



UKCRIC

UK COLLABORATORIUM
FOR RESEARCH ON
INFRASTRUCTURE & CITIES
**Inspired infrastructure
for better living**

WILLIAM POWRIE
Convenor

REVIVE Workshop 23 September 2026

UKCRIC is a national network of leading universities and advanced research facilities dedicated to transforming the way we plan, design, deliver, and operate infrastructure and urban systems.



Vision

For every major infrastructure and cities project to embrace systems thinking and practices through transdisciplinary and cross-sector collaborations to deliver innovation and learning

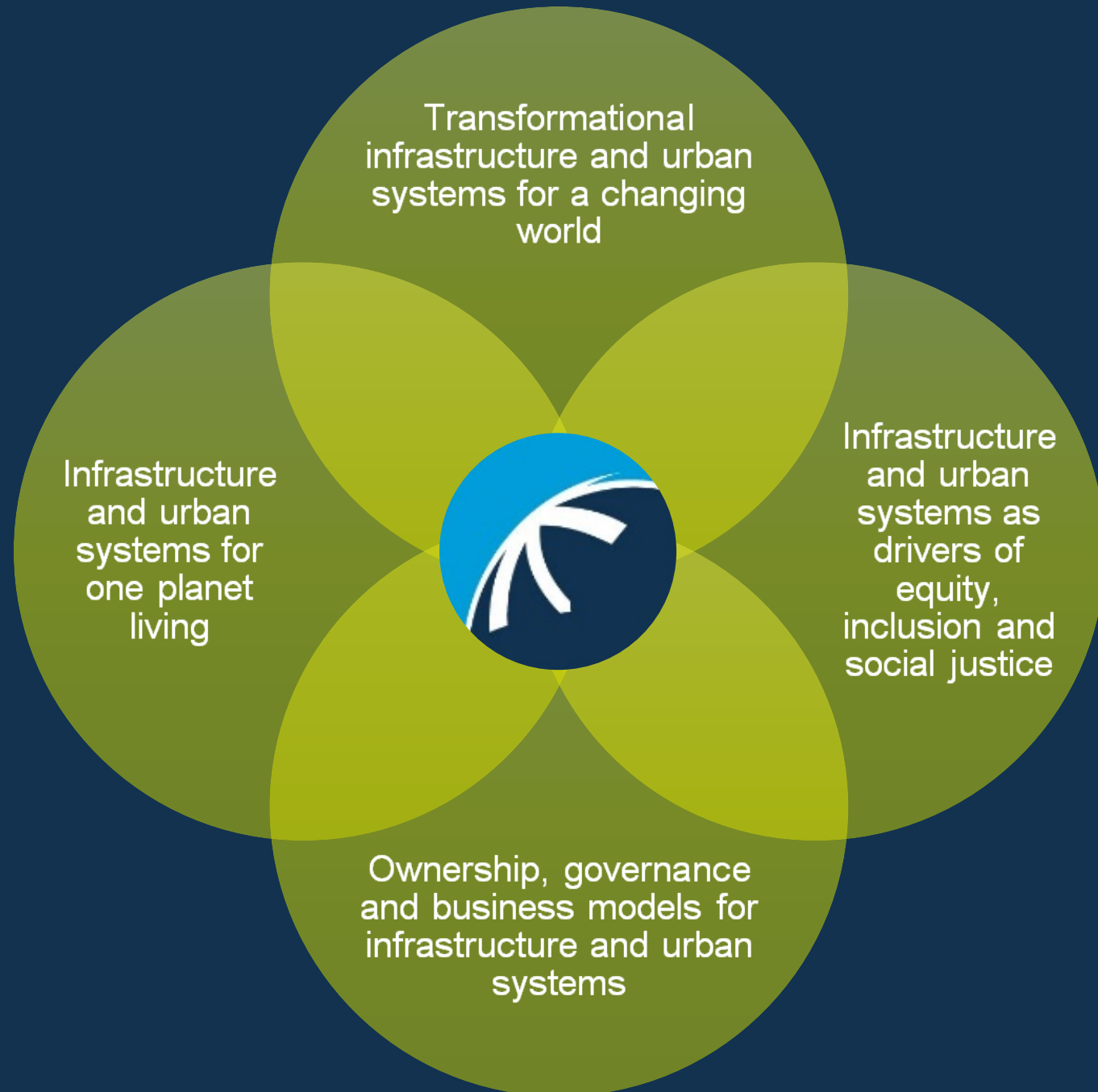
Mission

To connect research with policy
and practice in infrastructure and
urban systems

Scientific Missions

UKCRIC offers a nationally distributed, world-class research and innovation capability designed to address systemic infrastructure challenges.

