

Jane Austin
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Case Ref: - PRM-IOP-0338

EINUK/62/2020/0001

Date 3rd January 2020

Contact: Mark Gough
HM Inspector of Railways

ORR, 3rd Floor, Mallard House, Kings Pool,
1-2 Peasholme Green, York.
YO1 7PX

Dear Jane Austin

THE RAILWAYS (INTEROPERABILITY) REGULATIONS 2011, AS AMENDED
TGWP Bristol to Cardiff Electrification project

Further to your application for authorisation received on the 23rd December with Technical File references:

- 197308-A0092 AP25a Route Sections 6D & 6P Wootton Bassett Junction to Patchway Junction Verification Report Issue 04
- 197308-A0125 AP29 Route Section 8 Patchway Junction and Feeder Bridge Junction to Newport Old Tunnel Verification Report Issue 2
- 197308-A0126 AP30 Route Section 9 Newport Old Tunnel to Leckwith Loop North Verification Report.

Following review of your application, I can confirm that ORR grants authorisation under regulation 4(1)(a) of the Railways (Interoperability) Regulations 2011, as amended. This authorisation is for the placing in service of new energy subsystem, which is titled: The Greater West Programme Bristol to Cardiff Electrification Project.

The scope of works included within the assessment for TGWP Bristol to Cardiff is as follows:

- Installation of Series 1 Overhead Contact Line System from Bristol to Cardiff and installation of ATF feeder with new associated traction power distribution, communications, protection and control for the OLE system

The scope of authorisation is limited to the following:

Area	Interoperability Authorisation Package (AP)	CSM Safety Assessment Report (SAR)	Route Section (RS)	ELR	From	To
Bristol Parkway – Patchway JCT 1	AP25a	EE7, EE9	RS6P	SWB	111m 79ch	112m 68ch (BSW 5m 61ch)
Patchway JCT 1 – Severn Tunnel JCT	AP25a, AP29	EE9	RS6P, RS8	BSW	5m 61ch	16m 73ch (SWM2 149m 14ch)
Severn Tunnel JCT – Limit of Electrification (Cardiff)	AP29, AP30	EE9, EE8	RS8, RS9	SWM2	*148m 55ch	*170m 43ch
<p>*Note:</p> <ul style="list-style-type: none"> SWM2 overlaps with BSW at Severn Tunnel Junction Station with SWM2 being platforms 1 and 2, and BSW being platforms 3 and 4. The ELRs merge to the west of the station at Severn Tunnel Junction at BSW 16m 73ch = SWM2 149m 14ch. The limit of Authorisation is SWM2 170m 43ch and the end of wire is 171m 26ch 						

The limits of authorisation are listed below:

Lines	ELR	Track ID	From:	To:
Up Badminton	SWB	1100	111m 79ch	112m 05ch
Down Badminton	SWB	2100	111m 79ch	112m 05ch
Down Tunnel	SWB	2100	112m 05ch	112m 68ch
Up Tunnel	SWB	1100	112m 05ch	112m 68ch
Down Tunnel	BSW	2100	5m 61ch	16m 73ch
Up Tunnel	BSW	1100	5m 61ch	16m 73ch
Down Pilning Loop	BSW	2300	9m 08ch	9m 72ch
Up Pilning Loop	BSW	1300	9m 45ch	10m 35ch

Up Tunnel loop	BSW	1300	15m 62ch	16m 14ch
Up Main	SWM2	1100	148m 55ch	170m 00ch
Down Main	SWM2	1200	148m 55ch	170m 08ch
Up Relief	SWM2	1200	149m 14ch	170m 03ch
Down Relief	SWM2	2200	148m 55ch	170m 08ch
Up/Down Usk Branch	SWM2	3301	157m 02ch	157m 59ch
Down Platform Loop	SWM2	2401	158m 30ch	158m 62ch
Up/Down Platform	SWM2	3403	158m 40ch	158m 70ch
Up/Down Goods Loop	SWM2	2500	159m 64ch	160m 13ch
No.1 Up/Down Reception	SWM2	3301	167m 61ch	168m 40ch
No.2 Up/Down Reception	SWM2	3302	167m 61ch	168m 40ch
No.3 Up/Down Reception	SWM2	3303	167m 61ch	168m 40ch
Platform Loop	SWM2	3400	170m 18ch	170m 43ch
Line A	SWM2	3401	170m 10ch	170m 43ch
Line B	SWM2	3402	170m 00ch	170m 43ch
Line C	SWM2	3412	170m 08ch	170m 43ch
Line D	SWM2	3413	170m 03ch	170m 43ch
Line E	SWM2	3403	170m 08ch	170m 43ch
Up Barry Relief	SWM2	3404	170m 18ch	170m 43ch

The Wales and Western System Review Panel (WW SRP) have endorsed this project and are satisfied that any identified hazards both legacy and residual have been adequately closed and/or transferred to the appropriate body before placing in service in accordance with the Declaration of Control of Risk.

There was one derogations from the TSIs Clause 4.2.14 (contact wire material). Aluminium contact wire was used in the Severn Tunnel due to the harsh environment causing galvanic corrosion of the aluminium ROC system with the copper alloy contact wire. This derogation was granted under Regulation 13 and was issued to the project on 2nd September 2019.

