION FROM THE DELIVERY CONTRACTOR | ACCESS POINT REFERENCE NUMBER | ELECTRICITY CABLE | GAS MAIN | BRITISH TELECOM CABLE | DRAINAGE - FOIL WATER | DRAINAGE - SURFACE WATER | WATER MAIN | OVERHEAD CONDUCTORS | UNIDENTIFIED |
|---------------|---------------|----------------------|--|-------------------------------|-------------------|----------|-----------------------|-----------------------|--------------------------|------------|---------------------|--------------|

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Master Scheme No 33492	Sub-Scheme No -	Site 400KV OHL
Scheme Name VISUAL IMPACT PROVISION - WORK PACKAGE 1 PEAK DISTRICT NATIONAL PARK		
Document Title		

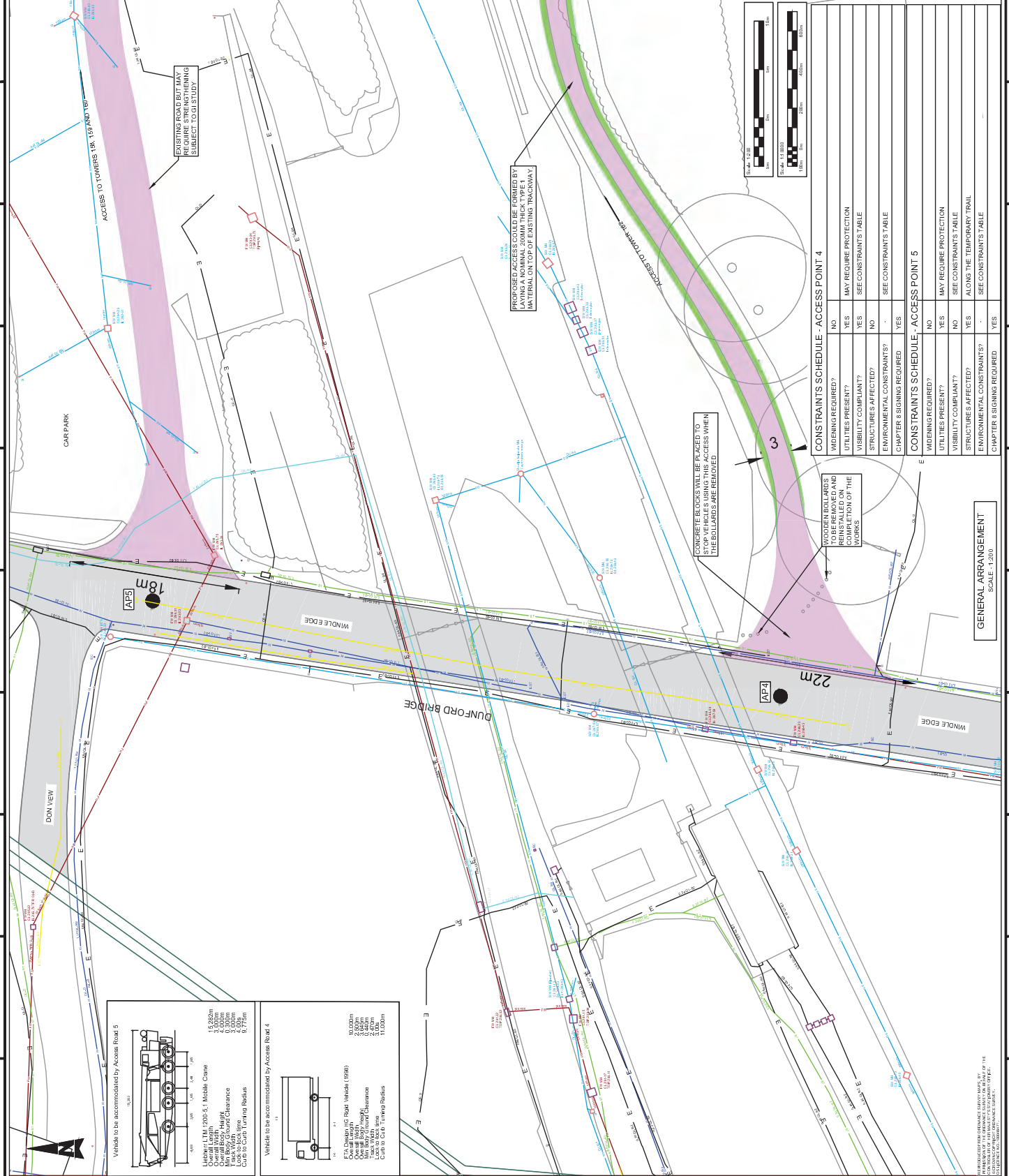
PRELIMINARY BELLMOUTH LAYOUT
AP4 + AP5

Created by: C. Mugemuzo	Date: 28/11/16	Checked by: P. Hadjiniomidou	Date: 28/11/16	Approved by: R. Vervaeke	Date: 28/11/16
Development Exp D.SPURR	Document Type: 2D DRAWING	Scale: 1:200	Format: A1	Sheet(s): 1 OF 1	Rev: P5

National Grid Document Number:

PDD-33492-LAY-028

FEED Document Number



CONSTRAINTS SCHEDULE - ACCESS POINT 4		
WIDENING REQUIRED?	NO	
UTILITIES PRESENT?	YES	MAY REQUIRE PROTECTION
VISIBILITY COMPLIANT?	YES	SEE CONSTRAINTS TABLE
STRUCTURES AFFECTED?	NO	
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED		
	YES	
CONSTRAINTS SCHEDULE - ACCESS POINT 5		
WIDENING REQUIRED?	NO	
UTILITIES PRESENT?	YES	MAY REQUIRE PROTECTION
VISIBILITY COMPLIANT?	NO	SEE CONSTRAINTS TABLE
STRUCTURES AFFECTED?	YES	ALONG THE TEMPORARY TRAIL
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED		
	YES	

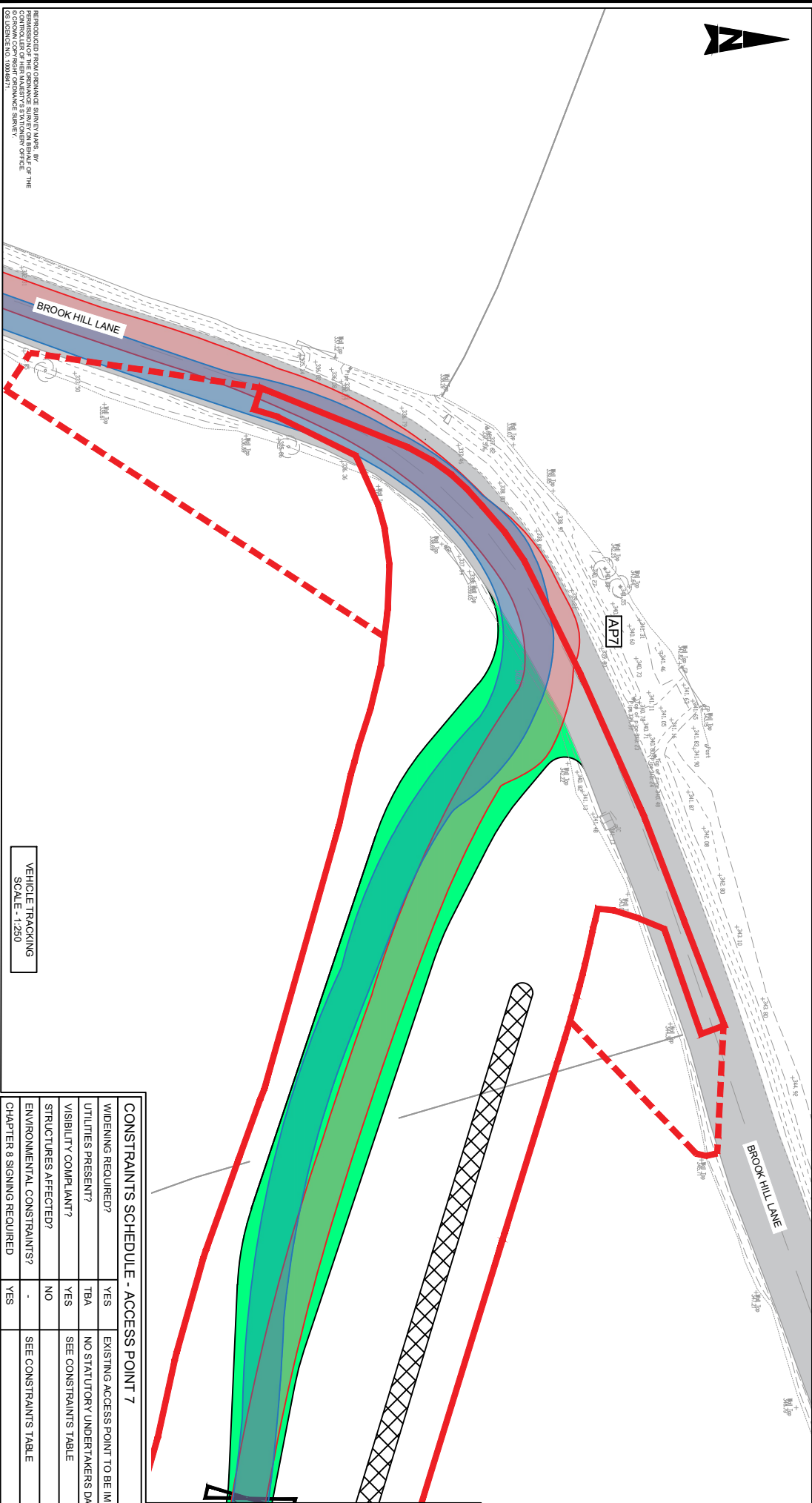
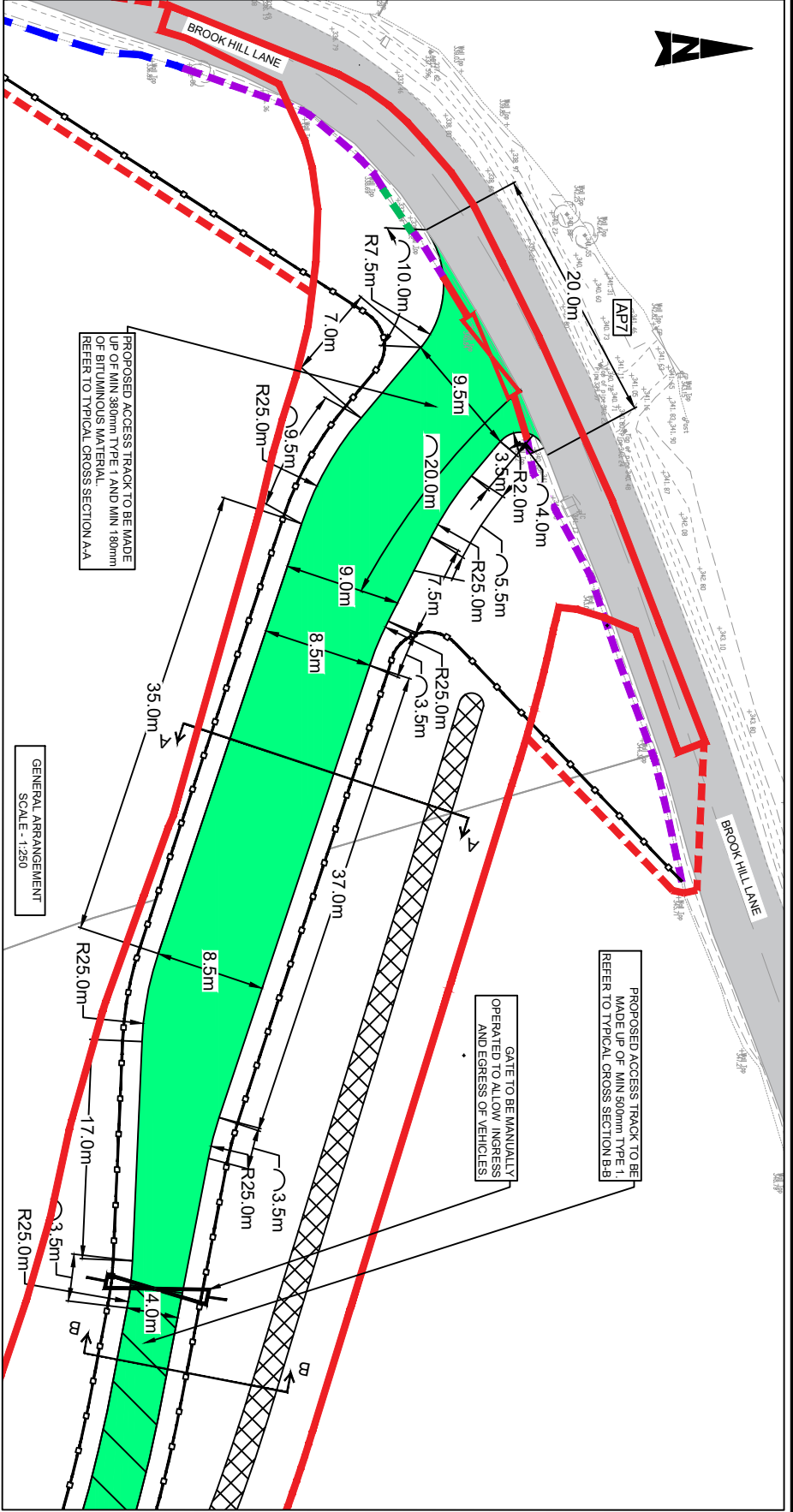
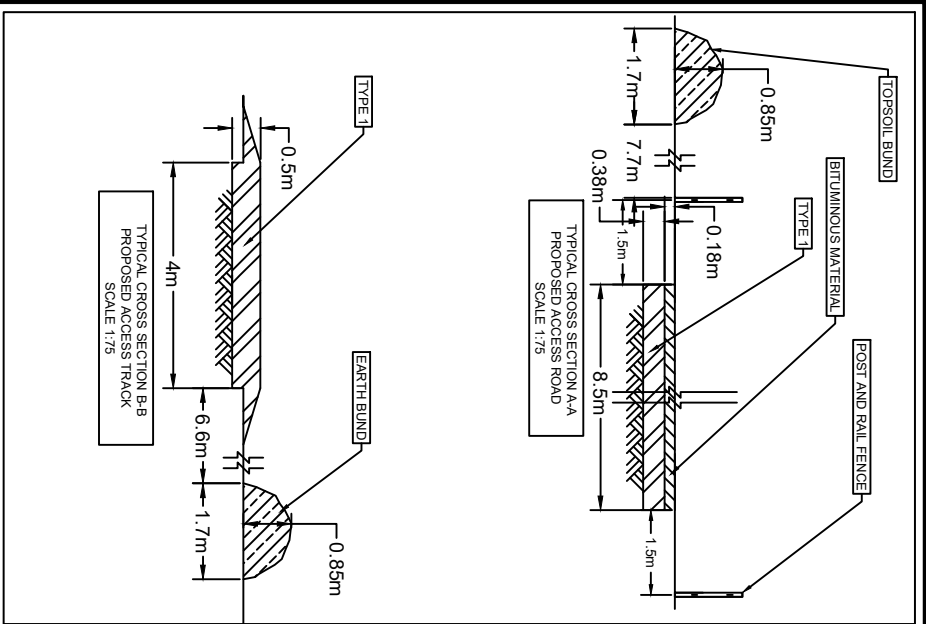
WOODEN BOLLARDS TO BE REMOVED AND REPLACED AT COMPLETION OF THE WORKS

GENERAL ARRANGEMENT

SCALE: 1:200

GENERAL ARRANGEMENT
SCALE - 1:200

REPRODUCED FROM OFFSHORE SURVEY MAPS, BY PERMISSION OF THE OFFSHORE SURVEY ON BEHALF OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE.
© 1994 CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE



CONSTRAINTS SCHEDULE - ACCESS POINT 7				
WIDENING REQUIRED?	YES	EXISTING ACCESS POINT TO BE IMPROVED UNDER A SECTION 171 LICENSE		
UTILITIES PRESENT?	TBA	NO STATUTORY UNDERTAKERS DATA AVAILABLE FOR THIS AREA		
VISIBILITY COMPLIANT?	YES	SEE CONSTRAINTS TABLE		
STRUCTURES AFFECTED?	NO			
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE		
CHAPTER 8 SIGNING REQUIRED	YES			

- NOTES:
1. THIS IS A 4.2 DRAWING AND IS FOR DEVELOPMENT PURPOSES ONLY.
 2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
 3. RADI DETAILS ARE FOR GUIDANCE ONLY. NOT FOR CONSTRUCTION.
 4. VEHICLE TRACKING HAS BEEN CARRIED OUT WITH A 16m ARTICULATED LORRY, 10m HQV AND A 15m MOBILE CRANE. ONLY THE MOBILE CRANE IS ILLUSTRATED IN THE DRAWING.
 5. TO REDUCE MATERIAL TRANSPORT, EXCAVATED TOPSOIL IS TO BE STORED IN A BUND ALONG THE ACCESS TRACK

- KEY:
- EXISTING CARRIAGEWAY
 - PROPOSED ACCESS ROAD
 - PROPOSED ACCESS TRACK
 - EARTH BUND
 - ACCESS POINT REFERENCE NUMBER
 - AP7
 - POST AND RAIL FENCE WITH GATE
 - EXISTING DRY STONE WALL TO BE TAKEN DOWN AND SET ASIDE FOR REUSE
 - EXISTING DRY STONE WALL TO BE TAKEN DOWN TO A REMAINING HEIGHT OF 0.3m AND SET ASIDE FOR REUSE
 - EXISTING GATE TO BE TAKEN DOWN AND SET ASIDE FOR REUSE AND REPLACED WITH A 0.3m HIGH DRY STONE WALL
 - VEHICLE TRACKING (IN)
 - VEHICLE TRACKING (OUT)
 - VEHICLE TRACKING (OUT)
 - ORIGINAL RED LINE BOUNDARY
 - PROPOSED EXTENSION TO RED LINE BOUNDARY



VISIBILITY COMPLIANCE INFORMATION IN CONSTRAINTS				
P11 SCHEDULE REVISED	PR	RR	RR	04/09/20
P10 BELMOUTH AND RED LINE BOUNDARY ALTERED USING TOPO	PR	RR	RR	23/03/20
P9 UPDATED FOR PLANNING	HW	CN	CN	05/06/18
P8 NC COMMENTS ADDRESSED	MMC	CN	CN	31/07/18
P7 NC COMMENTS ADDRESSED	MMC	CN	CN	26/07/18
P6 NC COMMENTS ADDRESSED	MMC	CN	CN	16/07/18
P5 NC COMMENTS ADDRESSED	MMC	CN	CN	21/04/18
P4 DETAILS ADDED	HW	RR	CN	16/04/18
P3 BELMOUTH LAYOUT UPDATED	HW	CN	CN	12/12/18
P2 NATIONAL GRID COMMENTS ADDRESSED	HW	CN	CN	04/12/18
P1 FIRST ISSUE	HW	CN	CN	06/11/18
Rev Description	Crd	Chk'd	App'd	Date

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Master Scheme No:	33492	Sub-Scheme No:	400KV OHL
Scheme Name:	VISUAL IMPACT PROVISION - WORK PACKAGE 1		
Document Title:	PEAK DISTRICT NATIONAL PARK		

PRELIMINARY BELMOUTH LAYOUT
AP7

Drawn by:	Date:	Checked by:	Date:	Approved by:	Date:
H. Williams	06/11/18	R. Woodward	06/11/18	C. Nunn	06/11/18
Development Eng		Document Type	Scale	Sheet No.	Rev
D.SPURR	2D DRAWING	1:200	A1	1 OF 1	P11
National Grid Document Number:					
PDD-33492-LAY-030					
TEB Document Number:					



NOTES:

A. DURING VEHICLE MOVEMENTS AT THE SHARED SECTION, THE BANKSMAN SHALL STOP PEDESTRIANS AND ESCORT VEHICLES OVER THE BRIDGE.

B. DIVERTED TPI USERS AT THE SHARED SECTION SHALL HAVE PRIORITY OVER VEHICLES AT ALL TIMES.

C. UNLESS OTHERWISE STATED THE GRADIENT SHALL BE 5% OR LESS FOR PEDESTRIANS AND 10% OR LESS FOR CONSTRUCTION VEHICLES.

D. WHERE PRACTICABLE GRADIENT TO BE NO MORE THAN 1:20 TO COMPLY WITH EQUALITY ACT GRADIENT REQUIREMENTS.



NOTES

1. SKETCH IS FOR DISCUSSION ONLY.
2. FLOOD MAPPING SOURCE : STANTEC MODEL

PROPOSED ACCESS ROAD, SEE DETAIL A

PROPOSED TEMPORARY BRIDGE

PROPOSED TEMPORARY TPT DIVERSION, SEE DETAIL B

FLOOD AREA 1:100 YEARS



PROPOSED GABION BASKET (1m X 1m X 1m)



PROPOSED RETAINING STRUCTURE AND GUARDRAIL

	PROPOSED VEHICLE RESTRAINT SYSTEM
1. Occupant Protection System (OPS) - Frontal Impact	OPS - Frontal Impact
2. OPS - Side Impact	OPS - Side Impact
3. OPS - Rear Impact	OPS - Rear Impact
4. OPS - Rollover Protection	OPS - Rollover Protection
5. Child Safety Seats	Child Safety Seats
6. Pedestrian Protection	Pedestrian Protection
7. Fire Protection	Fire Protection
8. Emission Control	Emission Control
9. Noise/Vibration/Harshness	Noise/Vibration/Harshness
10. Fuel Economy	Fuel Economy
11. Air Pollution	Air Pollution
12. Safety Features	Safety Features
13. Other Features	Other Features

PROPOSED GUARDRAIL

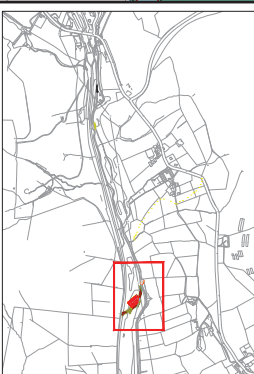


PROPOSED BANKSMAN CONTROL POINT

PROPOSED TEMPORARY SIGN

SEALING END COMPOUND

PROPOSED SEALING END COMPOUND

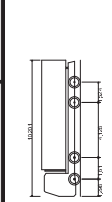
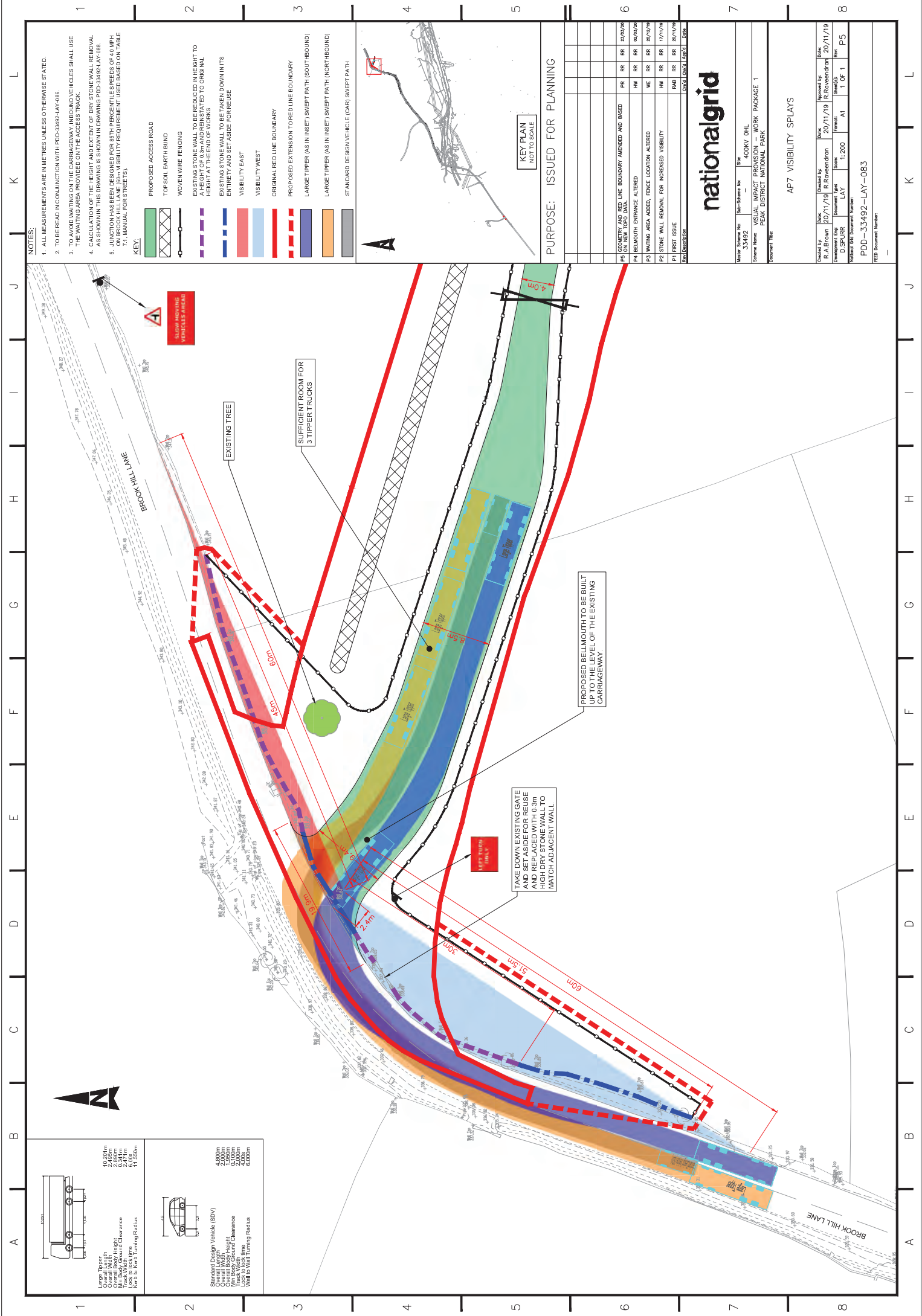
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TPT DIVERSION-TEMPORARY BRIDGE 2
GENERAL ARRANGEMENT

33492	-	400KV OHL
VISUAL IMPACT PROVISION - WORK PACKAGE 1 PEAK DISTRICT NATIONAL PARK		

Nonfatal Card Deaths by Year:
PDD-33492-LAY-055



Large tipper Overall Width 0.341m Min Body Ground Clearance 6.09m Lock to peak time Kerb to Kerb turning Radius	10.201m 2.445m 0.341m 6.09m 11.530m
Standard Design Vehicle (SDV) Overall Length 7.500m Overall Body Height 2.000m Track Width 1.800m Wheel to Wheel turning Radius	4.800m 7.500m 2.000m 1.800m 6.000m

NOTES:

1. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
2. TO BE READ IN CONJUNCTION WITH PDD-33492-LAY-018.
3. TO AVOID WAITING ON THE CARRIAGEWAY, INBOUND VEHICLES SHALL USE THE WAITING AREA PROVIDED ON THE ACCESS TRACK.
4. CALCULATION OF THE HEIGHT AND EXTENT OF DRY STONEWALL REMOVAL AS SHOWN IN THIS DRAWING IS SHOWN IN DRAWING PDD-33492-LAY-088.
5. JUNCTION HAS BEEN DESIGNED FOR 85TH PERCENTILE SPEEDS OF 40 MPH ON BROOK HILL LANE (80th VISIBILITY REQUIREMENT USED BASED ON TABLE 1, MANUAL FOR STREET 15).

KEY:

- PROPOSED ACCESS ROAD
- TOP SOIL EARTH BUND
- WOVEN WIRE FENCING
- EXISTING STONE WALL TO BE REDUCED IN HEIGHT TO MATCH EXISTING TO ORIGINAL HEIGHT AT THE END OF WORKS
- EXISTING STONE WALL TO BE TAKEN DOWN IN ITS ENTIRETY AND SET ASIDE FOR REUSE
- VISIBILITY EAST
- VISIBILITY WEST
- ORIGINAL RED LINE BOUNDARY
- PROPOSED EXTENSION TO RED LINE BOUNDARY
- LARGE TIPPER (AS IN INSET) SWEEP PATH (SOUTHBOUND)
- LARGE TIPPER (AS IN INSET) SWEEP PATH (NORTHBOUND)
- STANDARD DESIGN VEHICLE (CAR) SWEEP PATH



KEY PLAN
NOT TO SCALE

PURPOSE: ISSUED FOR PLANNING

P5	GEOMETRY AND RED LINE BOUNDARY AMENDED AND BASED ON NEW TOPO DATA.	RR	RR	RR	20/02/20
P4	BELMOUTH ENTRANCE ALTERED	HW	RR	RR	02/02/20
P3	WAITING AREA ADDED, FENCE LOCATION ALTERED	WE	RR	RR	20/12/19
P2	STONE WALL REMOVAL FOR INCREASED VISIBILITY	HW	RR	RR	17/11/19
P1	FIRST ISSUE	HW	RR	RR	20/11/19

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Master Scheme No	33492	Sub-Scheme No	---	Size	400KV OHL
Scheme Name	VISUAL IMPACT PROVISION - WORK PACKAGE 1				
Document Title	PEAK DISTRICT NATIONAL PARK				

AP7 VISIBILITY SPLAYS

Created for	R. A. Brown	Drawn by	R. A. Brown	Date	20/11/19	Revised by		Date	20/11/19
Checked by	D. Spurr	Drawn by	D. Spurr	Date	20/11/19	Revised by		Date	20/11/19
Scale	1:200	Form	A1	Of	1	Rev	P5		
National Grid Document Number	PDD-33492-LAY-083								
PEB Document Number									

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.3 Appendix C – Vehicle Movements

The predicted traffic generation data for the construction of the Proposed Development (based on the proposed construction programme).

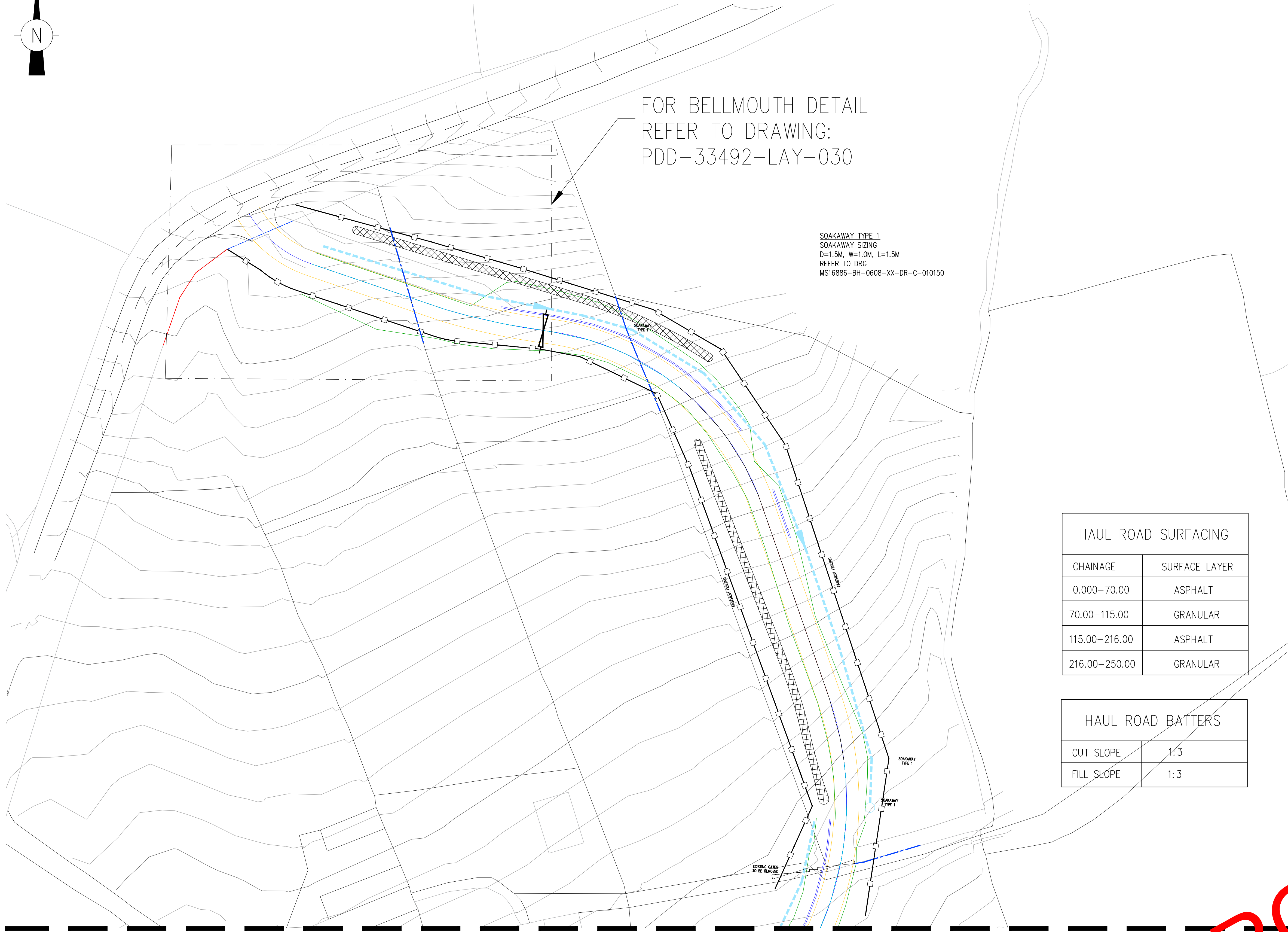
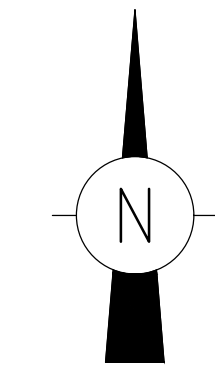
Two-way flows - Arrival and Departures			2021												2022											
Ref	Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Mobilisation																									
	HGVs / month						50							11												
	LGVs & Cars / month						4																			
2	Enabling works																									
	HGVs / month						6			8	8	8														
	LGVs & Cars / month						389			252	252	252					108	108								
3	Access Road - Predominantly AP07																									
	HGVs / month					136	136	136																		
	LGVs & Cars / month					216	216	216																		
4	Trans Pennine Trail Diversion - Predominantly AP07																									
	HGVs / month								162	162	162	162														
	LGVs & Cars / month								324	324	324	324														
5	Permanent Bridge - Access Split Between AP05 & AP07																									
	HGVs / month								6	8																
	LGVs & Cars / month								270	270																
6	Temporary Bridge - Access Split Between AP05 & AP07																									
	HGVs / month								17	17	17															
	LGVs & Cars / month	10	10	10	10				216	324	216															
7	Cable Installation - Predominantly AP05																									
	HGVs / month								223	227	228	228	228	224	224	231	231	223								
	LGVs & Cars / month								159	424	465	306	306	41	41	339	339	125								
8	Construction of SEC - Access Split Between AP05 & AP07																									
	HGVs / month									10	10	10	10	10	10	10	10	10								
	LGVs & Cars / month									25	25	25	25	25	25	25	25	25								
9	Removal of OHL - Split Over AP04, AP06 & AP07																									
	HGVs / month														280	122	118	118	118	118	101	5				
	LGVs & Cars / month														493	349	301	301	301	301	391	90				
10	Reinstatement & Demobilisation - Access Split Between AP05 & AP07																									
	HGVs / month																					320	278	278	284	
	LGVs & Cars / month																					364	846	846	605	
11	General Traffic to / from Site - Access Split Between AP05 & AP07																									
	HGVs / month	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5				
	LGVs & Cars / month	998	1054	1054	1054	1054	1054	1054	1054	1054	1054	1063	1126	1126	1126	1126	1126	882	782	782	782	782	782	782	742	
HGVs / month (two-way movements)		5	5	5	5	141	197	141	412	437	429	412	242	249	519	367	364	356	123	123	105	329	278	278	284	
LGVs & Cars / month (two-way movements)		1008	1064	1064	1064	1270	1662	1270	2022	2673	2336	1971	1457	1192	1684	1838	1898	1441	1083	1083	1173	1236	1628	1628	1346	
Total Construction Traffic Vehicles / month (two-way movements)		1013	1068	1068	1068	1410	1859	1410	2435	3110	2765	2383	1699	1441	2203	2205	2262	1797	1206	1206	1279	1565	1906	1906	1630	
HGVs / day (two-way movements)		0	0	0	0	7	10	7	21	22	21	21	12	12	26	18	18	18	6	6	5	16	14	14	14	
LGVs & Cars / day (two-way movements)		50	53	53	53	63	83	63	101	134	117	99	73	60	84	92	95	72	54	54	59	62	81	81	67	
Total Construction Traffic Vehicles / day (two-way movements)		51	53	53	53	71	93	71	122	155	138	119	85	72	110	110	113	90	60	60	64	78	95	95	82	

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.4 Appendix D – Proposed Haul Road Drawings



FOR BELLMOUTH DETAIL
REFER TO DRAWING:
PDD-33492-LAY-030

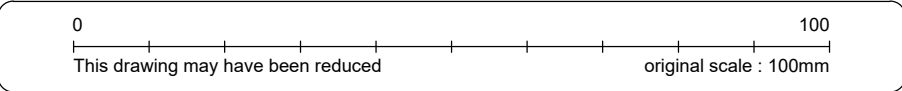
SOAKAWAY TYPE 1
SOAKAWAY SIZING
D=1.5M, W=1.0M, L=1.5M
REFER TO DRG
MS16886-BH-0608-XX-DR-C-010150

HAUL ROAD SURFACING	
CHAINAGE	SURFACE LAYER
0.000-70.00	ASPHALT
70.00-115.00	GRANULAR
115.00-216.00	ASPHALT
216.00-250.00	GRANULAR

HAUL ROAD BATTERS	
CUT SLOPE	1:3
FILL SLOPE	1:3

FOR CONTINUATION SEE SHT 2

PLAN SHOWING ACCESS HAUL ROAD ROUTE CH.0+000 – CH.250+000
Scale: 1:500



Reference Drawings Legend Notes

REFERENCE DRAWINGS:

PDD-33492-LAY-055 – TPT DIVERSION GA
16866-BH-0608-XX-DR-C-010132 – LONG SECTIONS SHEET 1
16866-BH-0608-XX-DR-C-010133 – LONG SECTIONS SHEET 2
16866-BH-0608-XX-DR-C-010134 – LONG SECTIONS SHEET 3
16866-BH-0608-XX-DR-C-010135 – CROSS SECTIONS SHEET 1
16866-BH-0608-XX-DR-C-010136 – CROSS SECTIONS SHEET 2
16866-BH-0608-XX-DR-C-010150 – ROAD BUILD UP DETAILS
16866-BH-0608-XX-DR-C-010004A – BELLMOUTH GENERAL ARRANGEMENT

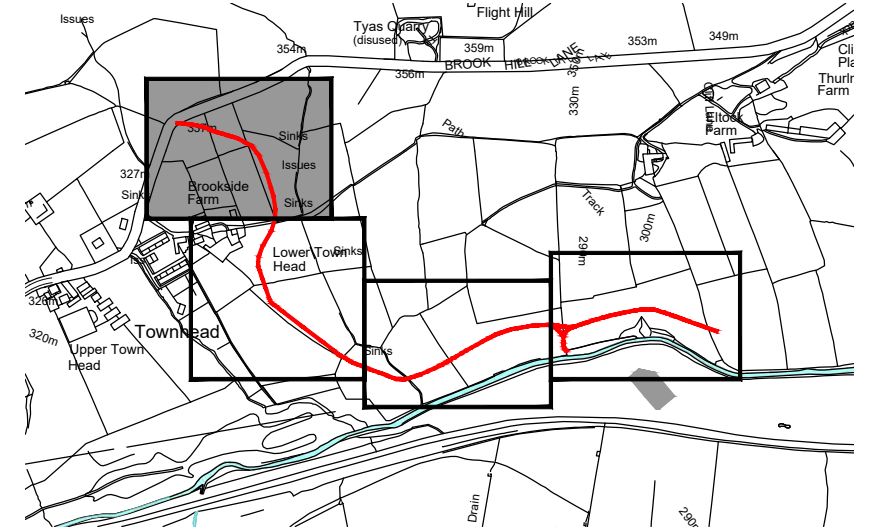
NOTES:

- DO NOT SCALE FROM THIS DRAWING.
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- TOP SOIL & OTHER SOIL TYPES TO BE STORED SEPARATELY IN ACCORDANCE WITH APPROVED CONTRACTOR PROPOSALS.
- PASSING POINTS TO BE 8m WIDE (INCLUDING 5m HAUL ROAD WIDTH), 50m LONG AND EVERY 500m.
- TYPICAL CROSS SECTION OF HAUL ROAD AS PER PDD-33492-LAY-055

LEGEND:

- HAUL ROAD SURFACE WATER DRAINAGE DITCH
- STONE WALL AND GATE TO BE TAKEN DOWN AND SET ASIDE FOR REUSE

KEY PLAN:



DRAWING TO BE PRINTED IN COLOUR

IN PROGRESS ISSUE		Drawn MC		Date 03/07/2020	Checked	Approved
Revision	Description					
P1						

nationalgrid
National Grid plc, Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA
NG DRAWING No:

MORGAN SINDALL

Project

VIP PEAK EAST

Title

PROPOSED ACCESS HAUL ROAD
HORIZONTAL ALIGNMENT
SHEET 1

Scale

As Shown

Drawn

MC

Checked

Approved

(when plotted @ A1)

Date

03/07/2020

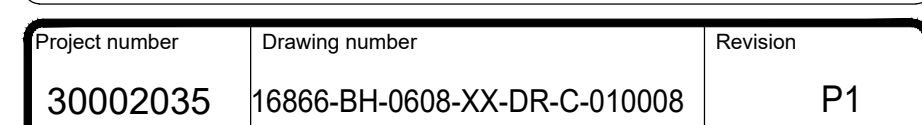
Date

Date

CAD Ref London\Projects\30002035 - VIP Peak East\09_CAD\03_BH\04_civil\Model Information (WP)

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Project number	Drawing number	Revision
30002035	16866-BH-0608-XX-DR-C-010007	P1



FOR CONTINUATION SEE SHT 3

The image is a technical drawing of a proposed access haul road horizontal alignment. It features a plan view on the left showing the road alignment (solid black line) and various utility lines (dashed blue, green, and yellow lines) crossing it. The drawing is overlaid with a large red diagonal stamp that reads "IN PROGRESS".

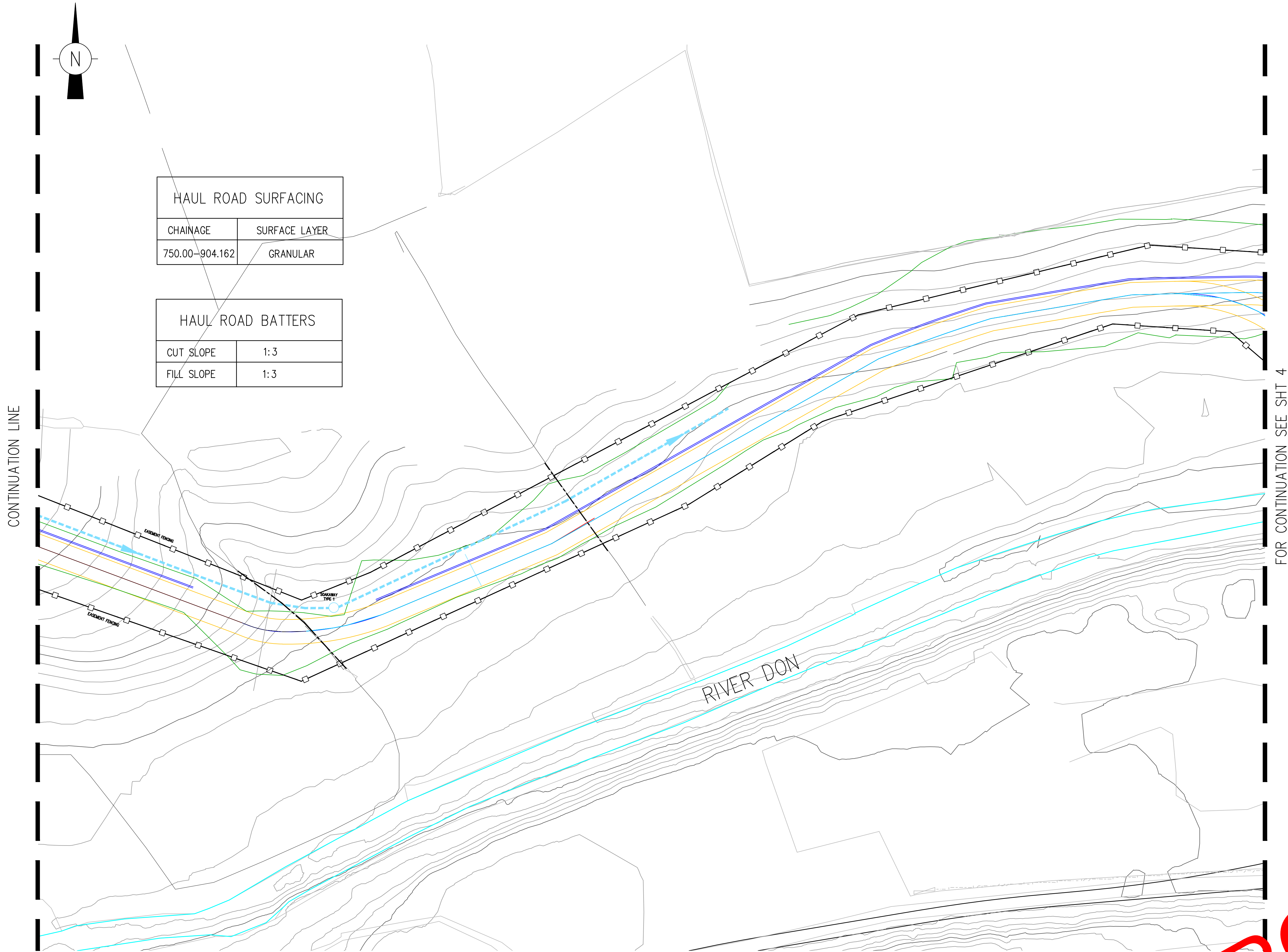
On the right side, there is a title block and a logo. The title block contains the following information:

- Project: VIP PEAK EAST
- Title: PROPOSED ACCESS HAUL ROAD HORIZONTAL ALIGNMENT SHEET 2
- Scale: AS SHOWN (when plotted @ A1)
- Drawn: M/C
- Date: 03/07/2020
- Checked:
- Date:
- Approved:
- CAD Ref: London\Projects\30002035 - VIP Peak East\09_CAD\03_BH\04_civil\Model Information (WP)

Below the title block is the BakerHicks logo, which consists of the text "BakerHicks." in a bold, sans-serif font, followed by a green horizontal line. Below the logo is the company's contact information:

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EC2Y 0TG
T. 020 75493260
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HAUL ROAD SURFACING	
CHAINAGE	SURFACE LAYER
750.00-904.162	GRANULAR

HAUL ROAD BATTERS	
CUT SLOPE	1:3
FILL SLOPE	1:3

PLAN SHOWING ACCESS HAUL ROAD ROUTE CH.750.00-CH.904.162

Scale: 1:500

0100mm
This drawing may have been reduced
original scale : 100mm

Reference DrawingsLegendNotes

REFERENCE DRAWINGS:
PDD-33492-LAY-055 - TPT DIVERSION GA
16866-BH-0608-XX-DR-C-010132 - LONG SECTIONS SHEET 1
16866-BH-0608-XX-DR-C-010133 - LONG SECTIONS SHEET 2
16866-BH-0608-XX-DR-C-010134 - LONG SECTIONS SHEET 3
16866-BH-0608-XX-DR-C-010135 - CROSS SECTIONS SHEET 1
16866-BH-0608-XX-DR-C-010136 - CROSS SECTIONS SHEET 2
16866-BH-0608-XX-DR-C-010150 - ROAD BUILD UP DETAILS

NOTES:
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4. PASSING POINTS TO BE 8m WIDE (INCLUDING 5m HAUL ROAD WIDTH), 50m LONG AND EVERY 500m.
5. TYPICAL CROSS SECTION OF HAUL ROAD AS PER PDD-33492-LAY-055

LEGEND:
HAUL ROAD SURFACE
WATER DRAINAGE DITCH
WOVEN WIRE FENCING
POST AND RAIL FENCING TO BE TAKEN DOWN

DRAWING TO BE PRINTED IN COLOUR

IN PROGRESS ISSUE

Revision

P1

Description

Revisions

Drawn

MC

Date

03/07/2020

Checked

Approved

nationalgrid

National Grid plc, Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA

NG DRAWING No:

MORGAN SINDALL

VIP PAK EAST

PROPOSED ACCESS HAUL ROAD
HORIZONTAL ALIGNMENT
SHEET 3

Scale

AS SHOWN
(when plotted @ A1)

Drawn

MC

Checked

Date

03/07/2020

Approved

Date

CAD Ref London\Projects\30002035 - VIP Peak East\08_CAD\03_BH\04_civil\Model Information (MIP)

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Drawing number

16866-BH-0608-XX-DR-C-010130

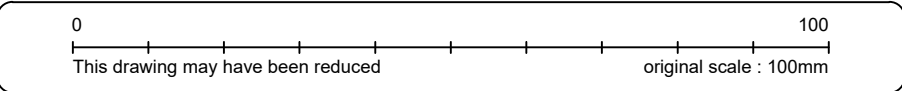
Revision

P1

IN PROGRESS



PLAN SHOWING ACCESS HAUL ROAD ALIGNMENT 2 AND 3
Scale: 1:500



Reference Drawings Legend Notes

REFERENCE DRAWINGS:

- PDD-33492-LAY-055 - TPT DIVERSION GA
16866-BH-0608-XX-DR-C-010132 - LONG SECTIONS SHEET 1
16866-BH-0608-XX-DR-C-010133 - LONG SECTIONS SHEET 2
16866-BH-0608-XX-DR-C-010134 - LONG SECTIONS SHEET 3
16866-BH-0608-XX-DR-C-010135 - CROSS SECTIONS SHEET 1
16866-BH-0608-XX-DR-C-010136 - CROSS SECTIONS SHEET 2
16866-BH-0608-XX-DR-C-010150 - ROAD BUILD UP DETAILS

NOTES:

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- PASSING POINTS TO BE 8m WIDE (INCLUDING 5m HAUL ROAD WIDTH), 50m LONG AND EVERY 500m.
- TYPICAL CROSS SECTION OF HAUL ROAD AS PER PDD-33492-LAY-055

LEGEND:

- HAUL ROAD SURFACE WATER DRAINAGE DITCH
- STONE WALL AND GATE TO BE TAKEN DOWN AND SET ASIDE FOR REUSE

KEY PLAN:



HAUL ROAD SURFACING ALIGNMENT 2	
CHAINAGE	SURFACE LAYER
0.000-54.393	GRANULAR

HAUL ROAD SURFACING ALIGNMENT 3	
CHAINAGE	SURFACE LAYER
0.000-131.295	GRANULAR
136.739-161.72	ASPHALT
161.72-259.382	ASPHALT

HAUL ROAD BATTERS	
CUT SLOPE	1:3
FILL SLOPE	1:3

DRAWING TO BE PRINTED IN COLOUR

IN PROGRESS ISSUE:		Drawn MC		Date 03/07/2020	Checked	Approved
Revision	Description					

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NG DRAWING No:

MORGAN SINDALL

Project	VIP PEAK EAST		
Title	PROPOSED ACCESS HAUL ROAD HORIZONTAL ALIGNMENT SHEET 4		
Drawn AS Shown	Drawn MC	Checked	Approved
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CAD Ref London\Projects\30002035 - VIP Peak East\09_CAD\03_BH\04_civil\Model Information (MP)			