There was one deviation from the National Notified Technical Rules from GL/RT/1210 clause 3.1.3.2 reduced wire height. This was granted as Deviation Certificate number 19-020-DEV with a start date of 18th November, 2019

This was due to the complexity of the system around Cardiff Intersection Bridges comprising canals, running line and a rail overpass. Raising the wire height would have been disproportionately expensive. Mitigations include surge arrestors, a GLS covering, and Sectional Appendix updates warning of the extra low wire height and the electrical dangers. Red Zone barred working and warning signs provide additional mitigations. Early engagement and the application of the Principles of Prevention ensured a timely resolution of this issue.

The restrictions or limitations of used on the structural subsystem are those contained in the declaration of verification W1001B-NPT-STA-ESS-000019A01 and declaration of control of risk.

W1001B-NPT-STA-ESS-000017 A01 EE6 and EE7 Post Com-Declaration of control of Risk

W1001B-NPT-STA-ESS-000021,A02 EE8 EIS Declaration of Control of Risk

W1001B-NPT-STA-ESS-000020 A03 EE9 EIS Declaration of Control of Risk

At the time of authorisation confirmation was received from the conformity assessment bodies that four Conditions were considered open.

Lime Kiln bridge, had a reduced parapet height of 1.78m due to alterations to the road height. This was considered by ORR to be a negligible risk gap that can be managed through the Network Rails Health and Safety Management system.

Two related to Cattybrook Footbridge which was not installed at the time of authorisation. This will be installed at a later date but will be fully compliant under the routes obligation under Regulation 20 explained below.

Two reduced earth wire heights at Ebbw Junction North 2 and Ebbw Junction South 1 which are scheduled to be raised on the 4th January 2020. Mitigations in place include security on site restricting access.

ORR consider these issues controlled and do not intend placing additional conditions on the project

The following Restrictions apply

Restriction 1 The maximum line speed for electric stock in the Severn Tunnel area between Balises at BSW 10m 42ch and BSW 16m 33ch is limited to 120 kph (75mph), until additional testing in accordance with ENE TSI **clause 6.2.4.5** is carried out. This restriction is applied for as energisation of the tunnel has been delayed. Following successful testing, analysis of results and completion of any remedial actions this restriction can be lifted with agreement of the NoBo and SRP with the issuing of new certificate of verification

Restriction 2 This restriction is applied to limit use to trains that meet the terms of the ISV applicability table in terms of number of pantographs, pantograph spacing and authorised speed. Pantograph spacing for overhead contact line

Design Clause 4.2.13. Only the pantograph model/manufacture and train configuration combinations quoted in the Series 1 ISV applicability table may be utilised. Additional pantograph model/manufacture and train configuration combinations may be demonstrated by further simulation and testing. This requirement is to ensure route compatibility for new rolling stock. Network rail to ensure compliance through their safety management systems.

Restriction 3 - This restriction is applied to limit the use to trains that meet the terms of the ISV applicability table in terms of the type, width and shape of pantographs.

Pantograph Gauge Clause 4.2.10 Only pantograph profiles assessed as compliant and detailed in the Series 1 assessment applicability table or as subsequently demonstrated may be utilised. This requirement is to ensure route compatibility for new rolling stock. Network rail to ensure compliance through their safety management systems.

The infrastructure subsystem authorised by this letter must be operated and maintained in accordance with Regulation 20.

You should be aware that any future modifications to the authorised subsystem may constitute a further 'renewal' or an 'upgrade' as defined in Regulation 2. If a project entity, in relation to the project, considers that the modification meets either of these definitions they may apply, in accordance with the provisions of Regulation 13, to the Department for Transport (DfT) for a decision on whether a new authorisation will be required. Should DfT decide that an authorisation is not required they must consult with ORR whether authorisation is required on safety grounds.

As the project entity you are responsible for retaining the technical file, keeping it up to date and making it available to the ORR in accordance with Regulations 18 and 19.

If you are not the owner of the authorised subsystem you shall within 60 days, in accordance with Regulation 19(3), transfer the technical file, certificate of verification and verification declaration to the owner of the subsystem and the owner shall then be regarded as the project entity. If the owner, in accordance with Regulation 19(4), disposes of his interest in the authorised subsystem, he shall within 60 days of the disposal transfer the technical file, certificate of verification and verification declaration to the person acquiring that interest and that person shall be regarded as the project entity.

Please note that the person who applied for the authorisation shall send particulars to the owner of the infrastructure to enable the owner of the infrastructure to enter the items on the Register of Infrastructure in accordance with Table 1 Commission Implementing Decision 2011/633/EU. This will include such further information as the registration entity may reasonably require set out in the relevant standard.

The person who applied for the authorisation to place in service may apply to the ORR for a determination of type. You will receive the type authorisation after providing the relevant data to the ORR.

If you are the operator, may I remind you of the need to have adequate arrangements within your Safety Management System to control the risks associated with this renewed infrastructure subsystem.

This decision letter will be published on ORR's website

Yours sincerely

A handwritten signature in black ink, appearing to read 'Steve Fletcher', written in a cursive style.

Steve Fletcher

Deputy Director of Engineering & Asset Management

Copies:

Ian Prosser, ORR, Director Railway Safety 25 Cabot Square, London, E14 4QZ

Gary Taylor, ORR, Senior Interoperability & Standards Executive, 25 Cabot Square London E14 4QZ