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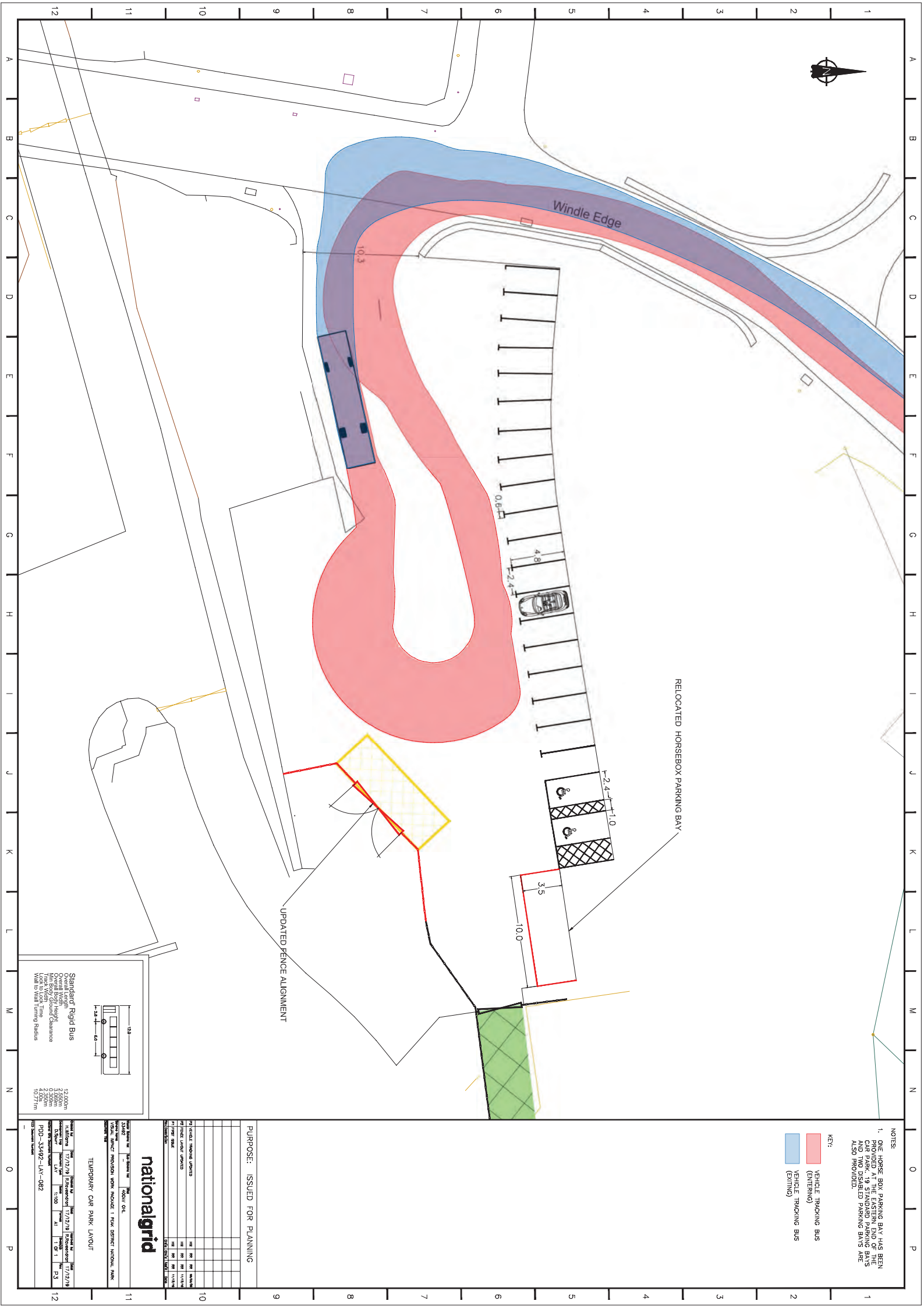
Project number	Drawing number	Revision
30002035	16866-BH-0608-XX-DR-C-010131	P1

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.5 Appendix E – Altered layout of the Trans Pennine Trail Car Park during Construction



Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.6 Appendix F – Railway Bridges Structural Assessment



NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report





NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

PROJECT NO. 70023097-005

DOC REF. NO. 70023097-005-RPT-71A-003

DATE: MARCH 2019

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For Approval			
Date	March 2019			
Prepared by	Alex Muir Wood			
Signature	<i>Alex Muir Wood</i>			
Checked by	Ben Holland			
Signature	<i>B Holland</i>			
Authorised by	Clive Nunn			
Signature				
Project number	70023097-005			
Document reference	70023097-005-RPT-71A-003			
File reference				

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2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS	5
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APPENDICES

APPENDIX A

ABNORMAL LOADS

EXECUTIVE SUMMARY

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of a package of bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A. The assessment reports concluded that the structures had adequate capacity for 40/44 tonne Assessment Live Loading in accordance with BD21/01 'The assessment of highway bridges and structures', with some limitations. These limitations were: the footway was not assessed on Dunford Railway Bridge 71A due to lack of information and the parapets for both bridges were not assessed.

WSP has been commissioned to assess Dunford Railway Bridge No. 71 and Dunford Railway Bridge No. 71A for two abnormal vehicle loads.

This report records the results arising from the assessment of these abnormal vehicles loads. The assessment results are summarised as follows:

Dunford Railway Bridge No. 71

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
 - wheels are prevented from being on the footway,
 - the vehicle is the only vehicle on the bridge,
 - it is limited to the loading in Appendix A and
 - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

Dunford Railway Bridge No. 71A

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
 - wheels are prevented from being on the footway,
 - the vehicle is the only vehicle on the bridge,
 - it is limited to the loading in Appendix A and
 - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

1. INTRODUCTION

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of three bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A and Clough Beck Culvert. Subsequently, WSP has been commissioned to assess bridges 71 and 71A for two abnormal load vehicles.

1.1. REFERENCES

For the description of the structures, structural condition and analysis methods used in assessment, please refer to the following documents:

Dunford Railway Bridge No.71

Inspection for assessment report, document reference 70023097-005-RPT-71-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71

Approval in Principal Addendum no. 1, document reference 70023097-005-AIP-71-002

Assessment report, document reference 70023097-005-RPT-71-002

Dunford Railway Bridge No.71A

Inspection for assessment report, document reference 70023097-005-RPT-71A-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71A-002

Assessment report, document reference 70023097-005-RPT-71A-002

1.2. ABNORMAL LOADS

The abnormal loads are provided in the Wynns report 'Abnormal Indivisible Load Access Study – Transportation of Cable Drums to Proposed Laydown Area in Car Park at Dunford Bridge' revision 2, issued on 14/12/2016. The vehicles are shown on drawing numbers PB-PDE-CD01 (Rev 0) and PB-PDE-CD02 (Rev 0), shown in Appendix A. The axle loads were clarified by Anthony Pearce from Wynns in an email, also included in Appendix A.

2. DUNFORD RAILWAY BRIDGE NO. 71 ABNORMAL LOAD ASSESSMENT RESULTS

2.1. MASONRY ARCH

The masonry arch was assessed for the abnormal loads described in Section 1.2 using the MEXE method as described in the Dunford Railway Bridge No. 71 Approval in Principal and Addendum No. 1, October 2018. The permissible axle loads as a result of the MEXE analysis are compared against the axle load scenario for the abnormal vehicles.

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

BA 16/97 states that the MEXE method should be used with caution for heavier vehicles than the 40/44 tonne category. The permissible axle loadings given for the following bogie (defined as 2 or 3 closely spaced axles) arrangements are as follows:

Single-axle bogie: 42.2 tonnes per axle

Double-axle bogie: 27.2 tonnes per axle

Triple-axle bogie: 24.5 tonnes per axle

The abnormal loads could be described to have a 4 axle (PB-PDE-CD01) or 5 axle (PB-PDE-CD02) bogie. BA16/97 does not give an axle factor for a 4 or 5 axle bogie. For this arch geometry, a comparison for the critical position and load spread of a 40/44 tonne triple-axle bogie has been made with the abnormal vehicles' trailers/bogies. It has been concluded that the load effects of the abnormal loads would be no more onerous than a triple-axle 40/44 tonne vehicle. Therefore, the masonry arch has been assessed to have adequate capacity to support the abnormal loads.

2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS

The abutments, foundation, spandrel walls and wingwalls were assessed qualitatively as discussed in the documents listed in Section 1.1. There were no signs of tilting or settlement observed during the Inspection for Assessment dated 21st June 2018. The abutments, foundation, spandrel walls and wingwalls were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

2.3. PARAPETS

The parapets were not assessed as part of this assessment, nor part of the previous assessment.

3. DUNFORD RAILWAY BRIDGE NO. 71A ABNORMAL LOAD ASSESSMENT RESULTS

3.1. CONCRETE ENCASED STEEL GIRDER

The bridge was assessed for the abnormal loads using the methods described in the Approval in Principal for Assessment (document reference 70023097-005-AIP-71A-002).

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

The lowest reserve factor was found to be 1.31 and the results are summarised in Table 1 below.

Load Case	Member	Load Effect	Assessment Resistance	DL Assessment Effects	Superimposed DL Assessment Effects	Capacity for Live Load	Live Load Assessment Effect	Reserve Factor
			R_A^*	S_D^*		$R_A^* \cdot S_D^*$	S_L^*	$(R_A^* \cdot S_D^*) / S_L^*$
Abnormal Load PB-PDE-CD01	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	218.61	3.28
		Shear (kN)	930.10	72.76	484.58	372.76	37.68	9.89
Abnormal Load PB-PDE-CD01	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	561.71	1.31
		Shear (kN)	930.10	67.52	476.00	386.58	148.26	2.61
Abnormal Load PB-PDE-CD01	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	697.80	1.91
		Shear (kN)	930.10	62.21	288.30	579.59	221.48	2.62
Abnormal Load PB-PDE-CD02	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	210.61	3.40
		Shear (kN)	930.10	72.76	484.58	372.76	39.80	9.37
Abnormal Load PB-PDE-CD02	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	541.17	1.36
		Shear (kN)	930.10	67.52	476.00	386.58	156.60	2.47
Abnormal Load PB-PDE-CD02	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	672.28	1.99
		Shear (kN)	930.10	62.21	288.30	579.59	233.93	2.48

Table 1. Summary of abnormal load assessment results

3.2. JACK ARCHES

In the previous assessment, the reinforced concrete jack arches were assessed following the advice in the Network Rail Standard NR/GN/CIV/025, a qualitative analysis using Bridgeguard 3 Current Information Sheet 22. It is assumed that the service bays at both edges of the bridge deck are providing alternative lateral restraint. The qualitative analysis using Bridgeguard 3 Current Information Sheet 22 determined the reinforced concrete jack arches to be adequate for 40 tonnes vehicle configuration requirements.

The Assessment for 40 tonnes vehicle configuration can be compared to the abnormal loads vehicle configuration specified. BD21/01 Clause D3, with regards to assessing vehicle configuration for 40 tonnes, states 'The wheel loads should be applied at 1.8m transverse spacing on the axle over a 0.3 x 0.3m square contact area.' The heaviest axle load for an Annex D vehicle is 11.5 tonnes, and due to the geometry of the jack arches, the most onerous load location would be for half of this load to be applied to the jack arch.

The abnormal load vehicle, PB-PDE-CD01, has the heaviest axle weight of 12.5 tonnes. There are eight wheels per axle and due to the geometry of the jack arches and the wheel configuration the most onerous load location would result in a quarter of the axle load applied to one side of the jack arch. A quarter of 12.5 tonnes, 3.125 tonnes, is less than a half of 11.5 tonnes, 5.75 tonnes, and it can be concluded that the jack arches would experience less onerous loading under the axle configurations of the abnormal loads. Therefore the jack arches are assessed to have adequate capacity for the abnormal loads.

3.3. ABUTMENTS AND FOUNDATIONS

The abutments and foundations have been assessed qualitatively. The vertical crack in each abutment is thought to be due to settlement of the foundations. WSP agree with the following statement in the Assessment Inspection Report 2005 (included in the Appendix to the WSP Assessment report 70023097-005-RPT-71A-002): *“The mineral report states that there are no records of any coal mining activities to have affected the stability of the structures. This is mainly borne out by the inspection however the vertical cracking in both abutments adjacent beam 3 is evidence of past movement. This movement is old and the cracking in both Abutments was first noted in the inspection of 1959, it was noted at the inspection dated 1972 no further movement and this is still true as there are no signs of recent movement. The bridge is constructed in a cutting, the cutting sides can be seen on site to be solid sandstone therefore it is reasonable to assume that the structure is founded on competent strata.”* The abutments and foundations were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

4. CONCLUSIONS

4.1. DUNFORD RAILWAY BRIDGE NO 71

The Dunford Railway Bridge No. 71 has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The masonry arch as assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment, refer to the Dunford railway Bridge No. 71 Assessment Report no. 70023097-005-RPT-71-002.

4.2. DUNFORD RAILWAY BRIDGE NO 71A

The Dunford Railway Bridge No. 71A has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The bridge deck, excluding the footways, was assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. As in the previous assessment the footway slab has not been assessed due to insufficient information. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment and recommendations or assessing the footway, refer to the Dunford railway Bridge No. 71A Assessment Report no. 70023097-005-RPT-71A-002.

Appendix A

ABNORMAL LOAD VEHICLES

Muir Wood, Alex

Subject: FW: National Grid Peak District AIL query

From: Andy Pearce [mailto:andy.pearce@wynnslimited.com]
Sent: 06 March 2019 13:06
To: Muir Wood, Alex <Alex.Muir-Wood@wsp.com>
Cc: Raveendran, Ravi <Ravi.Raveendran@wsp.com>; Nunn, Clive <Clive.Nunn@wsp.com>; Peter Wynn <peter.wynn@wynnslimited.com>
Subject: RE: National Grid Peak District AIL query

Good Afternoon Alex,

Thank you for your email and apologise for any confusion. The drawings are indicative and can vary depending on the exact tractor units and trailers utilised for movement, but I see where the uncertainty arises. We needed to make some assumptions and generally use the worst case basis. The load can be positioned toward the front or toward the rear of the trailer since the load is not very long. On that basis we can assume that say 16 tonnes of the load and trailer weight is transferred through the hydraulic neck and into the tractor 5th wheel. The self-weight of the tractor shown is 14 tonnes so the tractor is supporting 30 tonnes all up. I show below how this can be referenced in the 2 drawings.

PB-PDE-CD01

The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 4 axles, so each will be approximately 12.5 tonnes each.

PB-PDE-CD02

The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 5 axles, so each will be approximately 10 tonnes each.

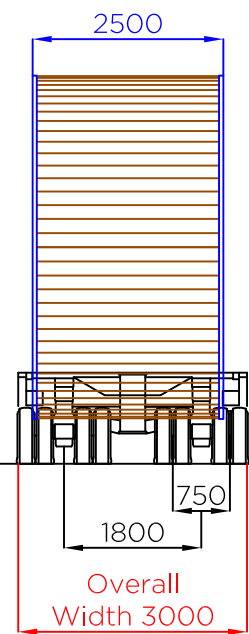
The loads suitability will of course depend on your structural assessment findings which will be affected by the nature of the bridge, span, skew etc. These axle loads are in fact quite low but if necessary additional axles could be added to further reduce axle loads although this would increase gross loads and trailer length.

Unfortunately, due to staff holidays and existing commitments we are not at present able to update the drawings for you within the next 2 weeks but we could do so later in the month if needed.

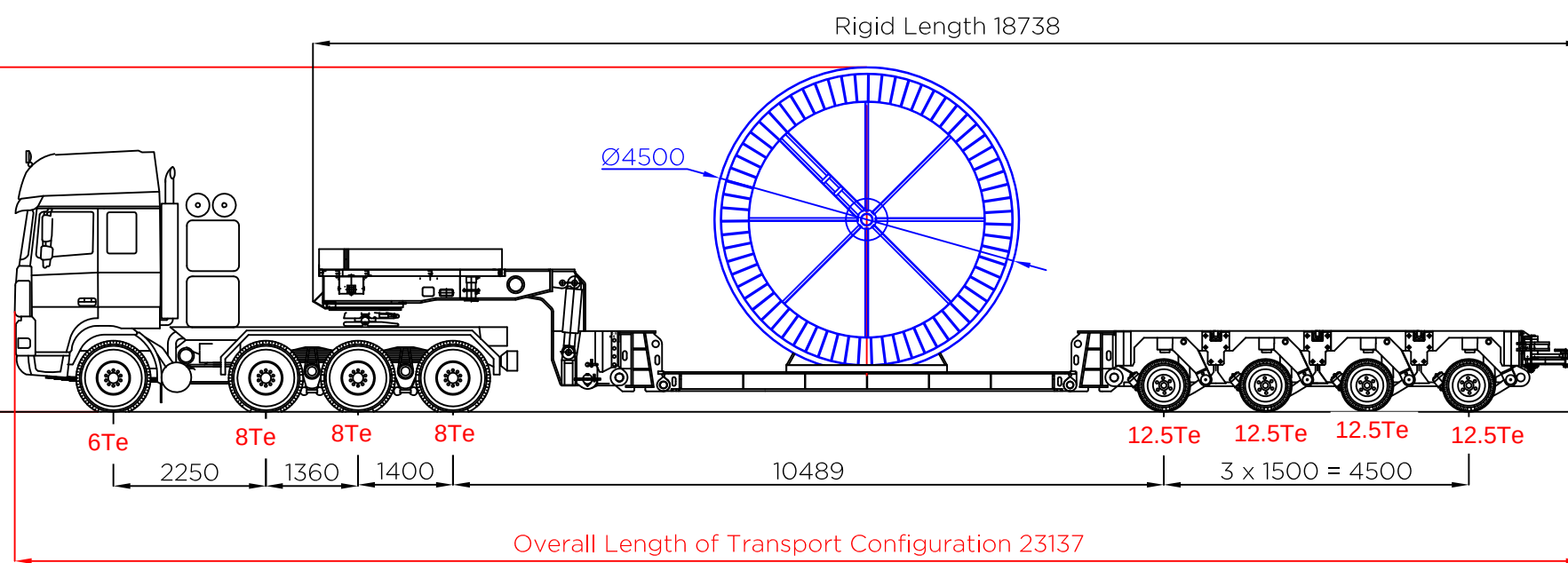
I trust that this is of some assistance.

Kind Regards

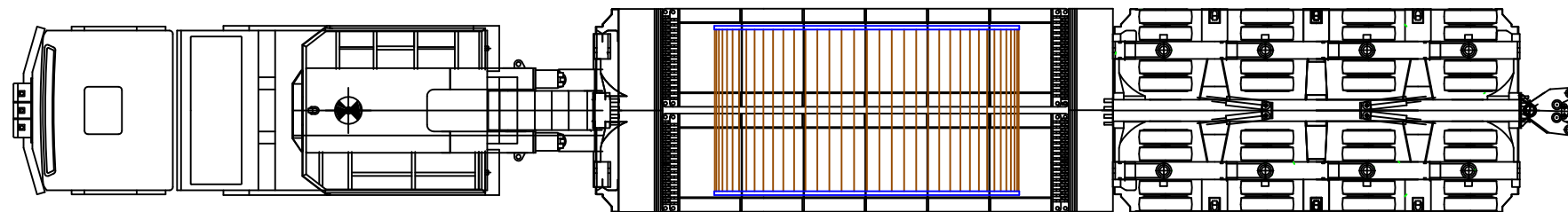
Andy Pearce



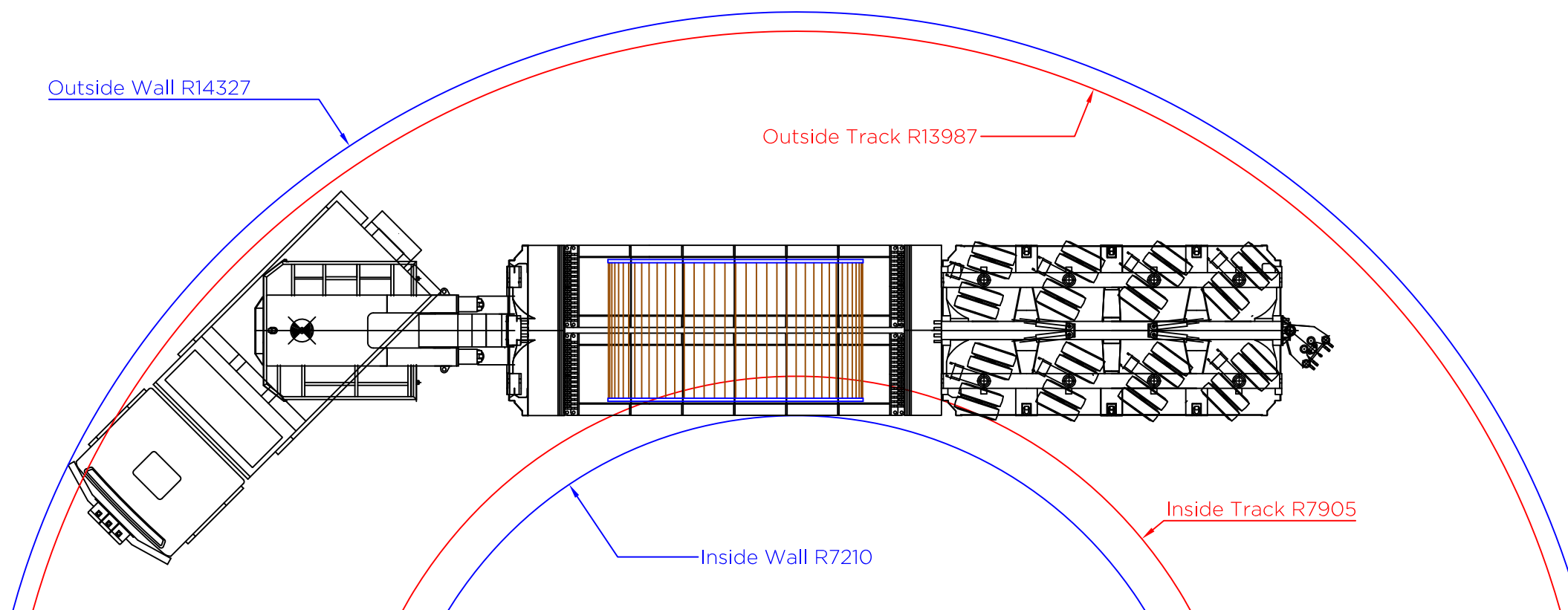
End Elevation



Side Elevation - Indicative 4 Axle Low Bed Trailer



Plan View - Indicative 4 Axle Low Bed Trailer



Minimum Turning Radii

Load Table	
4 Axle Goose Neck Low Bed Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	11.00 Te
Load Per Wheel	1.38 Te
Overall Ground Bearing Pressure	3.26 Te/m ²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar

Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	9.17 Te
Rear Axle	9.17 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

A		
O	12.07.16	Issued for comment
Rev.	Date	Ammendments
		Revisions

Prepared By:

 **WYNNS** ENGINEERS

Shaftesbury House, 2 High Street,
Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client:

 **WSP** | **PARSONS BRINCKERHOFF**

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
4 Axle Goose Neck Low Bed Trailer
Showing Minimum Turning Radii

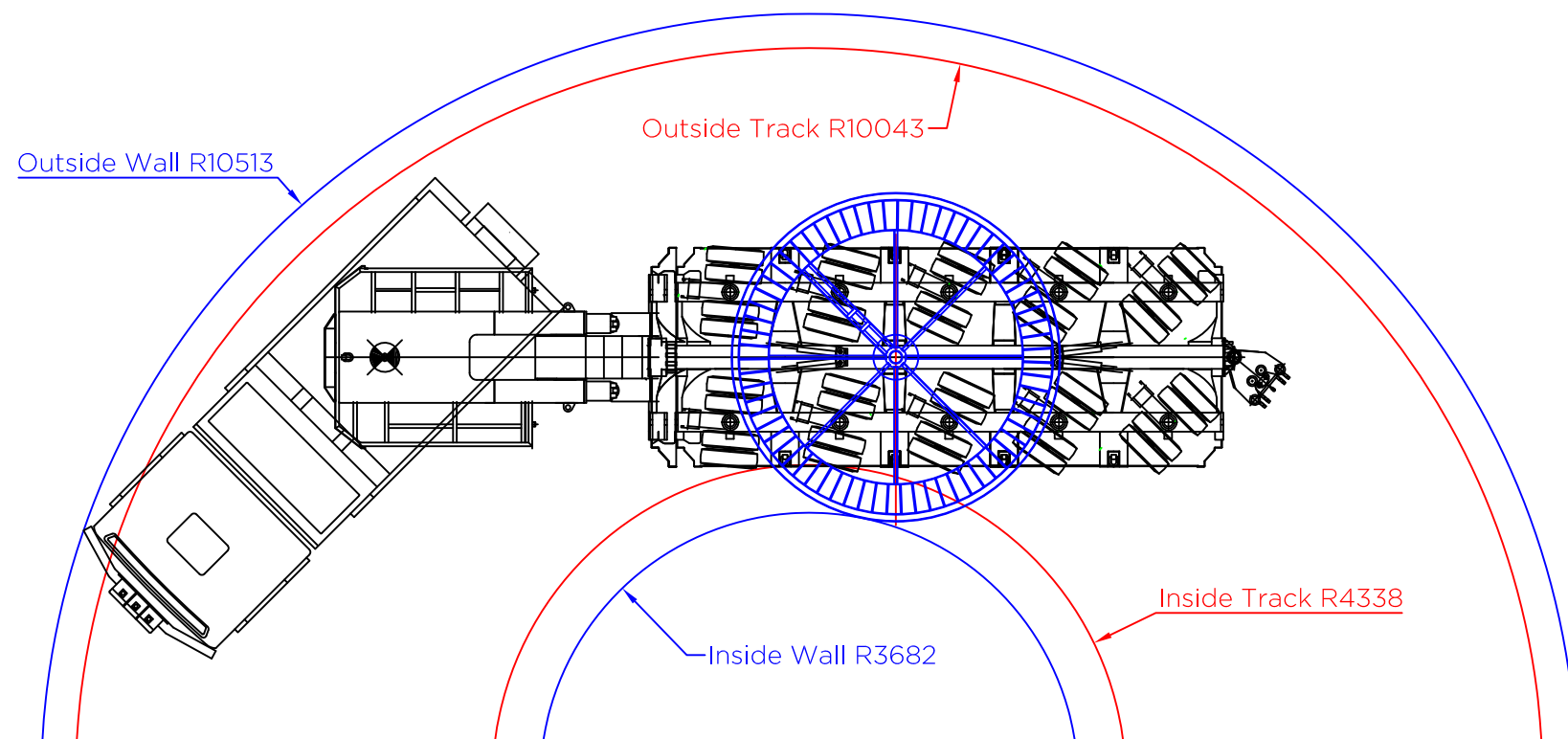
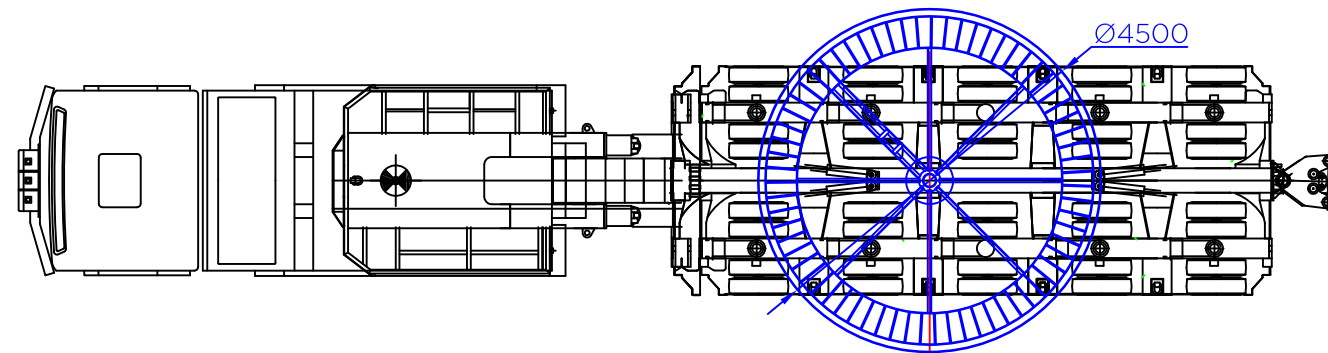
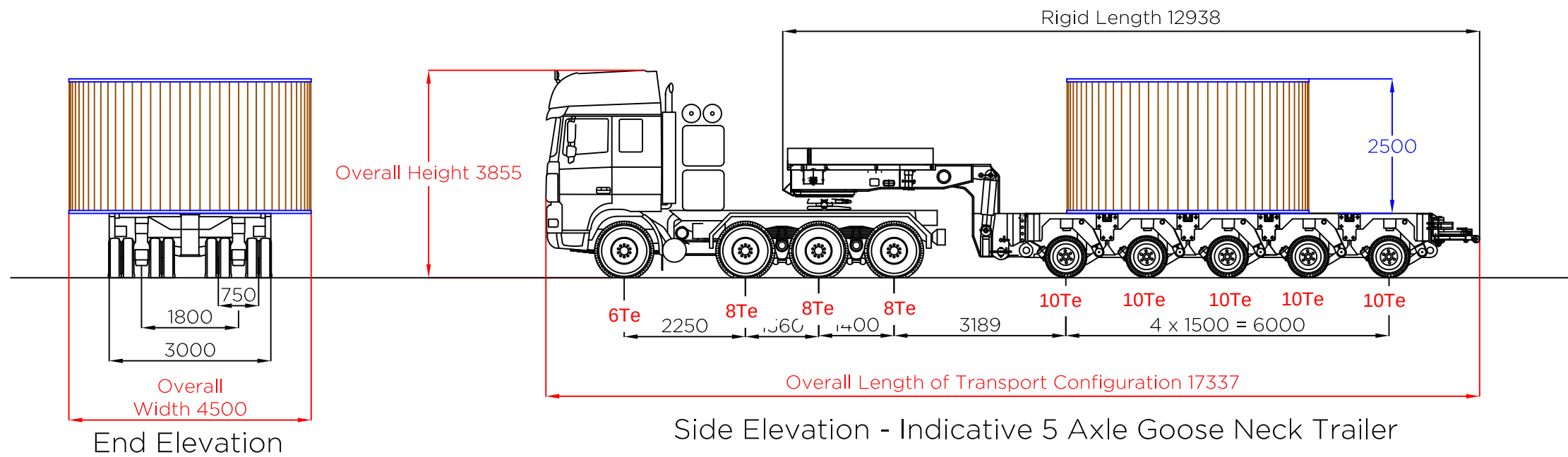
Drawing Status:

Final Report

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PB-PDE-CD01	1 of 1	0

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Peak District East\Cable Drum Transport
Configurations.dwg



Load Table	
5 Axle Goose Neck Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	9.43 Te
Load Per Wheel	1.18 Te
Overall Ground Bearing Pressure	2.62 Te/m ²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar

Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	7.86 Te
Rear Axle	7.86 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

A		
O	12.07.16	Issued for comment
Rev.	Date	Amendments
		Revisions

Prepared By:

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Independent Transportation Engineers

Client:

 **WSP** | **PARSONS BRINCKERHOFF**

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
5 Axle Goose Neck Trailer
Showing Minimum Turning Radii

Drawing Status:

Final Report

Scale (A3):	Drawn By:	Checked By:
1:100	DJT	PAGW
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PB-PDE-CD02	1 of 1	0

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Configurations.dwg



2 London Square
Cross Lanes
Guildford, Surrey
GU1 1UN

wsp.com

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)
Appendix. F Traffic Management Plan (TMP)

8.7 Appendix G – Abnormal Indivisible Load Access Study

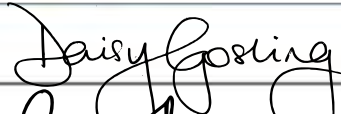


Abnormal Indivisible Load Access Study - Desktop Review of Transportation of Cable Drums to Car Park at Dunford Bridge

Prepared for WSP



WSP I 19-970 Peak District East I AIL Desktop Review I 01.05.19

NAME		SIGNATURE	DATE
Prepared by:	Daisy Gosling		30.04.19
Checked by:	Andy Pearce		01.05.19
Approved by:	Andy Pearce		01.05.19

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DOCUMENT REVISIONS

Issue	Date	Details
0	01.05.19	Draft
1		
2		



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Executive Summary

The contents of this report include an updated desktop review of transport feasibility investigations into achieving access for cable drums to the proposed laydown area in the Trans Pennine Walk car park, Dunford Bridge that was initially investigated and reported on during 2016. These are required for the undergrounding of an existing overhead power line in the Peak District National Park, in order to reduce visual impact. It is not known the number or frequency of deliveries, but these are expected to be between late 2020 and April 2021.

Due to the overall transport weight of the loads being considered (plus carrying trailer) being between 80te and 150te gross weight, the load will be moved under Special Types General Order (STGO) Category 2 or 3 legislation and will not require a Special Order from Highways England.

Two trailer configurations were initially considered for the delivery of the 41te cable drums. A 4 axle low bed trailer, allowing conventional loading of the cable drums with the largest dimension cable drum dimension being vertically carried, and a 5 axle flat top trailer allowing a width of 4.5m with the drum loaded with a reduced height due to rotation of the drum. This was proposed in the event that there were any overhead restrictions identified. It is recommended that the 4 axle low bed is used for delivery as there are no height restrictions on the route. This is discussed in further detail in section 4 of this report.

These STGO Category 3 loads are expected to be delivered by road from the UK port of delivery or manufacturing facility and this report therefore focuses on the potential routes from the M1 to the site.

Route 1 is considered negotiable and has been structurally cleared by all structural authorities on 4 axle goose neck low bed and 5 axle goose neck flat top trailers, except for Highways England Area 12 who not provided written confirmation that the route is acceptable have to date. No problems are however anticipated and Wynns will seek confirmation of this and advise accordingly.

As part of the desktop review; Wynns were asked to review the Assessment Report carried out by WSP for two National Grid owned bridges; 'Dunford Railway Bridges No. 71 and No 71a' on Windle Edge. In summary both bridges are acceptable for the proposed loads subject to full cautions such as ensuring the AIL is the only vehicle on the structure and limiting speed to <10mph whilst crossing.

As part of the latest desktop review, updated swept path assessments have been carried out to confirm access in and out of the revised car park layout. It is still the case that there is insufficient space for the delivery vehicles to turn around once the cable drums have been offloaded at the laydown area, and therefore access from Windle Edge into the car park will require the delivery vehicle to continue past the car park entrance and reverse into the car park. This is illustrated in drawing no. '19-970-SPA01 (sheet 1 and 2 of 2)', in appendix 2 of this report.

The exact requirements for any street furniture removal will depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements prior to delivery. The cost for this is expected to be minimal and no major issues with respect to street furniture are anticipated.

This report is intended to be a summary of the Abnormal Indivisible Load (AIL) route access at the current time and is not a guarantee that the route will be cleared in the future.



1. Introduction

- 1.1. The contents of this report include a desktop review of Wynns 2016's land transport feasibility investigations into achieving access for cable drum components to the proposed laydown area in the Trans Pennine Car Park at Dunford Bridge as part of a future development scheme. This is required to reconfirm the status of the route in respect to structural clearance based on current 2019 information.
- 1.2. This document reconfirms the preferred route but does not constitute a formal agreement for movement. Any future movement for the cable drums within Special Types General Order (STGO) Regulations will require the appointed haulage contractor to notify the relevant statutory authorities in the statutory manner. The legislative requirements for movement of the cable drums are discussed in detail within Section 2.
- 1.3. No specific consideration has been given to an onsite cable carrying vehicle that is often deployed during onsite movement of cables from storage to installation point. Wynns are aware from other similar projects that on occasions the site installation vehicles will also need to be road routed to the site as it is not built up on site. This vehicle could, based on previous experience, also be an AIL due to its excessive width (>3.0m).
- 1.4. This investigation is intended to be a summary of the AIL route access at the current time and is not a guarantee that the route will be cleared in the future. Specific movements will need to be assessed at the time on an individual basis.

2. Legislative Requirements

2.1. *Definition of Abnormal Indivisible Load (AIL)*

- 2.1.1. The Department for Transport, of which Highways England (HE), formally the Highways Agency (HA), is a government-owned company with responsibility for managing the core road network in England, state that the strict definition of an AIL refers to a load which cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of carriage on roads and which, owing to its dimensions or weight, cannot be carried on a vehicle which complies in all respects with the 'standard vehicle regulations' these are:

- The Road Vehicles (Construction and Use) Regulations 1986 (as amended)
- The Road Vehicles (Authorised Weight) Regulations 1998 (as amended)
- The Road Vehicles Lighting Regulations 1989 (as amended).

- 2.1.2. All equipment should be stripped of their ancillaries before they are transported. HE will only accept that further dismantling is not required where it cannot be economically achieved due to the requirement for its construction within specific factory environments or where extremely high tolerances have to be maintained.

2.2. *Legislation*

- 2.2.1. Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as abnormal indivisible loads (AIL) covers those vehicles where the gross weight exceeds 44 tonnes. An Abnormal Load is defined as that which cannot be carried under Construction and Use (C&U) Regulations. Items which, when loaded on the load carrying vehicle exceed the weights encompassed by the C&U Regulations, but do not

exceed Special Order Permission Limits, are governed by Special Types General Order (STGO) categories 1 to 3 depending on size. Where dimensions exceed 6.1m in width, 30m in rigid length or 150 tonnes gross weight, Special Order from Highways England (HE) is required.

2.2.2. STGO loads orders grant consent for loads that satisfy the following criteria:

- Category 1 weight 44 – 50 tonnes and 11.5te axle weights
- Category 2 weight 50 – 80 tonnes and 12.5te axle weights
- Category 3 weight 80 – 150 tonnes and 16.5te axle weights
- 3.0m – 5m width
- 5.0m – 6.1m width (VR1 Required)
- 18.65m – 30.0m length

2.2.3. The cable drums considered within these investigations are expected to be transported at STGO Category 2 or 3. The indicative loads presented are 80te gross weight which is the limit of STGO Category 2. Category 3 loads are required to provide two clear working weekdays notice to be given to the Police forces on the proposed route and are required to provide 5 clear working weekdays notice together with an indemnity to the highway and bridge authorities on the route.

2.2.4. These loads, although still AIL's, are not in need of Special Order permissions and therefore are not directed by the HE to be delivered via the nearest port of delivery. These loads are expected to be delivered by road from the UK port of delivery or manufacturing facility.

3. Abnormal Indivisible Load Movements - Highways Act 1980

3.1. *Recovery of Excessive Maintenance Costs - Section 59 Agreements*

3.1.1. Section 59 of the Highways Act 1980 allows the highways authority to raise a charge against a user of the highway to cover repair works necessitated by excessively heavy or unusual loads being carried on the road by that user. This provision is typically used where the passage of heavy lorries to and from industrial premises or building sites causes excessive damage to the road, requiring expensive remedial works by the Council. Under Section 59, the Council may charge on such costs to the organisation responsible for the damage, the amount payable being calculated as the excess cost of repair compared to normal maintenance costs for the road. Rather than wait to be charged such excessive repair costs, the Council and the third party may enter into an agreement under Section 59 whereby the third party accepts liability and makes payment of an agreed sum to the Council to cover the excessive repair costs.

3.2. *The Removal and Replacement of Street Furniture*

3.2.1. Where the removal and replacement of street furniture is required for the mobilisation of out of gauge vehicles into existing sites then these are generally managed under TTRO and Street Works Legislation. These are normally, but not necessarily, organised by the haulage contractor. These requirements are generally to ensure that the supervisors and operatives are competent and that the works will be carried out to a prescribe standard with the appropriate traffic management in place. In some circumstance the Highway Authority or LA will insist that their preferred contractors will carry out such work.



4. Transport Configurations

- 4.1. The dimensions of the cable drum component expected to require delivery to the site as advised by WSP which has been considered in these investigations is detailed below:

Diameter	4.5m
Weight	41te

- 4.2. Due to the size of the components it is not possible to transport them under the regulations governing Construction and Use (C&U) vehicles (44 tonne gross, 18.65m long and 2.9m wide). It is therefore necessary to transport within the Special Types General Order (STGO) regulations as previously discussed.
- 4.3. There are numerous haulage contractors with equipment able to carry the cable drums within STGO Category 3 (between 80te – 150te gross) and these have been used to inform and produce the conceptual transport drawings considered within this report. As various haulage contractors are available, competitive tendering for the transport of cable drums is viable. For the general purposes of this investigative work we have produced transport arrangements considerate of a maximum 41te nett cable drums.
- 4.4. It is assumed that road transport configuration would utilise a bed trailer or low bed type configuration. The conceptual transport dimensions for the cable drums are discussed below:
- Drawing Number 19-970.TC01 – 4 axle goose neck low bed trailer at 80te gross (4.8m reduced height)
 - Drawing Number 19-970.TC02 – 5 axle goose neck trailer at 80te gross (4.5m wide)
- 4.5. Drawing Number 19-970.TC01 shows a 4 axle goose neck low bed trailer with the cable drum carried in its conventional position with the height of 5.1m making a reducible height when loaded on the trailer of 4.8m. The rigid length of this trailer is 23.1m.
- 4.6. Drawing Number 19-970.TC02 shows a 5 axle goose neck trailer with the cable drum carried in its alternative position, with the drum carried at 4.5m width rather than height due to rotation of the drum. This reduces the length of the trailer and the load height considerably. The rigid length of this trailer is 17.3m which would assist with negotiability if required. However, the increased width of 4.5m means that the overall width of the load becomes more significant and caution is required. It would only be proposed to deliver on this shorter vehicle, with a wider width, in the event that a more conventional low bed trailer arrangement encountered difficulties.
- 4.7. As no negotiability issues were identified on the route inspection in 2016 for the conventional carriage of the cable drums on the 4 axle low bed trailer, it is not anticipated that the 5 axle flat top configuration at the wider transport width will need to be considered for access.
- 4.8. The physical negotiability of these vehicles is discussed in further detail in Section 6.
- 4.9. The trailer arrangements provided to the structural authorities for consideration in this investigation have been produced to be considerate and representative of those available in the UK heavy haulage market in terms of their suitability on the potential access route from the M1 motorway to site. The responses to these investigations are discussed in Section 5.

5. Structural Route Information

5.1. As the loads are not restricted to Special Order requirements, the cable drums could arrive via any UK port and travel to the M1 by way of the motorway and trunk road network. It is assumed that this will be feasible without difficulty for the proposed loads. The final approach to the site from junction 36 is now discussed in terms of structural clearance.

5.2. The following route from the M1 to the proposed laydown area has been included in 2019 structural enquiry;

Proposed Route 1

Exit M1 at Junction 36

Exit Tankersley Roundabout to A61 Westwood New Road

Turn right A616

Continue A616 to Hazlehead

Turn left A628

Turn right Goddard Lane

Continue Windle Edge

Turn right to site at Dunford Bridge into car park at OS Grid Ref. SE1577 0241

5.3. The route has been structurally cleared by the following structural authorities.

- Highways England Historical Railways Estate
- Network Rail
- Canal & Rivers Trust
- Barnsley Metropolitan Borough Council (BMBC)

5.4. Unfortunately, as part of this updated desktop review a written response from HE Area 12 has not been provided to date. However, no significant issues are expected as the route was approved in 2016, and it is assumed that the route is acceptable as far as they are concerned in the absence of any information to the contrary. Wynns are continuing to seek written confirmation on this matter and will advise accordingly.

5.5. Barnsley Metropolitan Borough Council own B5.017 Dunford River Bridge, just to the North of the car park on Windle Edge. Swept path assessment has confirmed that when carrying out a reverse manoeuvre in order to enter the car park, it is necessary to drive past the entrance and further north on Windle Edge before reversing into site. The delivery vehicle comes in to contact with B5.017 Dunford Bridge. BMBC have advised (email 11.04.19) that the structure is acceptable for the proposed loads.

5.6. Separate to the structural enquiry carried out by Wynns, WSP also asked for a review of a structural assessment report carried out for two National Grid owned bridges, attached in appendix 4. Review of the following report finds that both Dunford Railway Bridge No. 71 and Dunford Railway Bridge No. 71A were both assessed and found to be structurally acceptable for the proposed loads subject to the following cautions;

- The vehicles are prevented from being on the footway
- No other traffic on the bridge whilst crossing
- Travelling speed of no more than 10mph
- The vehicles are limited to the loadings outlined in Appendix A of their report. (Wynns have since updated these drawings for this desktop investigation).



- 5.6.1. It was also a recommendation of the assessment report that whilst the abnormal load vehicles are using the bridge then the abutments and wing walls are monitored, however it is noted for each structure that the loading of the abnormal loads would be no more onerous than the current levels of loading. It was also recommended that pre and post condition surveys are carried out before and after the abnormal load movement to ensure there is no change to the condition of the structure.

6. Route Negotiability Information

6.1. *Route 1*

- 6.1.1. The following notes and photographs are a duplicate of the 2016 report, albeit with all reference to route 2 removed, and taken from a route survey carried out by Wynns in August 2016. Wynns have not carried out any route surveys since this time and therefore caution must be given regarding the possible changes to any section of the route.
- 6.1.2. The UK motorway and trunk road network from the potential delivery ports on the east coast of Hull, Immingham, Goole and other UK ports is negotiable for the proposed loads. There are no significant negotiability limitations to egress from these ports. All are regularly used by AILs delivered into the UK at STGO and also Special Order category. This includes for loads of significantly larger dimensions than the cabled rums considered within this report such as at heavy transformers. Goole and Immingham are also regularly used for export of heavy engineering components from manufacturing facilities in Sheffield and geometry is not a concern for the proposed cable drum vehicles.
- 6.1.3. In addition, as the loads are within STGO Category 2 and 3, they are not restricted to the nearest available port by the Department for Transport's Water Preferred Policy. Therefore, it is possible that components could also be delivered to alternative UK ports such as Liverpool on the west coast or Southampton on the south coast for onward road transportation to the general study area.
- 6.1.4. As has been previously highlighted, South Yorkshire Police have indicated that they would require that wherever the loads originate in terms of a UK port of delivery they would expect the loads to approach the site from the east and the M1 motorway. This is due to concerns as to the suitability of the A628 Woodhead Pass when approaching from the west and the A57/M67 from the M60 Greater Manchester. At STGO there are no legislative restrictions on the route used and the loads will be able to route via the UK motorway and trunk road network to M1 Junction 36. The main negotiability section of this report therefore details the routes from the M1, junction 36.
- 6.1.5. Table 1 below shows a selection of UK ports that could potentially be used for delivery into the UK and the onward road routes to M1 Junction 36. This is not an exhaustive list of options but does highlight there are various possibilities, and none are considered to have significant negotiability restrictions for the proposed loads.



Table 1. Potential Ports of Delivery and Routes to M1 Junction 36

Port	Potential route to M1 Junction 36	Additional Notes
Hull	Exit Hull Docks via A1033 Continue A1033 Continue A63 (Use slip roads at Daltry junction) Continue M62 to Junction 29 Turn left M1 Exit M1 Junction 36 and continue on common route.	There are structural restrictions on the M1 for heavy loads between the M1 junction 36 and the M62. Although these are not expected to be restrictive for cable drums, if they are problematic an alternative to approach from the south would be feasible as shown below. Continue M62 to Junction 35 Turn left M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.
Immingham	Exit Immingham Docks onto A160 Humber Road Merge A180 Merge M180 Turn left M18 southbound Turn left M62 westbound Turn left M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.	Some heavy loads routing into Sheffield are not able to use the M18/M1 northbound slip roads. If necessary, this can be overcome by traveling south the M1 Junction 31 and circumnavigating the roundabout before returning north on the M1.
Goole	Exit Goole A161 Turn left A614 Rawcliffe Road Turn left M62 Turn left M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.	
Liverpool	Exit Liverpool Docks onto A565 and join A5036 Turn right M57 Turn left M62 and continue to Junction 29 Turn right M1 Exit M1 Junction 36 and continue on common route.	There are structural restrictions on the M1 for heavy loads between the M1 junction 36 and the M62. Although these are not expected to be restrictive for cable drums, if they are problematic an alternative to approach from the south would be feasible as shown below. Turn right M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.



Port	Potential route to M1 Junction 36	Additional Notes
Avonmouth	Leave Avonmouth Docks via West Gate and Victoria Road Merge with West Town Road Turn left A4 Portway Continue A4 Bristow Broadway to St Brendans roundabout Join M5 Northbound Slip Road Continue M5 Bear right M42 Turn left M1 Exit M1 Junction 36 and continue on common route.	
Southampton	Exit Southampton Docks via First Avenue Turn left A35 Redbridge Road Continue M271 north Turn right M27 Turn left M3 north Turn right M25	Gade Valley viaduct is restricted on M25 between Junctions 20 and 21 hence the suggested route via M25 anticlockwise. It may also be avoided by local diversion shown below. Take junction 19 of the M25 At roundabout take second exit, continue on A41/N Western Ave Take exit slip for A405 and then keep right (at the fork in the road) for the A405 At the roundabout take the 2nd exit, continue on A405 North Orbital Road Continue on A405 Turn left M1 north
Tilbury	Exit Tilbury Docks Turn left A126 St Andrews Rd/A1089 Dock Approach Road Turn left A13 At M25 Junction 30 turn right and continue M25 anticlockwise to junction 21 Take slip road for M1 north Exit M1 Junction 36 and continue on common route	

- 6.1.6. The route survey was undertaken on the 28.07.16 and as per the latest work instruction; no more recent surveys have been carried out. The below should therefore be treated with caution.
- 6.1.7. A summary of the main negotiability issues from 2016's survey is provided in the notes and photographs below in relation to each route and also illustrated on Map 1 (sheets 1 – 2 of 2), which can be found in appendix 1 of this report.
- 6.1.8. The exact requirements for any street furniture removal necessary will still need to be confirmed by the appointed haulage contractor prior to movements. No costs have been acquired at this stage, but they are expected to be minimal. It should be highlighted within procurement of transport that haulage contractors should allow for street furniture removal to be included in their proposals. Based on the information visible during the 2016 route survey; no major street furniture is expected to be necessary for the proposed loads, however, as stated above, and because of the time since the last survey; this will need to be confirmed by the contractor.



Photograph 1

A61/A616 roundabout off the M1, Junction 36. Vehicle moves away from camera, travelling straight over roundabout, exiting A616. Negotiable.



Photograph 2

Approach to A616/A628 roundabout.
Vehicle moves away from camera.



Photograph 3

Approach to A616/A628 roundabout.
Vehicle moves away from camera and turns left joining A628. Negotiable.



Photograph 4

A616/A628 roundabout.
Vehicle moves away from camera and turns left joining A628.



Photograph 5

West on A628. Layby for possible AIL parking subject to approval from highway authority.
Vehicle moves away from camera.



Photograph 6

West on A628. Vehicle moves away from camera.



Photograph 7

West on A628. Vehicle moves away from camera.



Photograph 8

West on A628. Vehicle moves away from camera.



Photograph 9

West on A628. Vehicle moves away from camera.

- 6.1.9. Photographs 10 – 13 below illustrate the right turn from the A628 onto Goddard Lane. A swept path analysis was carried out as part of the 2016 investigations, which confirmed negotiability and that the vehicle track stays on the road surface. This is detailed in 2016 swept path assessment (drawing no. PB-PDE-SP02, found in appendix 2), which is still relevant in this 2019 review as it has been based on the worst case combination of both transport configurations Wynns recently updated; drawing no. 19-970.TC01 and 19-970.TC02.



Photograph 10

West on A628. Vehicle moves away from camera and turns right onto Goddard Lane.
Drawing Number PB-PDE-SP02 refers.



Photograph 11

Right turn onto Goddard Lane. Vehicle enters photograph from right, turns right and exits centre photo onto Goddard Lane.



Photograph 12

Right turn onto Goddard Lane. Vehicle enters photograph from top left, turns right and exits bottom left of photograph onto Goddard Lane.



Photograph 13

Reverse angle of turn onto Goddard Lane. Vehicle enters photograph from top left, turns right and exits bottom right of photograph onto Goddard Lane.

- 6.1.10. Goddard Lane and Windle Edge, is illustrated through Photographs 14 – 19 below, and full occupation of the highway will be necessary in parts. The vehicle itself will negotiate the route and no new passing places are necessary.

- 6.1.11. In 2016 investigations; South Yorkshire Police advised that they would permit the loads to travel on Windle Edge under self/private escort. They would not expect a police escort to be required and would not require a Temporary Traffic Regulation Order (TTRO). The exact escort requirements would be formally advised at the time of notification by the appointed haulage contractor, but the police do not see this as a major issue on this route. No reference has been made to this by South Yorkshire police as part of these 2019 investigations.
- 6.1.12. As no major negotiability issues were identified on the route inspection for the conventional carriage of the cable drums on the 4 axle low bed trailer, with the cable drum carried vertically, it is not anticipated that the 5 axle flat top configuration at the wider transport width will need to be considered for access, thus improving the negotiability of the final approach to site via Windle Edge. Without carrying out a more up to date route survey it is assumed this situation remains the same.
- 6.1.13. Windle Edge is around 6-7m wide between the A628/Goddard Lane junction and the access to the car park and the 4 axle low bed trailer configuration would be 3m width, assuming a vertical drum position. Windle Edge would be suitable for two-way traffic movement whilst the AIL negotiates this section, although as stated previously, a self/private escort would be required by South Yorkshire Police to warn other road users of the presence of the AIL.
- 6.1.14. The steep gradient of Windle Edge does not prevent the drum from being transported vertically. It may however be prudent for the haulage contractor to allow for an additional tractor unit in the event that there are poor weather conditions at the time of movement.



Photograph 14

North on Goddard Lane. Vehicle moves away from camera.



Photograph 15

North East on Goddard Lane. Vehicle moves away from camera.



Photograph 16

North East on Windle Edge. Vehicle moves away from camera.



Photograph 17

North East on Windle Edge. Vehicle moves away from camera.
Full occupation of highway necessary under private escort.

- 6.1.15. It should be noticed that there are 11kv wires at this location, however as the load and vehicles are within standard UK motorway and trunk road running, it is not anticipated this will be a problem.



Photograph 18

North East on Windle Edge. Vehicle moves away from camera.
Full occupation of highway necessary under private escort.



Photograph 19

North on Windle Edge. Vehicle moves away from camera, on approach to the laydown area. As detailed in section 5, there are no structural issues anticipated with the proposed loads on this route.

- 6.1.16. Photographs 20 – 23 illustrate the turn into the car park area which is the site access location. An updated drawing has been supplied of the car park area following revisions to the design by National Grid and a review of access arrangements can be found in appendix 2 of this report (drawing no. 19-970.SP01 sheets 1 & 2 of 2). These drawings illustrate the proposed division of the car park for general public use and the proposed site access area during the project delivery and construction period.
- 6.1.17. Upon 2019 desktop checks and updated swept path assessments carried out for the turn in to the car park; it has been identified that there would be insufficient space for the delivery vehicles to turn around once the cable drums have been delivered, and therefore the delivery vehicles would need to continue past the entrance and reverse into the laydown area. This will enable the vehicles to exit the site in a forward direction.
- 6.1.18. It can be seen in drawing no. 19-970. SP01 (Sheet 2 of 2) that in order to carry out this reverse manoeuvre the vehicle would come in to contact with Barnsley Metropolitan Borough Council's (BMBC) 'B5.017 Dunford River Bridge' over the River Don as also stated

in section 5 of this report. This has been specifically highlighted to BMBC and they have confirmed the bridge is structurally acceptable for the proposed loads.



Photograph 20

North on Windle Edge. Vehicle moves away from camera, continues past the car park entrance and reverses into the site to the right of the photograph.



Photograph 21

North on Windle Edge. Vehicle moves away from camera continues past car park entrance and reverses into the site.



Photograph 22

Right turn into car park laydown area. Vehicle enters photograph from the right, exits to the left then reverses into the site.

- 6.1.19. Negotiability of the turn into the laydown area has been confirmed from a swept path analysis (drawing no. 19-970.SPA01 and 19-970.SPA02) and can be found in appendix 2 of this report.
- 6.1.20. Photographs 23 – 25 illustrate the car park as it was seen in the 2016 route survey.



Photograph 23

View from back of car park towards the road.



Photograph 24

View of car park.

- 6.1.21. Photograph 24 above shows the access through the car park to the site, as illustrated in the updated swept path assessments (drawing no. 19-970.SP01, sheets 1 & 2 of 2), found in appendix 2 of this report. The left of photograph illustrates where the car park is expected to be separated in order for it to be still used by the general public, and the right of the photograph illustrates the proposed laydown area for the cable drums.
- 6.1.22. It is noted that for the vehicle to access the storage compound through the proposed new gateway that is to be instructed, it will be necessary for the new gate to be removed and be made demountable.



Photograph 25

Entrance from car park, to National Grid Woodhead Tunnels.

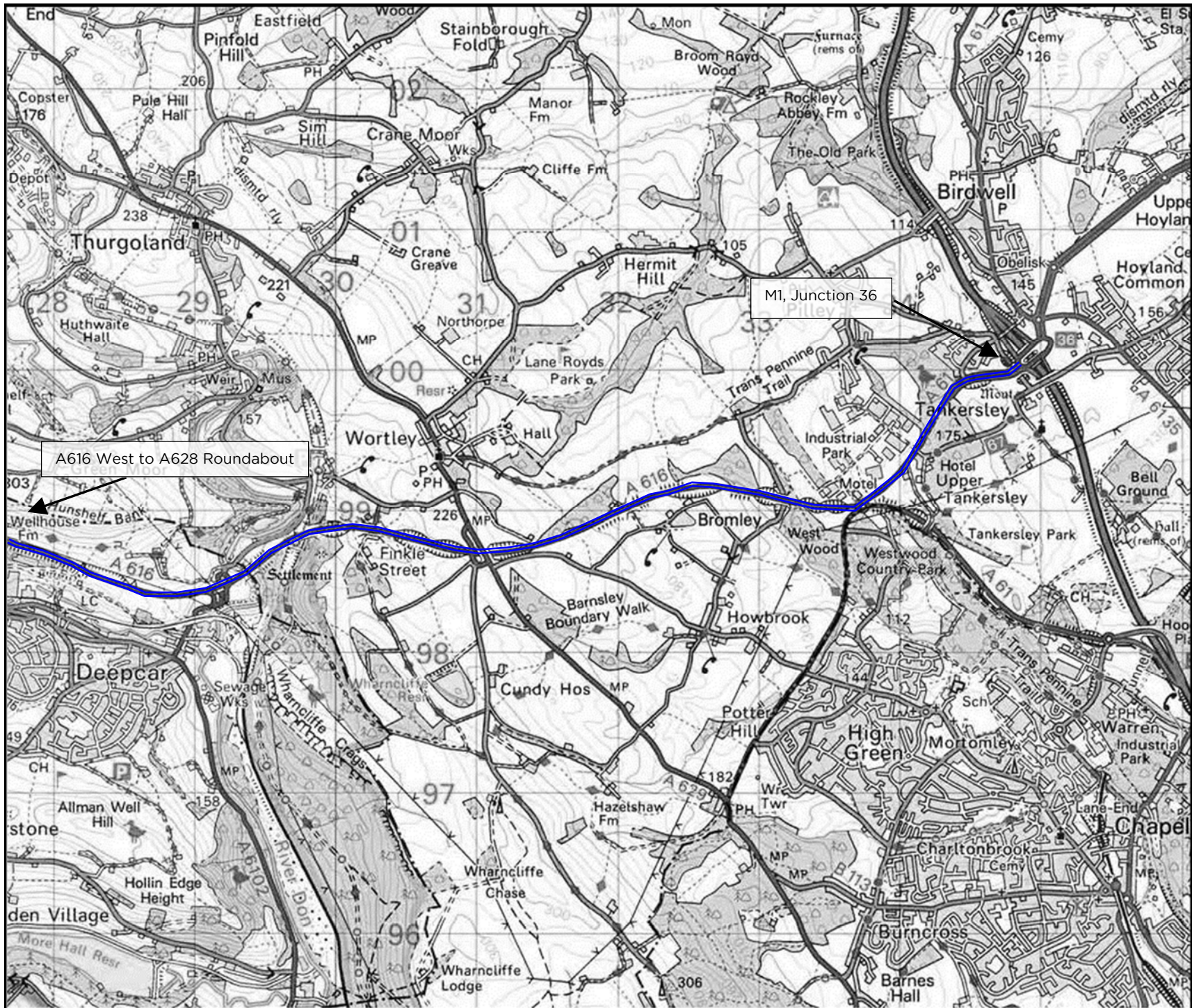
7. Summary and Conclusions

- 7.1. As the loads will be moved under STGO Category 2 or 3 legislation (depending on the actual transport configuration procured for transport) it is assumed that the road route to the M1 Junction 36 will be accessible from a suitable UK port of delivery.
- 7.2. It is recommended that the 4 axle low bed trailer is used for delivery as there are no height restrictions on the route.
- 7.3. Route 1 via the A628 is the only route considered and is deemed negotiable.
- 7.4. Route 1 has also been structurally cleared by all structural authorities on 4 axle goose neck low bed and 5 axle goose neck flat top trailers except for Highways England Area 12 from whom written confirmation that the route is acceptable remains outstanding. Several attempts have been made to contact Highways Area 12 and confirmation is still being sought. Although no problems are anticipated Wynns are seeking written conformation on this and will advise when this has been provided.
- 7.5. There is insufficient space for the delivery vehicles to turn around in the updated site access area to enable egress from the site to be carried out in a forward direction and therefore, access from Windle Edge into the car park will require the delivery vehicles to continue past the car park entrance and reverse into the car park. A confirmatory swept path has been carried out (drawing no. 19-970.SPA01 and 19-970.SPA02) for the approach from route 1, which confirms that this manoeuvre is negotiable. This drawing can be found in appendix 2 of this report.
- 7.6. The exact requirements for any street furniture removal will depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements prior to delivery.



Appendix 1

Maps



Key

Route 1

Point of Interest

Proposed Laydown Area

B		
A		
O	01.05.19	First Issue
Rev	Date	Amendments:

Revisions

WYNNS

ENGINEERS

Wynns Ltd.
Independent
Transportation
Engineers

Shaftesbury House, 2 High Street, Eccleshall,
Stafford, ST21 6BZ. Tel: (01785) 850411

Client:

WSP

2 London Square
Cross Lanes
Guildford, Surrey
GU1 1UN

Project:

Peak District East Cable Drums

Title:

Map 1 - Route to Proposed
Laydown Area

Drawing Status:

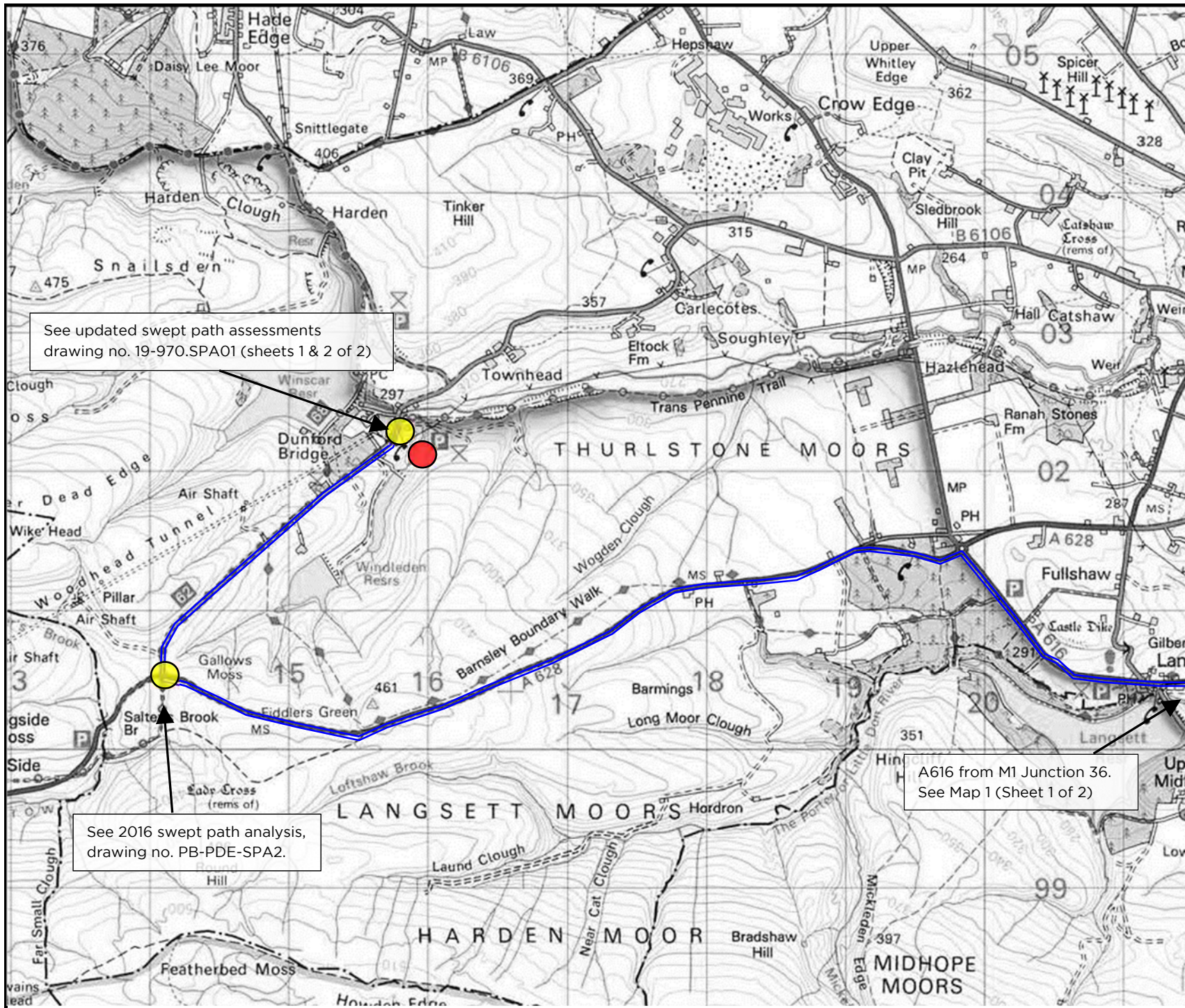
Final Report

Scale (A4):	Drawn by:	Checked by:
NTS	DMG	ARP

Ref No.:	Sheet:	Rev.:
19-970.Map1	1 of 2	0

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Key

	Route 1
	Point of Interest
	Proposed Laydown Area

B		
A		
O	01.05.19	First Issue
Rev	Date	Amendments:

Revisions



Wynns Ltd.
Independent
Transportation
Engineers

Shaftesbury House, 2 High Street, Eccleshall,
Stafford, ST21 6BZ. Tel: (01785) 850411

Client: WSP
2 London Square
Cross Lanes
Guildford, Surrey
GU1 1UN

Project: Peak District East Cable Drums

Title: Map 1 - Route to Proposed
Laydown Area

Drawing Status: Final Report

Scale (A4):	Drawn by:	Checked by:
NTS	DMG	ARP

Ref No.:	Sheet:	Rev.:
19-970.Map1	2 of 2	0

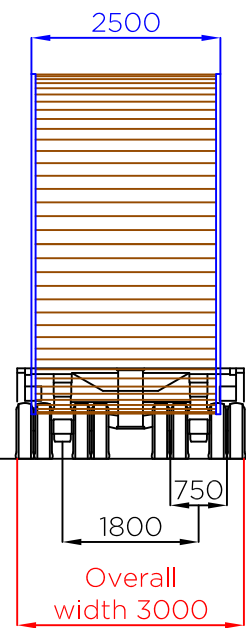
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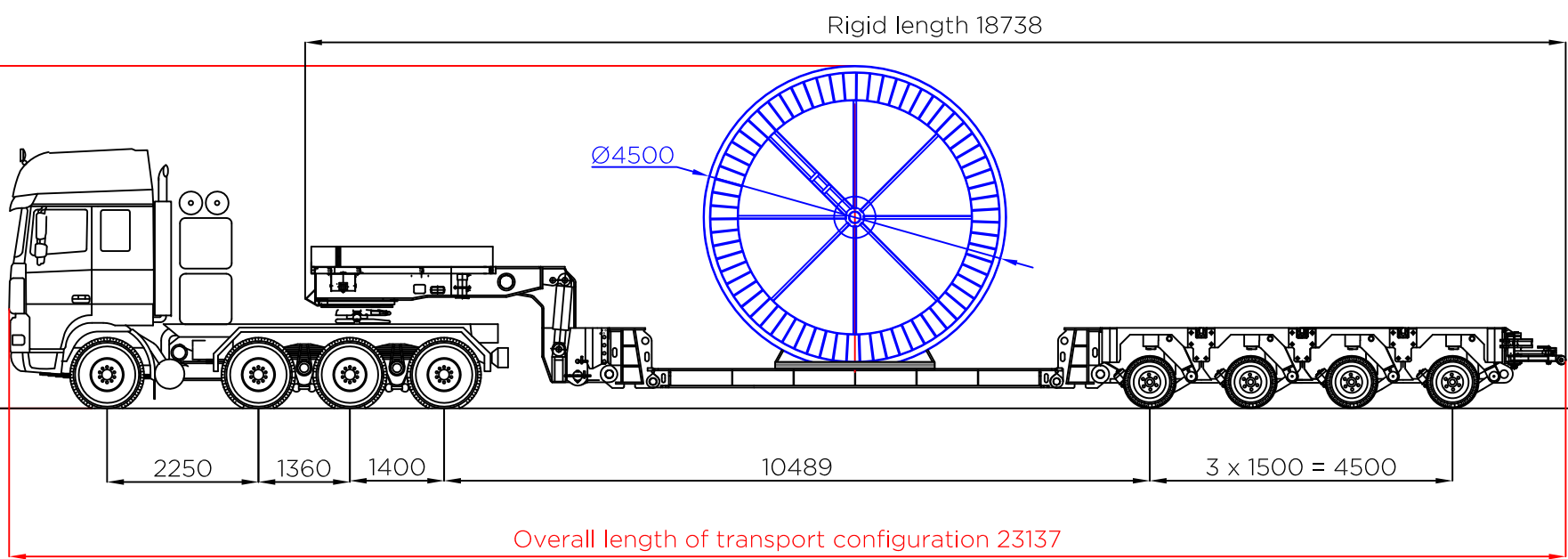


Appendix 2

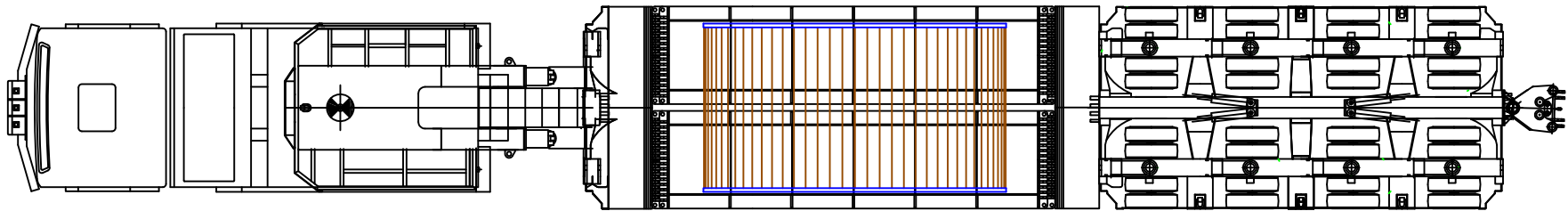
Drawings



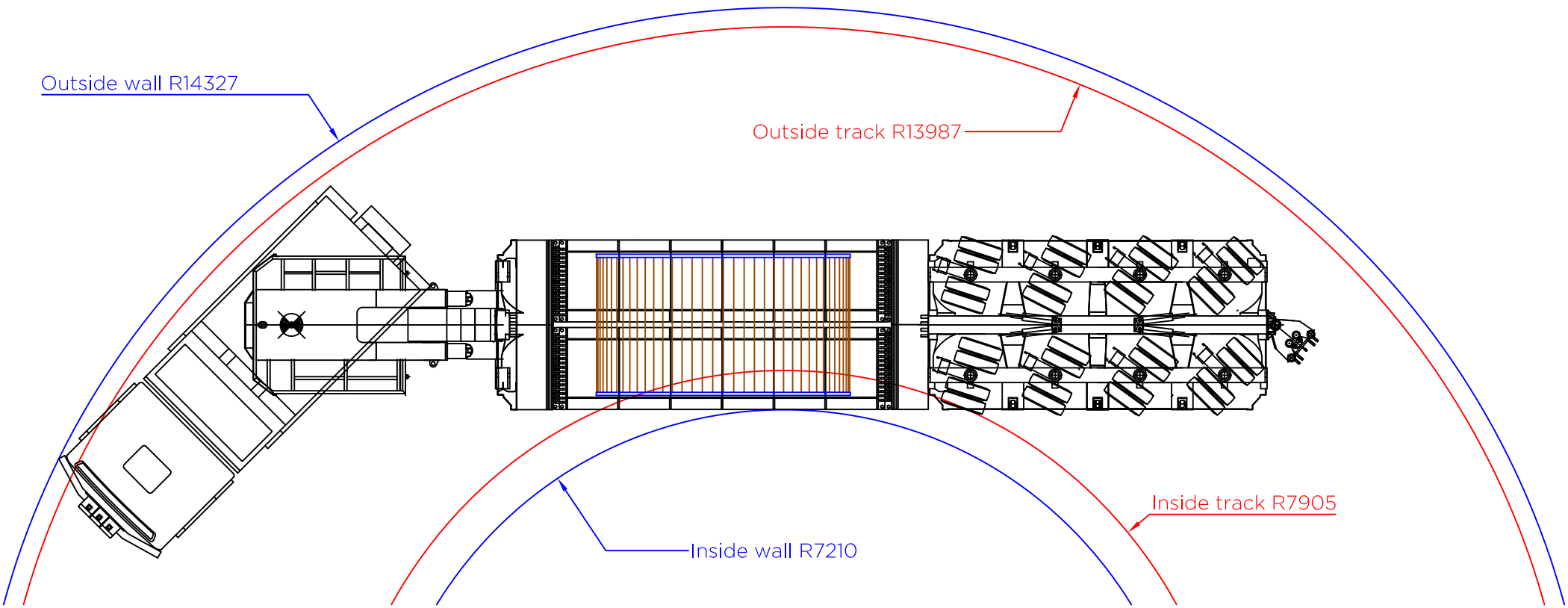
End elevation



Side elevation - indicative 4 axle low bed trailer

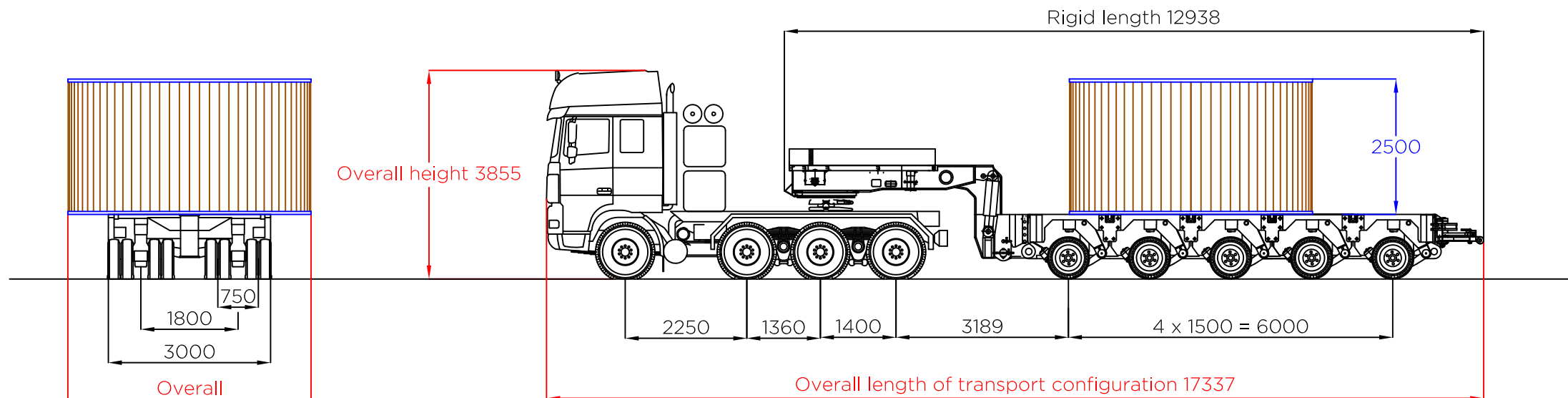


Plan view - indicative 4 axle low bed trailer

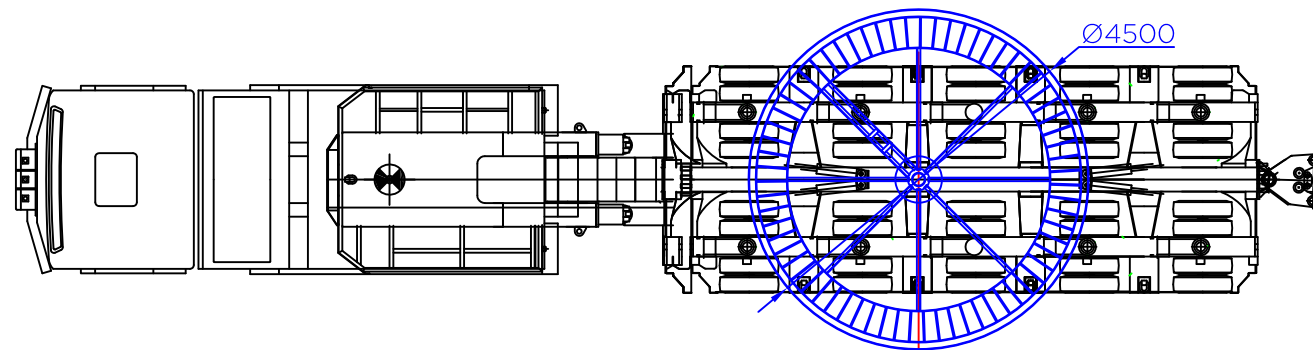


Minimum turning radii

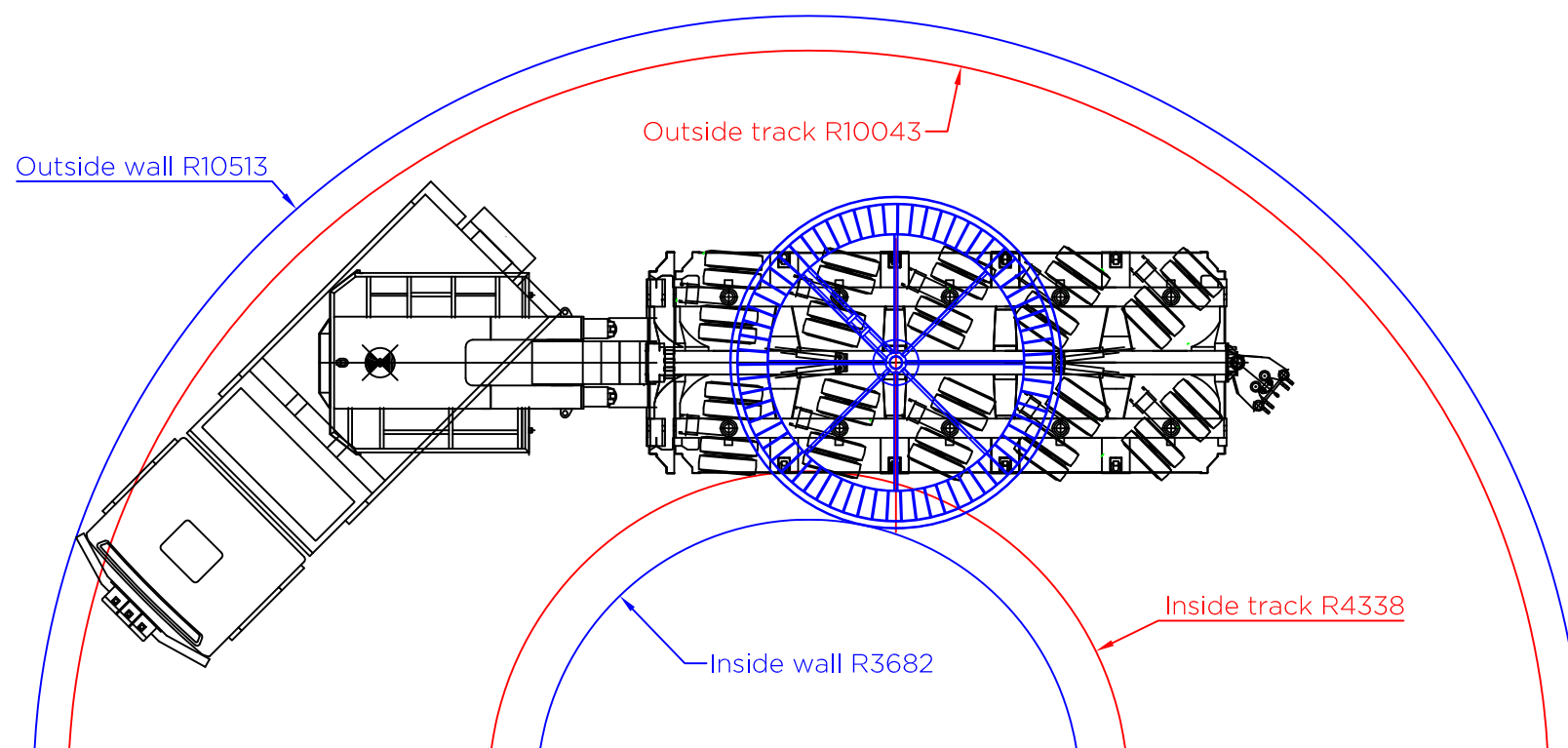
Load Table		
4 axle goose neck low bed trailer		
Self weight of load		41.0 te
Self weight of trailer		Say 24.0 te
Self weight of tractor(s)		14.0 te
Self weight of aux. steelwork		Say 1.0 te
Total combined weight		80.0 te
Load per axle line		12.5 te
Load per axle		6.25 te
Load per wheel		1.56 te
Overall ground bearing pressure		3.70 te/m ²
Tractor (14 te)		
Front axle		6.0 te
Second steer		8.0 te
Rear axle		8.0 te
Rear axle		8.0 te
Notes:-		
[1] The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.		
[2] Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.		
[3] All linear measures in millimetres unless stated otherwise.		
[4] Indicative cable drum drawing shown only.		
1		
0	02.04.19	Issued for comment
Rev.	Date	Amendments
Revisions		
Prepared by:		
 Shaftesbury House, 2 High Street, Eccleshall, Stafford, ST21 6BZ Tel: (01785) 850411		
Independent Transportation Engineers		
Client:		
		
Project:		
Peak District East		
Title:		
Indicative transport configuration 4.5 m dia cable drum carried upon 4 axle goose neck low bed trailer showing minimum turning radii		
Drawing status:		
Final report		
Scale (A3):	Drawn by:	Checked by:
1:100	SJW	ARP
DWG. no:	Sheet:	Rev:
19-970.TC01	1 of 1	0
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Side elevation - indicative 5 axle goose neck trailer



Plan view - indicative 5 axle goose neck trailer



Minimum turning radii

Load Table

5 axle goose neck trailer

Self weight of load	41.0 te
Self weight of trailer	Say 24.0 te
Self weight of tractor(s)	14.0 te
Self weight of aux. steelwork	Say 1.0 te
Total combined weight	80.0 te
Load per axle line	10.0 te
Load per axle	5.0 te
Load per wheel	1.25 te
Overall ground bearing pressure	2.78 te/m ²

Tractor (14 te)

Front axle	6.0 te
Second steer	8.0 te
Rear axle	8.0 te
Rear axle	8.0 te

Notes:-

[1] The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

[2] Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

[3] All linear measures in millimetres unless stated otherwise.

[4] Indicative cable drum drawing shown only.

1		
0	02.04.19	Issued for comment
Rev.	Date	Amendments

Revisions

Prepared By:



Shaftesbury House, 2 High Street,
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Tel: (01785) 850411

Independent Transportation Engineers

Client:



Project:

Peak District East

Title:

Indicative transport configuration
4.5 m dia cable drum carried upon
5 axle goose neck trailer
showing minimum turning radii

Drawing status:

Final report

Scale (A3):	Drawn by:	Checked by:
1:100	SJW	ARP
DWG. no:	Sheet:	Rev:
19-970.TC02	1 of 1	0

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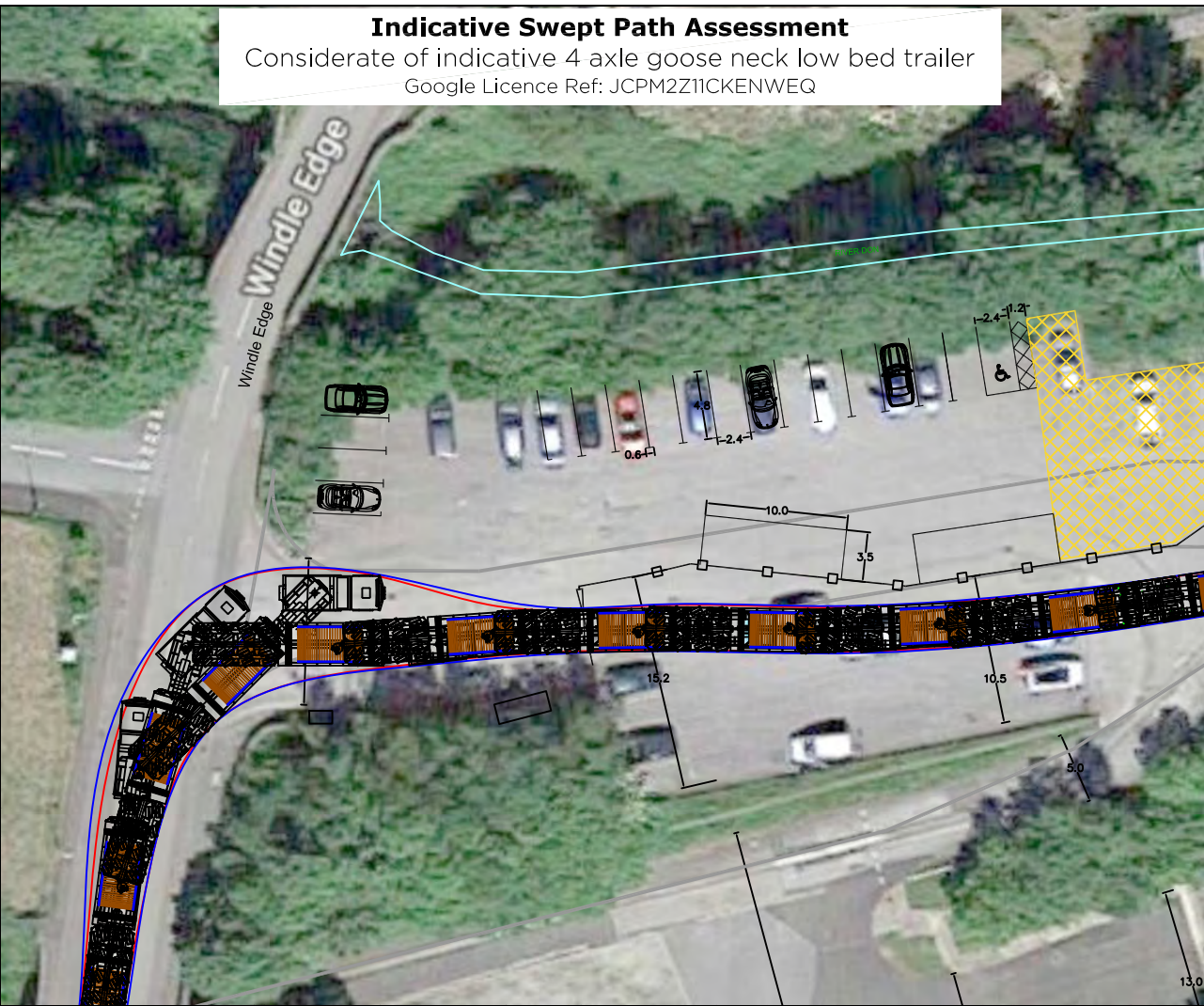
Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Constructed from topographical survey data as provided by Client
Scale: 1:400



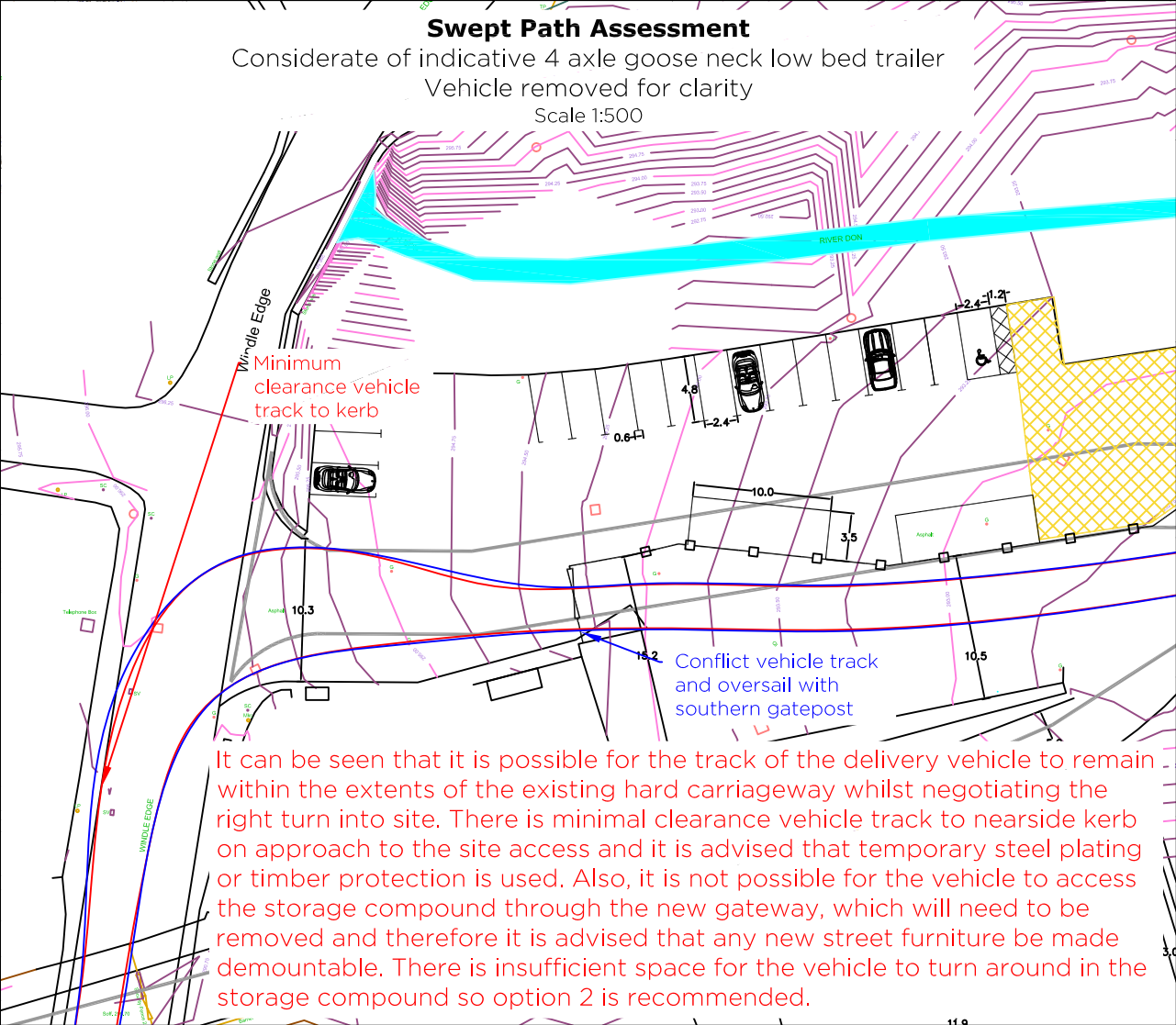
Indicative Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Google Licence Ref: JCPM2Z1ICKENWEQ



Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Vehicle removed for clarity
Scale 1:500



Location Plan

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Legend:

- 4 axle goose neck low bed trailer minimum turning arrangements
- Extent of vehicle track
- Extent of oversail

1	18.04.19	Vehicle track amended
0	11.04.19	Issued for comment
Rev.	Date	Amendments

Revisions

Prepared by:

Shaftesbury House, 2 High Street,
Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client:

Project:

Peak District East

Title:

Swept Path Assessment
Option 1 - negotiability of right turn into site entrance from Windle Edge northbound considerate of Indicative 4.5 m dla 41.0 te cable drum transported within 4 axle goose neck low bed trailer
Approximate OS Grid Reference: SE 1577 0239

Drawing status:

Final report

Scale (A3):	Drawn by:	Checked by:
As shown	SJW	ARP

DWG. no:	Sheet:	Rev:
19-970.SPA01	1 of 2	1

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P:\Clients\Existing Clients\WSP (ex Parsons Brinckernoff)\19-970 Peak District Cable Drums\19-970.SPA01 Peak District cable drums Trans Pennine Trail car park R1.dwg

Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Constructed from topographical survey data as provided by Client
Scale: 1:400

Note - Dunford River Bridge has been confirmed as suitable to support transport configuration by Barnsley Council

Vehicle approaches from right of photograph, drives beyond site entrance, then reverses into site moving away from camera.

Vehicle moves away from camera and beyond site entrance, then turns into site entrance right of photograph in reverse.

Vehicle approaches from right of photograph, drives beyond site entrance, then reverses into site moving away from camera.



Vehicle moves away from camera and beyond site entrance, then turns into site entrance right of photograph in reverse.

Indicative Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer

Google Licence Ref: JCPM2Z1ICKENWEQ

Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Vehicle removed for clarity
Scale 1:500

The diagram illustrates the swept path of a vehicle maneuvering into a site. Key features include:

- Topography:** Contour lines indicating elevation changes.
- River Don:** A water feature at the top right.
- Parking Area:** Several parking spaces are shown, some occupied by vehicles.
- Dimensions:** Various measurements are provided, such as 10.0, 3.5, 10.5, 5.0, 16.2, 10.3, 0.6, 2.4, 1.2, 4.8, and 10.0.
- Annotations:** "Conflict vehicle track and oversail with southern gatepost" points to a specific area of concern.
- Other Labels:** "Windle Edge", "Alpha", "Beta", "Gamma", "Delta", "Epsilon", "Zeta", "Eta", "Theta", "Iota", "Kappa", "Lambda", "Mu", "Nu", "Xi", "Omicron", "Pi", "Rho", "Sigma", "Tau", "Upsilon", "Phi", "Chi", "Psi", "Omega".

It can be seen that it is possible for the track of the delivery vehicle to remain within the extents of the existing hard carriageway whilst carrying out the reverse manoeuvre into site. However, it is not possible for the vehicle to access the storage compound through the new gateway, which will need to be removed and therefore it is advised that any new street furniture be made demountable.

It can be seen that it is possible for the track of the delivery vehicle to remain within the extents of the existing hard carriageway whilst carrying out the reverse manoeuvre into site. However, it is not possible for the vehicle to access the storage compound through the new gateway, which will need to be removed and therefore it is advised that any new street furniture be made demountable.

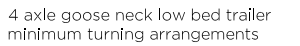
The map shows the Thurlstone Moors area in North Yorkshire. Key features include the River Ure, the Durham Bridge, and the Durham Bridge. A red rectangle highlights a specific area on the riverbank near the Durham Bridge. The map includes contour lines, roads, and a grid system with numbers 15 through 19 along the bottom edge.

Legend:

4 axle goose neck low bed trailer
minimum turning arrangements

Extent of vehicle track

Extent of oversail



Prepared by:



Shaftesbury House, 2 High Street,
Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Project: **Peak District East**

Drawing status: Final report

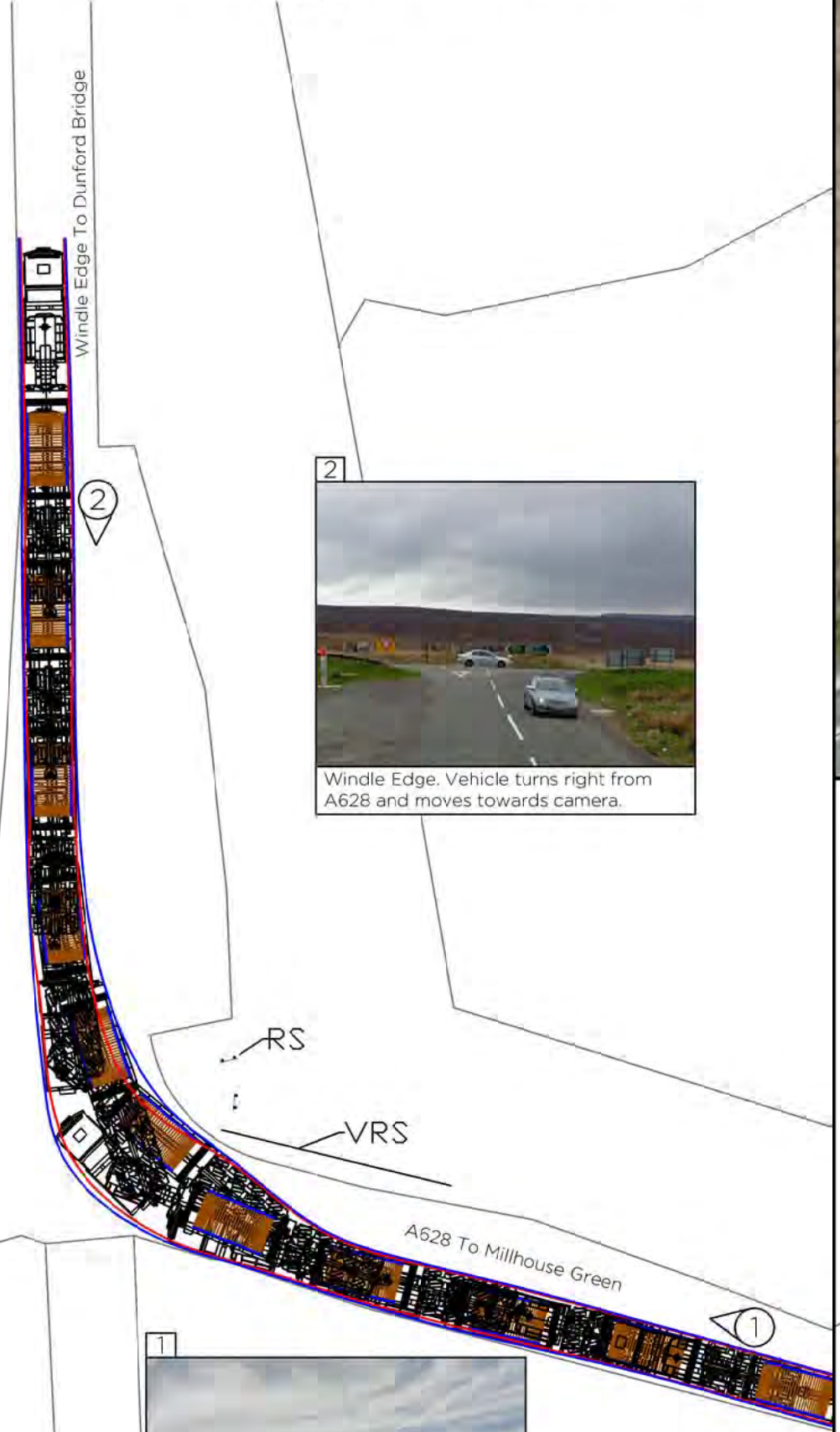
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Peak District Cable Drums\19-970.SPA01 Peak District cable
drums Trans Pennine Trail car park R1.dwg



Swept Path Assessment

Considerate of Indicative Cable Drum Delivery Vehicle - Constructed from OS Mastermap Data as provided by Client.
Scale: 1/400



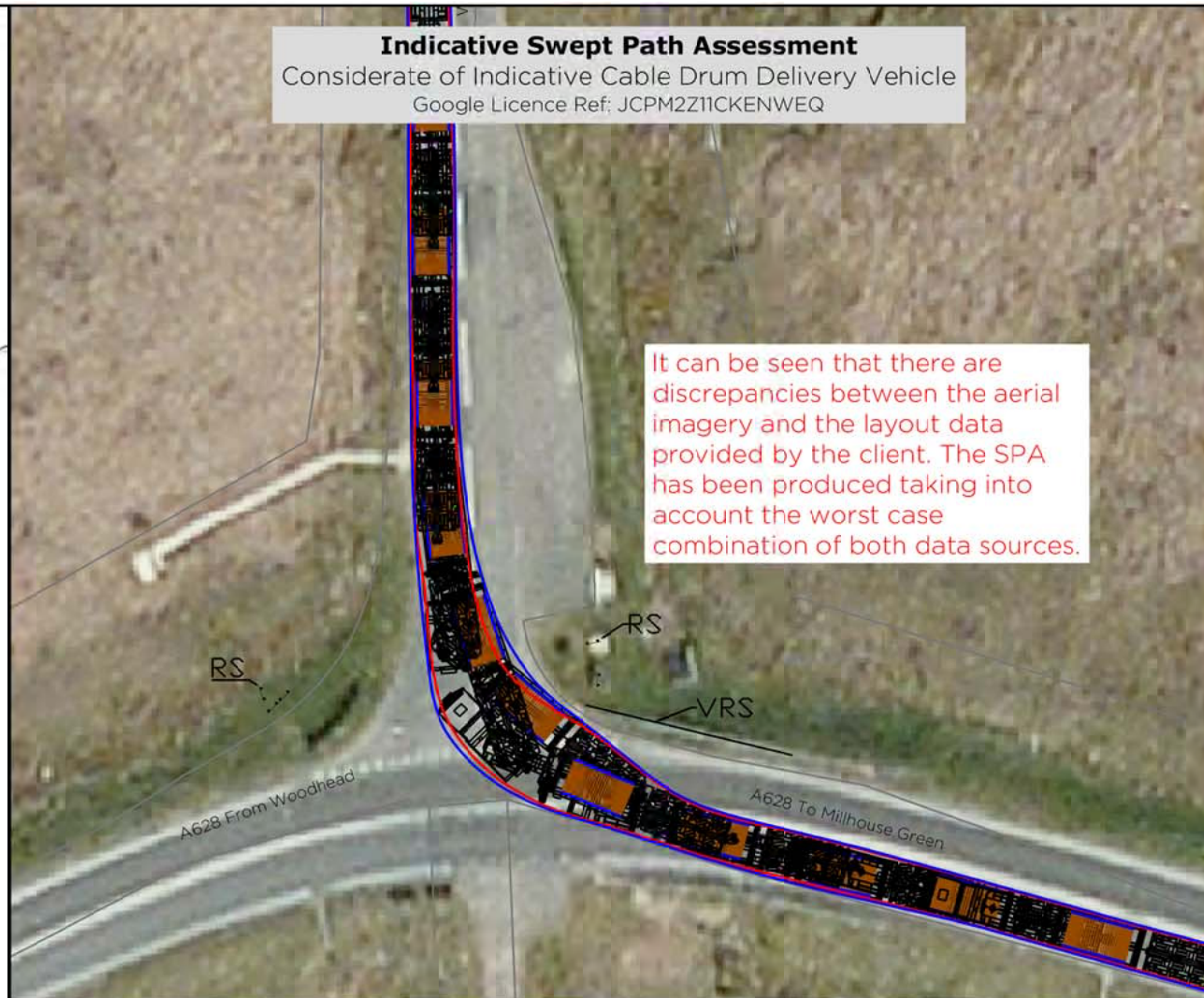
Windle Edge. Vehicle turns right from A628 and moves towards camera.



A628. Vehicle moves away from camera and turns into Windle Edge.

Indicative Swept Path Assessment

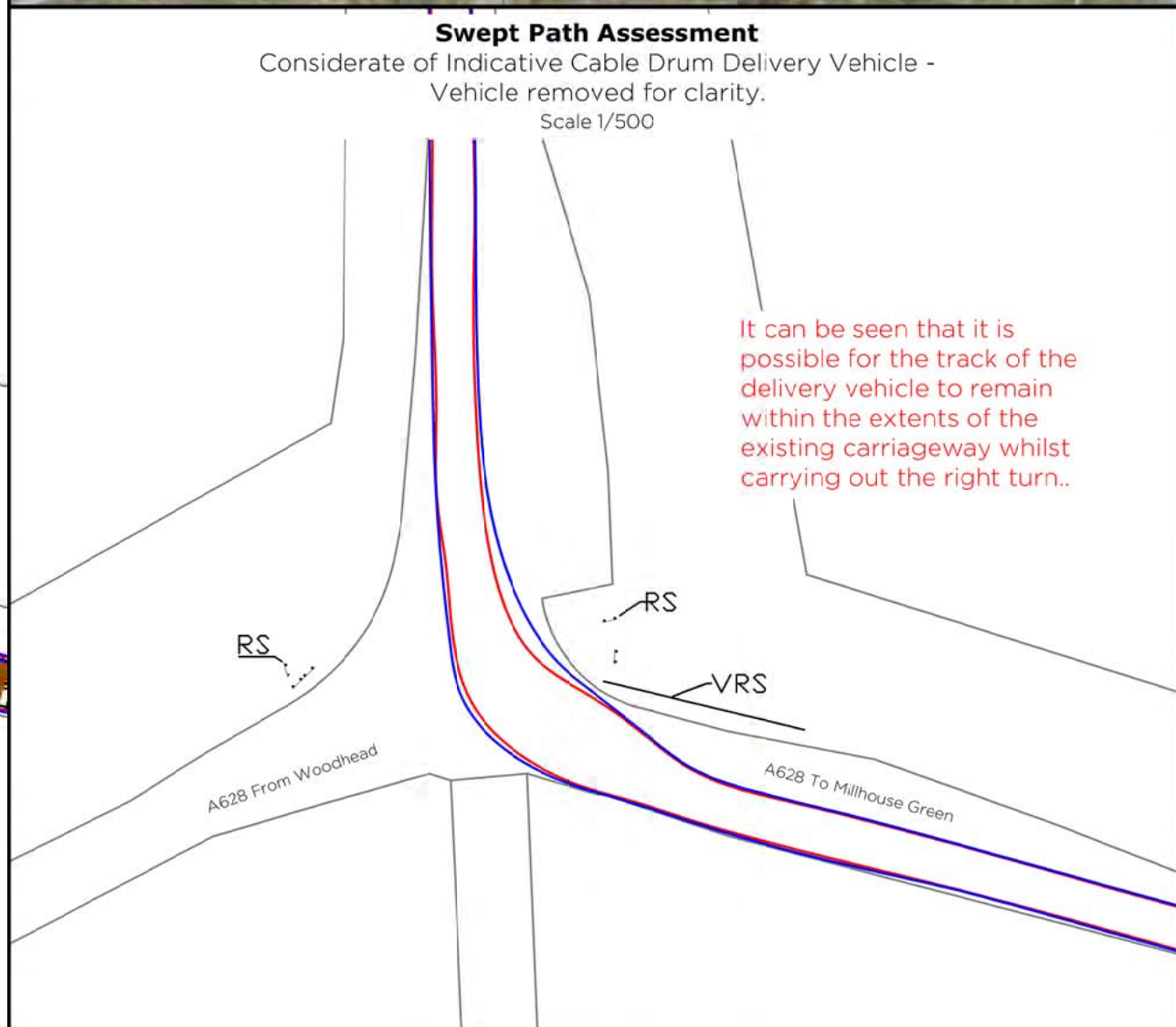
Considerate of Indicative Cable Drum Delivery Vehicle
Google Licence Ref: JCPM2Z1ICKENWEQ



It can be seen that there are discrepancies between the aerial imagery and the layout data provided by the client. The SPA has been produced taking into account the worst case combination of both data sources.

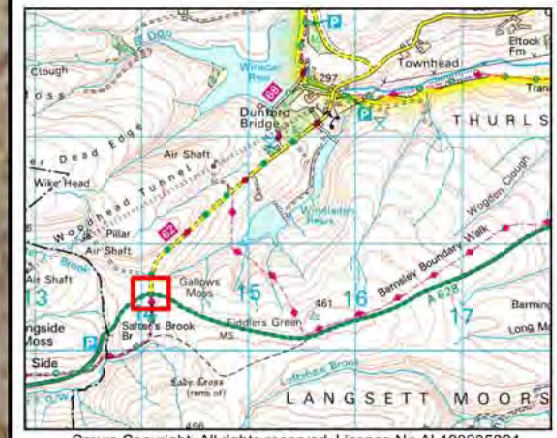
Swept Path Assessment

Considerate of Indicative Cable Drum Delivery Vehicle - Vehicle removed for clarity.
Scale 1/500



It can be seen that it is possible for the track of the delivery vehicle to remain within the extents of the existing carriageway whilst carrying out the right turn..

Location Plan



Legend:

- Cable Drum Transport Configuration Minimum turning arrangements. See Drawing Ref. PB-PDE-CD01
- Extent of Vehicle Track
- Extent of Over-sail

A		
O	27.09.16	Issued for comment
Rev.	Date	Amendments
		Revisions

Prepared By:

Shaftesbury House, 2 High Street.
Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client:

Project: **Peak District East**

Title: **Swept Path Assessment
Right turn from A628 onto Windle Edge.
Considerate of Indicative Cable Drum Delivery Vehicle
Approximate OS Grid Reference: SE 1409 0054.**

Drawing Status: **Final Report**

Scale (A3): 1/400 & 1/500	Drawn By: DJT	Checked By: PAGW
DWG. No: PB-PDE-SP02	Sheet: 1 of 1	Rev: 0

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P:\Clients\Existing Clients\Parsons Brinckerhoff\16-878 Peak District East\SP02.dwg



Appendix 3

Selected Correspondence

Daisy Gosling

From: Abnormal Loads <AbnormalLoads@barnsley.gov.uk>
Sent: 12 April 2019 09:05
To: Daisy Gosling
Subject: AIL Access Study - Peak District East Cable Drums - Barnsley MBC

Importance: High

Morning Daisy,

Please see below email from my colleague Babak Ahmadian regarding the structure on your route (my ref: B5.017 Dunford Bridge). Please do not hesitate to contact me if you require any further information.

Kind regards,

Bev Stott
Abnormal Loads Officer
Environment and Transport
Barnsley Metropolitan Borough Council
Tel. 01226 772123
Fax. 01226 772125
Email: beverleystott@barnsley.gov.uk
Mail: Westgate Plaza One, P O Box 601, Barnsley, S70 9FA.

From: Ahmadian , Babak
Sent: 11 April 2019 16:37
To: Abnormal Loads
Subject: RE: AIL Access Study - Peak District East Cable Drums - Barnsley MBC
Importance: High

Bev,

I checked it. No objection as a structural point of view.

Please feel free to contact me if you have any questions or concerns.

Kind Regards

Babak Ahmadian
Bridge Engineer
Highways & Engineering
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council
Telephone: (01226) 772037
Fax: (01226) 772222
E-mail: babakahmadian@Barnsley.gov.uk
Address: West Gate Plaza, 1 West St, Barnsley S70 2DR



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From: Abnormal Loads
Sent: 10 April 2019 09:27
To: Ahmadian , Babak
Subject: AIL Access Study - Peak District East Cable Drums - Barnsley MBC

Babak,

Please see below reply from Daisy, and comments regarding bridge number B5.017 Dunford River Bridge. I would be very grateful if you could review this structure and email me your comments.

Thank you.
Bev

From: Daisy Gosling [mailto:daisy.gosling@wynnslimited.com]
Sent: 09 April 2019 15:09
To: Abnormal Loads
Subject: RE: AIL Access Study - Peak District East Cable Drums - Reply Barnsley MBC

Hi Bev,

Thank you for getting back to me and passing on this information.

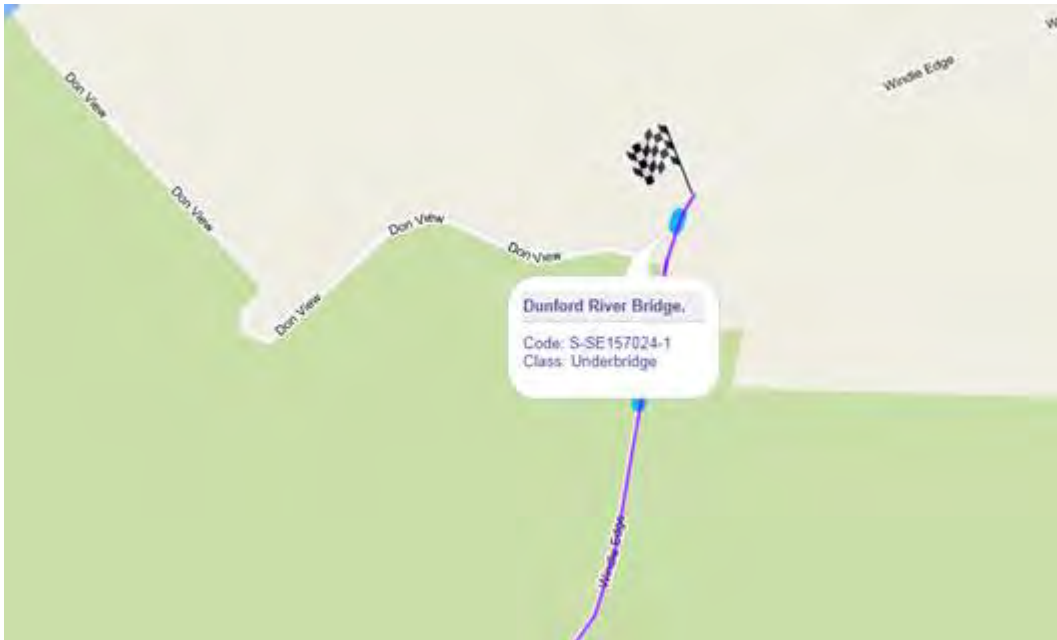
Yes, as stated in our enquiry we are only looking at route 1 as an option, based on the outcome of last time.

Thank you for your colleagues comments; can you please advise that both proposed configurations have a gross weight of 80te, and the axle line loads are detailed in the load table of each drawing.

We noticed on ESDAL that Barnsley do have a structure on Windle Edge (see screenshot below), and if the load has to reverse in to the car park, it may be that this structure is crossed, and therefore we would appreciate Barnsley's comments under this eventuality.

If you could get back to me regarding the suitability of Route 1 as far as Barnsley is concerned, we would most appreciate it.

Best regards,
Daisy



From: Abnormal Loads <AbnormalLoads@barnsley.gov.uk>
Sent: 09 April 2019 09:52
To: Daisy Gosling <daisy.gosling@wynnslimited.com>
Subject: AIL Access Study - Peak District East Cable Drums - Reply Barnsley MBC

Good morning Daisy,
Thank you for your email, please see below.

I would like to confirm that Barnsley MBC would prefer the use of Route 1 as previously stated. Please see below comments highlighted in red made by my colleague Babak Ahmadian, Bridge Engineer for Highways and Engineering for your information.

As discussed earlier, I have no objection as long as the GVW is under 44 tonnes, otherwise I need to see the loads distribution by each axles.

Kind regards,

Bev Stott
Abnormal Loads Officer
Environment and Transport
Barnsley Metropolitan Borough Council
Tel. 01226 772123
Fax. 01226 772125
Email: beverleystott@barnsley.gov.uk
Mail: Westgate Plaza One, P O Box 601, Barnsley, S70 9FA.

From: Daisy Gosling [<mailto:daisy.gosling@wynnslimited.com>]
Sent: 04 April 2019 17:17
To: 'Abnormal Loads Officer' (abnormalLoadsContact@NetworkRail.co.uk); 'Lisa Wheelwright-Brown' (Lisa.Wheelwright-Brown@canalrivertrust.org.uk); RSGBRB@jacobs.com; Abnormal Loads; Sally Waterfall (Area 12) (area12@abloads.com); 'sally@cascadesoft.co.uk'; Mick Robinson (abnormal.loads@southyorks.pnn.police.uk); 'Richard Aelberry' (abloads@derbyshire.pnn.police.uk) (abloads@derbyshire.pnn.police.uk)
Cc: Andy Pearce
Subject: AIL Access Study - Peak District East Cable Drums

Dear All,

Daisy Gosling

From: Ashton Daniel <Daniel.Ashton@networkrail.co.uk> on behalf of Network Rail Abnormal Loads <NetworkRailAbnormalLoads@networkrail.co.uk>
Sent: 05 April 2019 09:36
To: Daisy Gosling
Subject: Q-725 RE: AIL Access Study - Peak District East Cable Drums
Attachments: AIL Access Study - Peak District East Cable Drums

Follow Up Flag: Flag for follow up
Flag Status: Completed

Good Morning,
Below is our response to the Proposed Route 1 attached;

Your proposed movement does not affect any Network Rail owned road over rail bridges or tunnels therefore we have no objection to your proposed route.

Please note we only check the load carrying capacity of Network Rail owned road over rail bridges affected. We do not check anything else including:

- * Load carrying capacity of level crossings
- * Clearance to bridge parapets
- * Clearance under a rail bridge
- * Clearance to overhead wires at level crossings

Many Thanks

Daniel Ashton
Abnormal Loads Clerk
Abnormal Loads Help Desk: 01908 783 140



Abnormal Loads | National Records Group | Route Services
The Quadrant | Elder Gate | Milton Keynes | MK9 1EN
W <http://www.networkrail.co.uk/abnormal-indivisible-road-loads/>



Daisy Gosling

From: Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>
Sent: 08 April 2019 10:12
To: Daisy Gosling
Subject: RE: AIL Access Study - Peak District East Cable Drums

Follow Up Flag: Flag for follow up
Flag Status: Completed

Good Morning Daisy

Hope you are well?

The proposed route - Peak District East Cable Drums does not affect any of the Canal & River Trust's infrastructure.

Kind Regards

Lisa Wheelwright-Brown

Technical Administrator

T 0113 2005759

E lisa.wheelwright-brown@canalrivertrust.org.uk

Canal & River Trust

Fearn's Wharf, Neptune Street, Leeds, LS9 8PB

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From: Daisy Gosling <daisy.gosling@wynnslimited.com>
Sent: 04 April 2019 17:17
To: 'Abnormal Loads Officer (abnormalLoadsContact@NetworkRail.co.uk)' <abnormalLoadsContact@NetworkRail.co.uk>; Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; RSGBRB@jacobs.com; Beverley Stott (abnormalloads@barnsley.gov.uk) <abnormalloads@barnsley.gov.uk>; Sally Waterfall (Area 12) (area12@abloads.com) <area12@abloads.com>; 'sally@cascadesoft.co.uk' <sally@cascadesoft.co.uk>; Mick Robinson (abnormal.loads@southyorks.pnn.police.uk) <abnormal.loads@southyorks.pnn.police.uk>; 'Richard Aelberry (abloads@derbyshire.pnn.police.uk) (abloads@derbyshire.pnn.police.uk)' <abloads@derbyshire.pnn.police.uk>
Cc: Andy Pearce <andy.pearce@wynnslimited.com>
Subject: AIL Access Study - Peak District East Cable Drums

Daisy Gosling

From: Howell, Tania <Tania.Howell@jacobs.com>
Sent: 05 April 2019 08:25
To: Daisy Gosling
Subject: RE: AIL Access Study - Peak District East Cable Drums

Follow Up Flag: Follow up
Flag Status: Completed

Hi Daisy,

I must be getting old.....I don't remember the original enquiry in 2016..... ☹
Still, it doesn't matter, because I've looked at the route this morning, and there's nothing of mine "in the way".
Thanks for checking, though!

Cheers for now
Tania

Tania Howell
Abnormal Loads Officer (on behalf of Highways England Historical Railways Estate)
Jacobs
DDI: 0118 946 8911

If your mail concerns abnormal load movements, please reply to RSGBRB@jacobs.com

From: Daisy Gosling <daisy.gosling@wynnslimited.com>
Sent: 04 April 2019 17:18
To: 'Abnormal Loads Officer (abnormalLoadsContact@NetworkRail.co.uk)' <abnormalLoadsContact@NetworkRail.co.uk>; 'Lisa Wheelwright-Brown (Lisa.Wheelwright-Brown@canalrivertrust.org.uk)' <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; RSGBRB@jacobs.com; Beverley Stott (abnormalloads@barnsley.gov.uk) <abnormalloads@barnsley.gov.uk>; Sally Waterfall (Area 12) (area12@abloads.com) <area12@abloads.com>; 'sally@cascadesoft.co.uk' <sally@cascadesoft.co.uk>; Mick Robinson (abnormal.loads@southyorks.pnn.police.uk) <abnormal.loads@southyorks.pnn.police.uk>; 'Richard Aelberry (abloads@derbyshire.pnn.police.uk) (abloads@derbyshire.pnn.police.uk)' <abloads@derbyshire.pnn.police.uk>
Cc: Andy Pearce <andy.pearce@wynnslimited.com>
Subject: [EXTERNAL] AIL Access Study - Peak District East Cable Drums

Dear All,

I'm writing with regard to a route enquiry for the delivery of cable drums to a site in the Peak District National Park.

As you may remember, we cleared this route back in 2016 for the same loads. This is a review of that same work, for the next stage of the project.

If you could please look at the document attached and get back to me with regard to the suitability of the route as far as your area of responsibility is concerned, I would be most grateful.



Appendix 4

WSP Assessment Report

Dunford River Bridge No. 71 and Dunford River Bridge 71a.



NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report





NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

PROJECT NO. 70023097-005

DOC REF. NO. 70023097-005-RPT-71A-003

DATE: MARCH 2019

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

WSP

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For Approval			
Date	March 2019			
Prepared by	Alex Muir Wood			
Signature	<i>Alex Muir Wood</i>			
Checked by	Ben Holland			
Signature	<i>B Holland</i>			
Authorised by	Clive Nunn			
Signature				
Project number	70023097-005			
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File reference				

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APPENDICES

APPENDIX A

ABNORMAL LOADS

EXECUTIVE SUMMARY

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of a package of bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A. The assessment reports concluded that the structures had adequate capacity for 40/44 tonne Assessment Live Loading in accordance with BD21/01 'The assessment of highway bridges and structures', with some limitations. These limitations were: the footway was not assessed on Dunford Railway Bridge 71A due to lack of information and the parapets for both bridges were not assessed.

WSP has been commissioned to assess Dunford Railway Bridge No. 71 and Dunford Railway Bridge No. 71A for two abnormal vehicle loads.

This report records the results arising from the assessment of these abnormal vehicles loads. The assessment results are summarised as follows:

Dunford Railway Bridge No. 71

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
 - wheels are prevented from being on the footway,
 - the vehicle is the only vehicle on the bridge,
 - it is limited to the loading in Appendix A and
 - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

Dunford Railway Bridge No. 71A

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
 - wheels are prevented from being on the footway,
 - the vehicle is the only vehicle on the bridge,
 - it is limited to the loading in Appendix A and
 - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

1. INTRODUCTION

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of three bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A and Clough Beck Culvert. Subsequently, WSP has been commissioned to assess bridges 71 and 71A for two abnormal load vehicles.

1.1. REFERENCES

For the description of the structures, structural condition and analysis methods used in assessment, please refer to the following documents:

Dunford Railway Bridge No.71

Inspection for assessment report, document reference 70023097-005-RPT-71-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71

Approval in Principal Addendum no. 1, document reference 70023097-005-AIP-71-002

Assessment report, document reference 70023097-005-RPT-71-002

Dunford Railway Bridge No.71A

Inspection for assessment report, document reference 70023097-005-RPT-71A-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71A-002

Assessment report, document reference 70023097-005-RPT-71A-002

1.2. ABNORMAL LOADS

The abnormal loads are provided in the Wynns report 'Abnormal Indivisible Load Access Study – Transportation of Cable Drums to Proposed Laydown Area in Car Park at Dunford Bridge' revision 2, issued on 14/12/2016. The vehicles are shown on drawing numbers PB-PDE-CD01 (Rev 0) and PB-PDE-CD02 (Rev 0), shown in Appendix A. The axle loads were clarified by Anthony Pearce from Wynns in an email, also included in Appendix A.

2. DUNFORD RAILWAY BRIDGE NO. 71 ABNORMAL LOAD ASSESSMENT RESULTS

2.1. MASONRY ARCH

The masonry arch was assessed for the abnormal loads described in Section 1.2 using the MEXE method as described in the Dunford Railway Bridge No. 71 Approval in Principal and Addendum No. 1, October 2018. The permissible axle loads as a result of the MEXE analysis are compared against the axle load scenario for the abnormal vehicles.

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

BA 16/97 states that the MEXE method should be used with caution for heavier vehicles than the 40/44 tonne category. The permissible axle loadings given for the following bogie (defined as 2 or 3 closely spaced axles) arrangements are as follows:

Single-axle bogie: 42.2 tonnes per axle

Double-axle bogie: 27.2 tonnes per axle

Triple-axle bogie: 24.5 tonnes per axle

The abnormal loads could be described to have a 4 axle (PB-PDE-CD01) or 5 axle (PB-PDE-CD02) bogie. BA16/97 does not give an axle factor for a 4 or 5 axle bogie. For this arch geometry, a comparison for the critical position and load spread of a 40/44 tonne triple-axle bogie has been made with the abnormal vehicles' trailers/bogies. It has been concluded that the load effects of the abnormal loads would be no more onerous than a triple-axle 40/44 tonne vehicle. Therefore, the masonry arch has been assessed to have adequate capacity to support the abnormal loads.

2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS

The abutments, foundation, spandrel walls and wingwalls were assessed qualitatively as discussed in the documents listed in Section 1.1. There were no signs of tilting or settlement observed during the Inspection for Assessment dated 21st June 2018. The abutments, foundation, spandrel walls and wingwalls were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

2.3. PARAPETS

The parapets were not assessed as part of this assessment, nor part of the previous assessment.

3. DUNFORD RAILWAY BRIDGE NO. 71A ABNORMAL LOAD ASSESSMENT RESULTS

3.1. CONCRETE ENCASED STEEL GIRDER

The bridge was assessed for the abnormal loads using the methods described in the Approval in Principal for Assessment (document reference 70023097-005-AIP-71A-002).

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

The lowest reserve factor was found to be 1.31 and the results are summarised in Table 1 below.

Load Case	Member	Load Effect	Assessment Resistance	DL Assessment Effects	Superimposed DL Assessment Effects	Capacity for Live Load	Live Load Assessment Effect	Reserve Factor
			R_A^*	S_D^*		$R_A^* \cdot S_D^*$	S_L^*	$(R_A^* \cdot S_D^*) / S_L^*$
Abnormal Load PB-PDE-CD01	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	218.61	3.28
		Shear (kN)	930.10	72.76	484.58	372.76	37.68	9.89
Abnormal Load PB-PDE-CD01	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	561.71	1.31
		Shear (kN)	930.10	67.52	476.00	386.58	148.26	2.61
Abnormal Load PB-PDE-CD01	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	697.80	1.91
		Shear (kN)	930.10	62.21	288.30	579.59	221.48	2.62
Abnormal Load PB-PDE-CD02	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	210.61	3.40
		Shear (kN)	930.10	72.76	484.58	372.76	39.80	9.37
Abnormal Load PB-PDE-CD02	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	541.17	1.36
		Shear (kN)	930.10	67.52	476.00	386.58	156.60	2.47
Abnormal Load PB-PDE-CD02	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	672.28	1.99
		Shear (kN)	930.10	62.21	288.30	579.59	233.93	2.48

Table 1. Summary of abnormal load assessment results

3.2. JACK ARCHES

In the previous assessment, the reinforced concrete jack arches were assessed following the advice in the Network Rail Standard NR/GN/CIV/025, a qualitative analysis using Bridgeguard 3 Current Information Sheet 22. It is assumed that the service bays at both edges of the bridge deck are providing alternative lateral restraint. The qualitative analysis using Bridgeguard 3 Current Information Sheet 22 determined the reinforced concrete jack arches to be adequate for 40 tonnes vehicle configuration requirements.

The Assessment for 40 tonnes vehicle configuration can be compared to the abnormal loads vehicle configuration specified. BD21/01 Clause D3, with regards to assessing vehicle configuration for 40 tonnes, states 'The wheel loads should be applied at 1.8m transverse spacing on the axle over a 0.3 x 0.3m square contact area.' The heaviest axle load for an Annex D vehicle is 11.5 tonnes, and due to the geometry of the jack arches, the most onerous load location would be for half of this load to be applied to the jack arch.

The abnormal load vehicle, PB-PDE-CD01, has the heaviest axle weight of 12.5 tonnes. There are eight wheels per axle and due to the geometry of the jack arches and the wheel configuration the most onerous load location would result in a quarter of the axle load applied to one side of the jack arch. A quarter of 12.5 tonnes, 3.125 tonnes, is less than a half of 11.5 tonnes, 5.75 tonnes, and it can be concluded that the jack arches would experience less onerous loading under the axle configurations of the abnormal loads. Therefore the jack arches are assessed to have adequate capacity for the abnormal loads.

3.3. ABUTMENTS AND FOUNDATIONS

The abutments and foundations have been assessed qualitatively. The vertical crack in each abutment is thought to be due to settlement of the foundations. WSP agree with the following statement in the Assessment Inspection Report 2005 (included in the Appendix to the WSP Assessment report 70023097-005-RPT-71A-002): *"The mineral report states that there are no records of any coal mining activities to have affected the stability of the structures. This is mainly borne out by the inspection however the vertical cracking in both abutments adjacent beam 3 is evidence of past movement. This movement is old and the cracking in both Abutments was first noted in the inspection of 1959, it was noted at the inspection dated 1972 no further movement and this is still true as there are no signs of recent movement. The bridge is constructed in a cutting, the cutting sides can be seen on site to be solid sandstone therefore it is reasonable to assume that the structure is founded on competent strata."* The abutments and foundations were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

4. CONCLUSIONS

4.1. DUNFORD RAILWAY BRIDGE NO 71

The Dunford Railway Bridge No. 71 has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The masonry arch as assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment, refer to the Dunford railway Bridge No. 71 Assessment Report no. 70023097-005-RPT-71-002.

4.2. DUNFORD RAILWAY BRIDGE NO 71A

The Dunford Railway Bridge No. 71A has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The bridge deck, excluding the footways, was assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. As in the previous assessment the footway slab has not been assessed due to insufficient information. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment and recommendations or assessing the footway, refer to the Dunford railway Bridge No. 71A Assessment Report no. 70023097-005-RPT-71A-002.

Appendix A

ABNORMAL LOAD VEHICLES

Muir Wood, Alex

Subject: FW: National Grid Peak District AIL query

From: Andy Pearce [mailto:andy.pearce@wynnslimited.com]
Sent: 06 March 2019 13:06
To: Muir Wood, Alex <Alex.Muir-Wood@wsp.com>
Cc: Raveendran, Ravi <Ravi.Raveendran@wsp.com>; Nunn, Clive <Clive.Nunn@wsp.com>; Peter Wynn <peter.wynn@wynnslimited.com>
Subject: RE: National Grid Peak District AIL query

Good Afternoon Alex,

Thank you for your email and apologise for any confusion. The drawings are indicative and can vary depending on the exact tractor units and trailers utilised for movement, but I see where the uncertainty arises. We needed to make some assumptions and generally use the worst case basis. The load can be positioned toward the front or toward the rear of the trailer since the load is not very long. On that basis we can assume that say 16 tonnes of the load and trailer weight is transferred through the hydraulic neck and into the tractor 5th wheel. The self-weight of the tractor shown is 14 tonnes so the tractor is supporting 30 tonnes all up. I show below how this can be referenced in the 2 drawings.

PB-PDE-CD01

The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 4 axles, so each will be approximately 12.5 tonnes each.

PB-PDE-CD02

The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 5 axles, so each will be approximately 10 tonnes each.

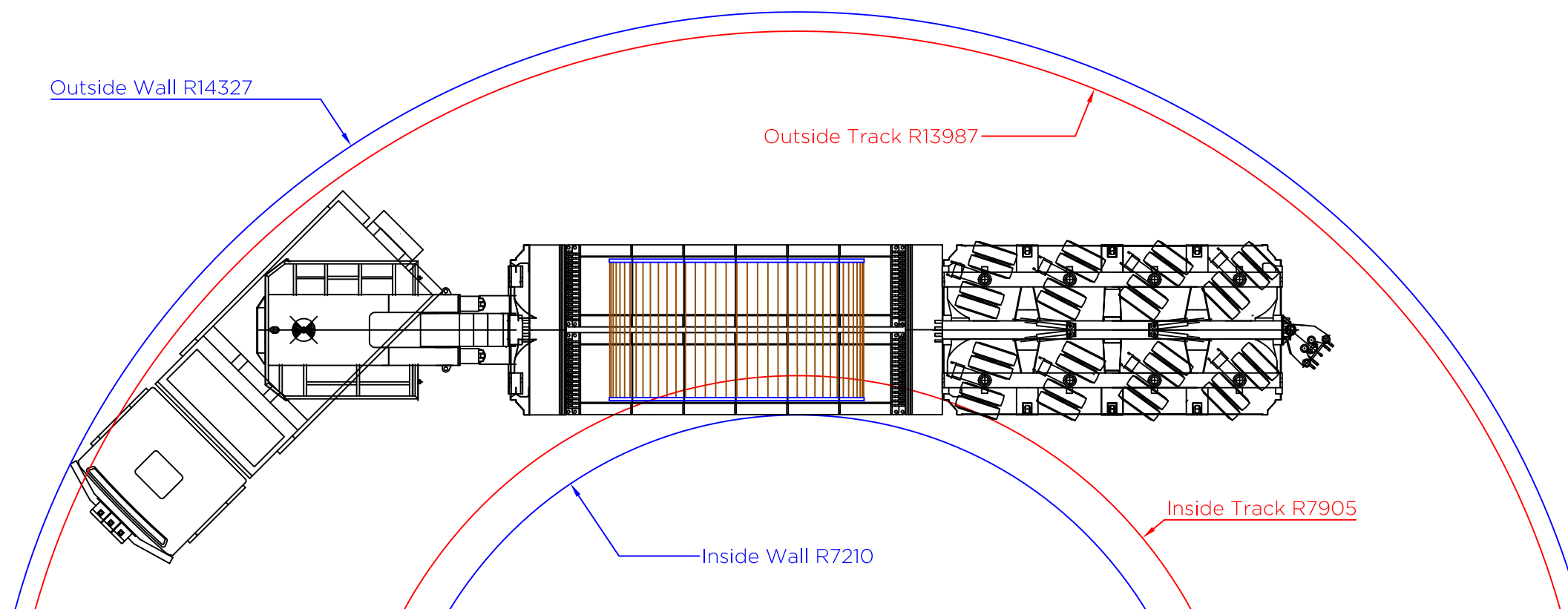
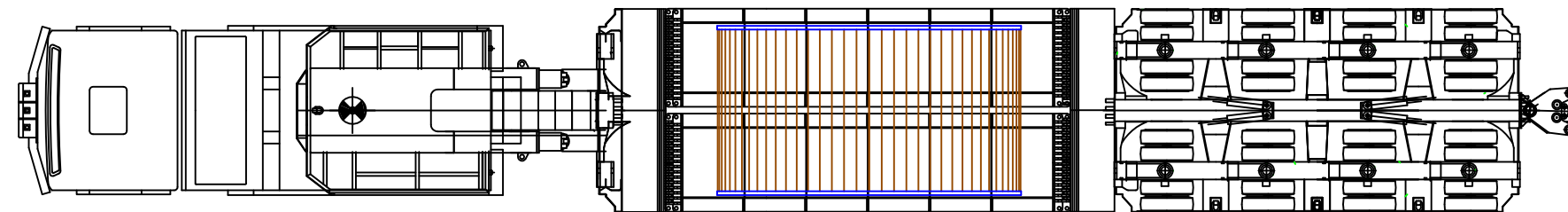
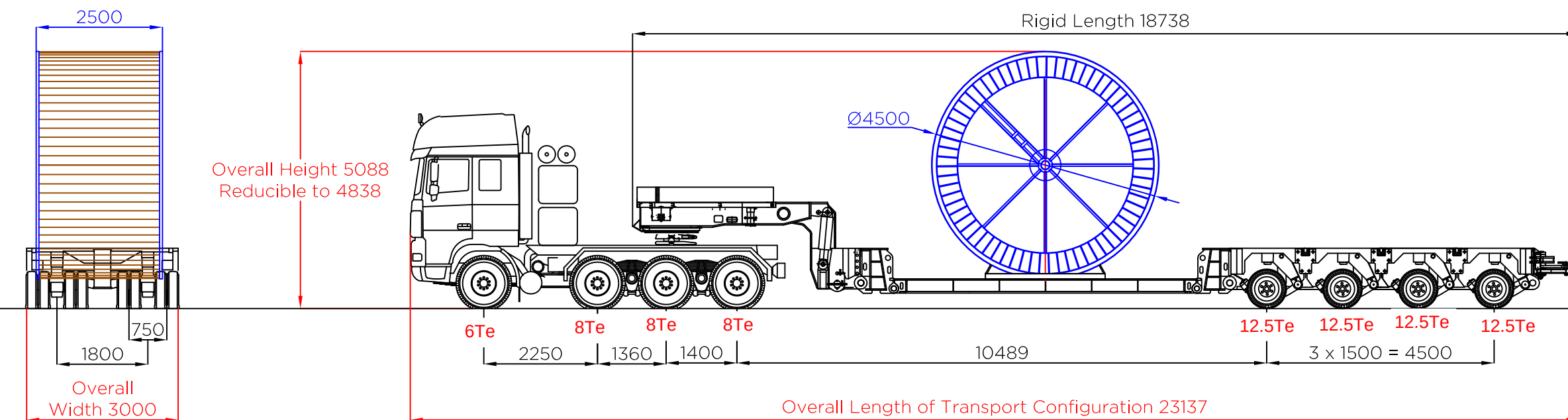
The loads suitability will of course depend on your structural assessment findings which will be affected by the nature of the bridge, span, skew etc. These axle loads are in fact quite low but if necessary additional axles could be added to further reduce axle loads although this would increase gross loads and trailer length.

Unfortunately, due to staff holidays and existing commitments we are not at present able to update the drawings for you within the next 2 weeks but we could do so later in the month if needed.

I trust that this is of some assistance.

Kind Regards

Andy Pearce



Load Table	
4 Axle Goose Neck Low Bed Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	11.00 Te
Load Per Wheel	1.38 Te
Overall Ground Bearing Pressure	3.26 Te/m ²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar

Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	9.17 Te
Rear Axle	9.17 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

A		
O	12.07.16	Issued for comment
Rev.	Date	Ammendments
		Revisions

Prepared By:



Shaftesbury House, 2 High Street,
Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client:



Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
4 Axle Goose Neck Low Bed Trailer
Showing Minimum Turning Radii

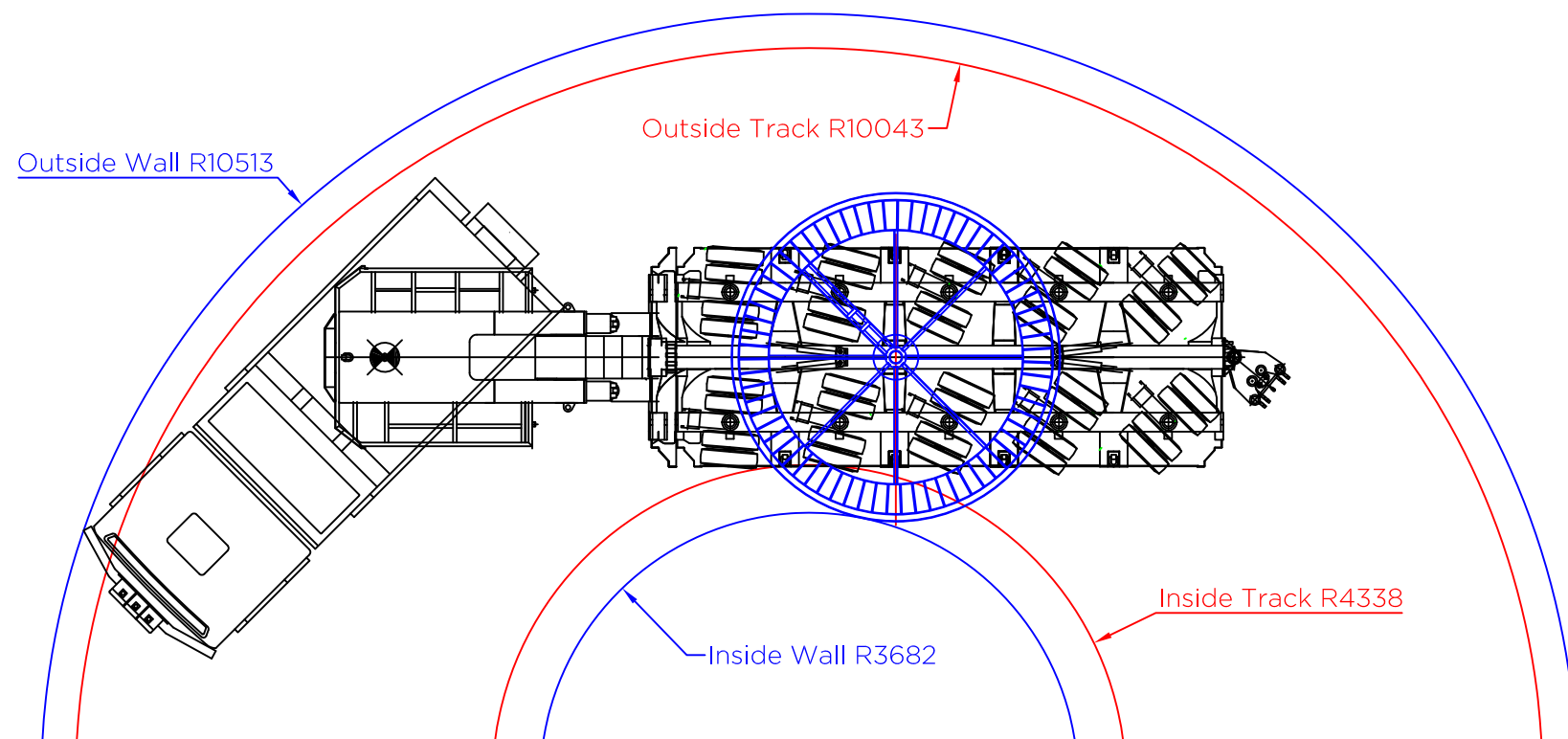
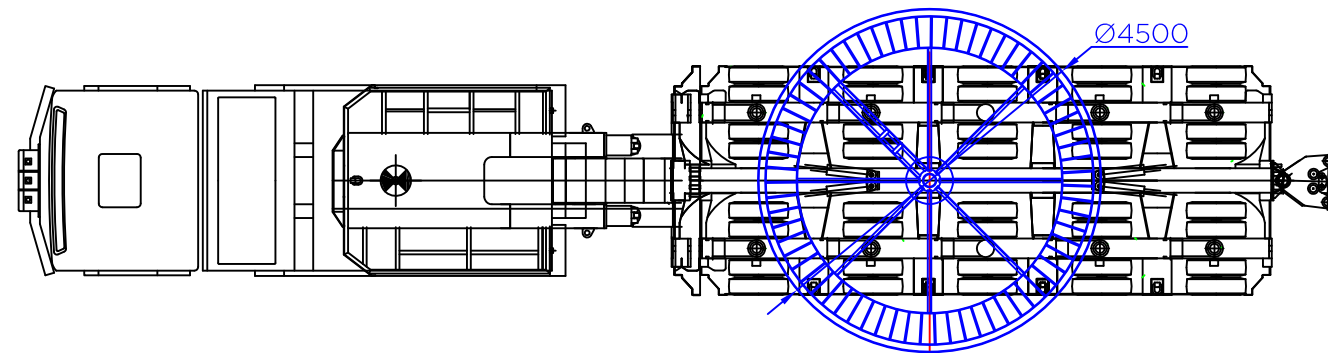
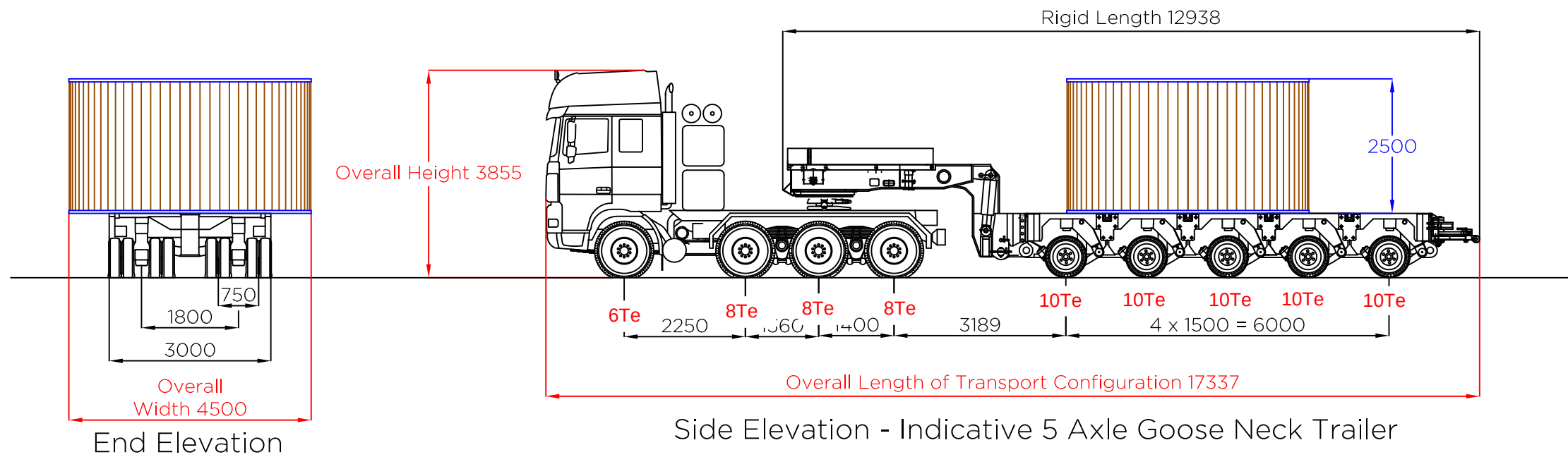
Drawing Status:

Final Report

Scale (A3): 1:100	Drawn By: DJT	Checked By: PAGW
DWG. No: PB-PDE-CD01	Sheet: 1 of 1	Rev: 0

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Peak District East\Cable Drum Transport
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Load Table	
5 Axle Goose Neck Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	9.43 Te
Load Per Wheel	1.18 Te
Overall Ground Bearing Pressure	2.62 Te/m ²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar

Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	7.86 Te
Rear Axle	7.86 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

A		
O	12.07.16	Issued for comment
Rev.	Date	Amendments
		Revisions

Prepared By:

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Independent Transportation Engineers

Client:

 **WSP** | **PARSONS BRINCKERHOFF**

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
5 Axle Goose Neck Trailer
Showing Minimum Turning Radii

Drawing Status:

Final Report

Scale (A3):	Drawn By:	Checked By:
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DWG. No:	Sheet:	Rev:
PB-PDE-CD02	1 of 1	0

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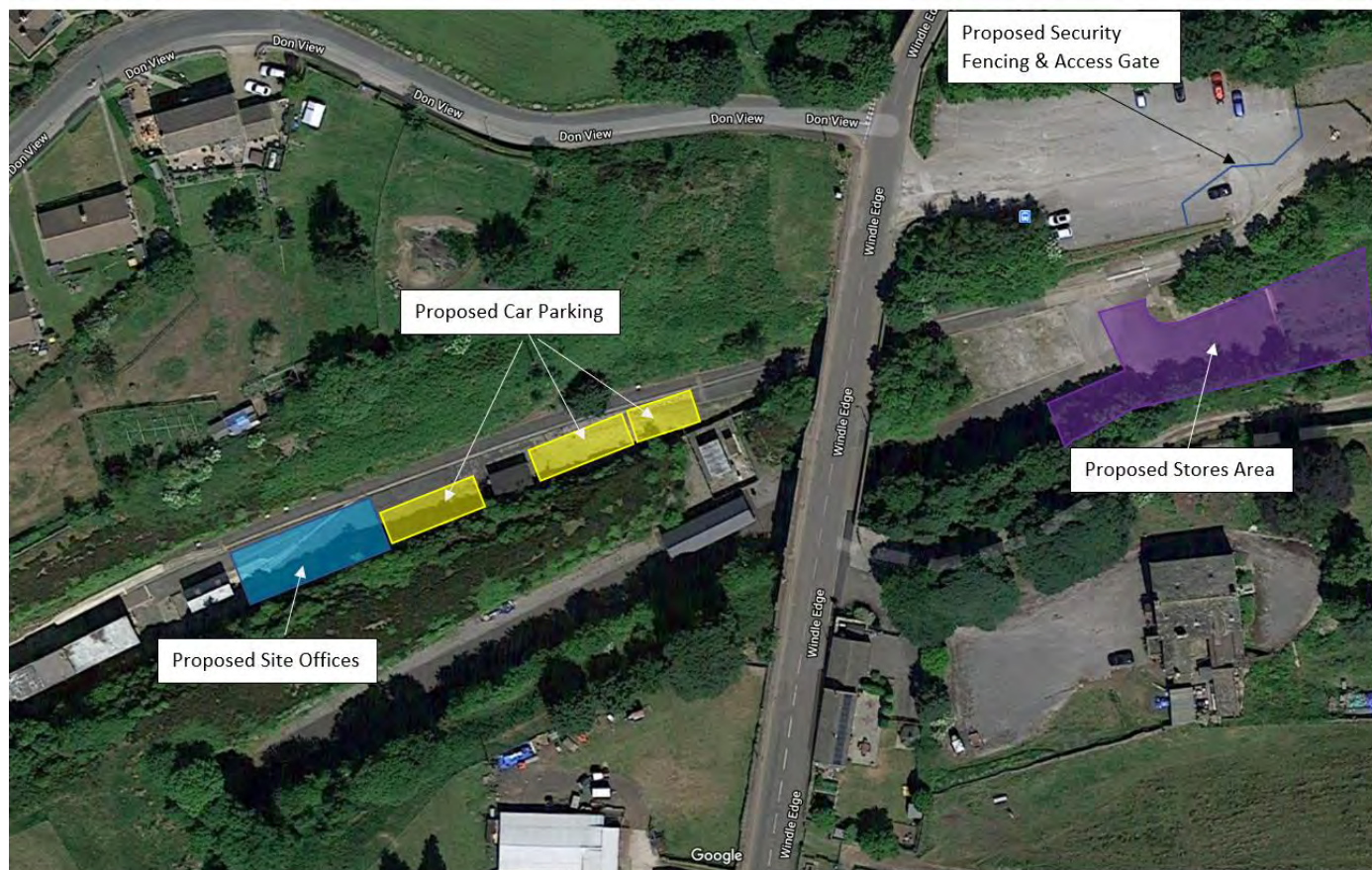
wsp.com

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.8 Appendix H – Proposed Main Compound Layout



Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2) Appendix. F Traffic Management Plan (TMP)

8.9 Appendix I – Typical Driver Flash Cards

NG PEAK EAST VISUAL IMPACT PROJECT 400kV

Site Address: Morgan Sindall Site Offices, AP05, Windle Edge, Dunford Bridge, Barnsley, S36 4TF

Main Site Contact No: TBC

Main Traffic Route to Site:

From M60 Jcn 24 (18miles). Take M67 heading towards Hyde/Barnsley (4.8miles), A57 towards Barnsley (1.3miles), A628 (10miles), turn left onto Goddard Lane / Windle Edge (1.6miles). AP05 is on the right.

From M1 Jcn 36 (15.7miles). Take A61 west (1mile), A616 towards Manchester (9.3miles), take A628 towards Manchester (3.8miles), turn Right onto Goddard Lane / Windle Edge (1.6miles). AP05 is on the right.



DRIVER FLASH CARD INDUCTION

- Wait at entrance for security to confirm the purpose of your trip
- Delivery driver will be marshalled to site laydown area
- A Traffic Marshall must be used for controlled movement of delivery vehicles and escort duties
- Reverse parking policy is in use on this project
- Hazard lights / orange beacons should be on when driving around the site
- Site road speed limit of 5mph is in force
- All staff and visitors must report to the site office on arrival and sign in
- Only exit onto local road network when instructed to do so

Site Rules

PPE is to be worn on the site as shown below. Minimum requirement for safety is:



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Appendix. F Traffic Management Plan (TMP)

8.10 Appendix J – Hazard identification and control measures

Key hazard identified	Significant risk and who may be harmed	Control measures
Restricted site access	Striking pedestrians and operatives.	Establishment of segregated vehicle and pedestrian route onto and off the site. Signage will be displayed at entrance and exit warning unauthorised persons that they will not be allowed access into the construction site/ entering a CDM area. Gate men will be employed to control these access and egress points.
Restricted road and pedestrian access around the site	Striking site personnel and temporary / permanent structures.	Establishment of segregated vehicle and pedestrian routes around the site. Establish warning signs.
Site visitors	Being struck by vehicles.	Establishment of segregated vehicle and pedestrian routes around the site. Visitors must wear high visibility garments whilst out on site. All visitors must be accompanied at all times after receiving briefing from gate man and visitor induction by site manager.
Steep gradients	Overturning vehicles – driver/personnel injury.	Select appropriate vehicles for site conditions. During access construction keep gradients to a minimum. Where steep gradients do exist ensure drivers are informed and vehicle capabilities adhered to.
Vehicles reversing in confined areas	Striking site personnel and other vehicles.	Where possible provide one way route through the site to eliminate reversing. LGV and HGV must have visual warning light on at all times and have audible alarm warning when reversing. Trained Vehicle Marshal must be in attendance.
Vehicles being unloaded adjacent to the site gates	Injury to passing pedestrians.	Temporary road barriers must be erected when gates are left open. Vehicle Marshal to be in attendance.
Site personnel	Site personnel being struck by vehicles.	Establishment of segregated vehicle and pedestrian routes around the site. Operatives must wear high visibility garments whilst out on site. All site personnel must undergo a site safety induction before starting on site, which will cover vehicle segregation and site rules.
Vehicles entering and leaving site	Striking pedestrians, cyclists, site personnel and other vehicles.	Security to control and monitor incoming and outgoing vehicles. All vehicles to be controlled by trained and competent banksmen. One way system. Traffic control for vehicles exiting the main compound onto local road network. Site hoarding/ herras fencing erected around the exposed sections of the project to deny access to the general public. Full site perimeter to be made secure.

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Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)

Appendix. F Traffic Management Plan (TMP)

Vehicles picking up mud on wheels	Leaving mud on the highways causing road traffic accidents.	Drivers to check wheels for excessive mud before leaving site and use wheel wash facilities where required. Road Sweepers to attend site to sweep main agreed traffic route, when necessary.
Vertical edges	Falling of vehicles and vehicle loads. Injury to site personnel	Road barriers must be installed to vertical edge. Timber baulks to be positioned at least 1m back from edge or as per Temporary Works requirement. Controlled speed limit.
Concrete pumps overturning	Injury to pedestrians and site personnel	Ensure all outriggers are positioned correctly as per temporary works.
Obstructions and services	Overturning of vehicles. Damage to installed structure.	Highlight obstructions and services. Include any visible risks in Daily Briefing and work pack. Blue Cones to be used to highlight overhead obstructions.
Noise and vibration and emissions	Effects on site personnel and pedestrians.	Vehicles to be regularly inspected and maintained. Reduce Speed Limits. Noise monitoring to be conducted. Engine switch off signs to be located with compound and holding area.
Drivers lacking competence	Out of control vehicles. Striking site personnel and damage to structures	All site drivers to have a current certificate of training achievement and to be competent, checked by site manager at induction. Drivers to receive suitable supervision and monitoring.
Vehicle arrival and departure	Site congestion. Striking site personnel and pedestrians. Causing road traffic accidents. Vehicle drivers being struck by another vehicle or load.	Holding area at AP05 shall be within the site compound & the holding area at AP07 shall be located off the LRN. Programmed/organised delivery schedules. Security to control and monitor incoming and outgoing vehicles. Drivers must wear mandatory PPE when out on site. All drivers to be issued with Driver Flash Card with site rules. Site working hours to be communicated to all drivers.
Speeding vehicles	Striking pedestrians and other vehicles. Fear and intimidation.	All vehicles to observe the site speed limits. All drivers to be issued with drivers rules. Speed humps installed where necessary.
Loading and unloading of vehicles	Striking site personnel.	All loads to be unloaded under the supervision of a trained and competent banksman.
Disruption to the local traffic and highways	Causing congestion and possible road traffic accidents.	Vehicles to use the designated approach roads and aim to travel outside local peak traffic periods.
Non site vehicles entering the site	Striking pedestrians, site personnel and other vehicles.	Security to monitor incoming and outgoing vehicles. Signs to be displayed on approach to site roads.

Management System

Plan

Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)

Appendix. F Traffic Management Plan (TMP)

8.11 Appendix K – Traffic Management Inspection Sheet

Date	Location	Signage	Traffic Lights	Cones & Barriers	Security/ Position/ Condition	Comments	Checked by [Print Name]	Signature

Management System

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Construction Phase Health and Safety Plan (CPHS P)-(PEP Part 2)
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