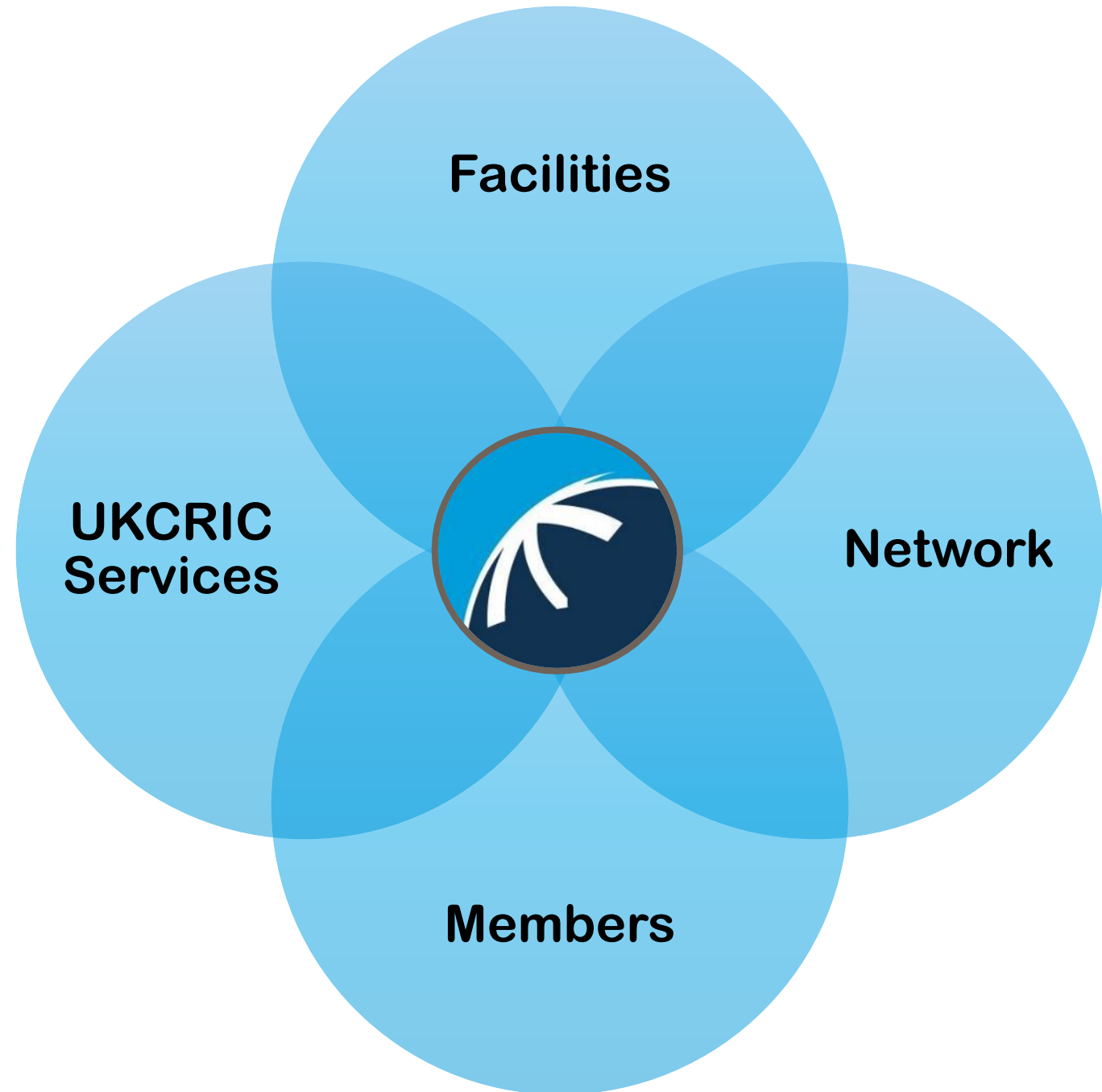
UKCRIC provides the tools and expertise to understand, simulate, and test complex infrastructure systems in real-world contexts.



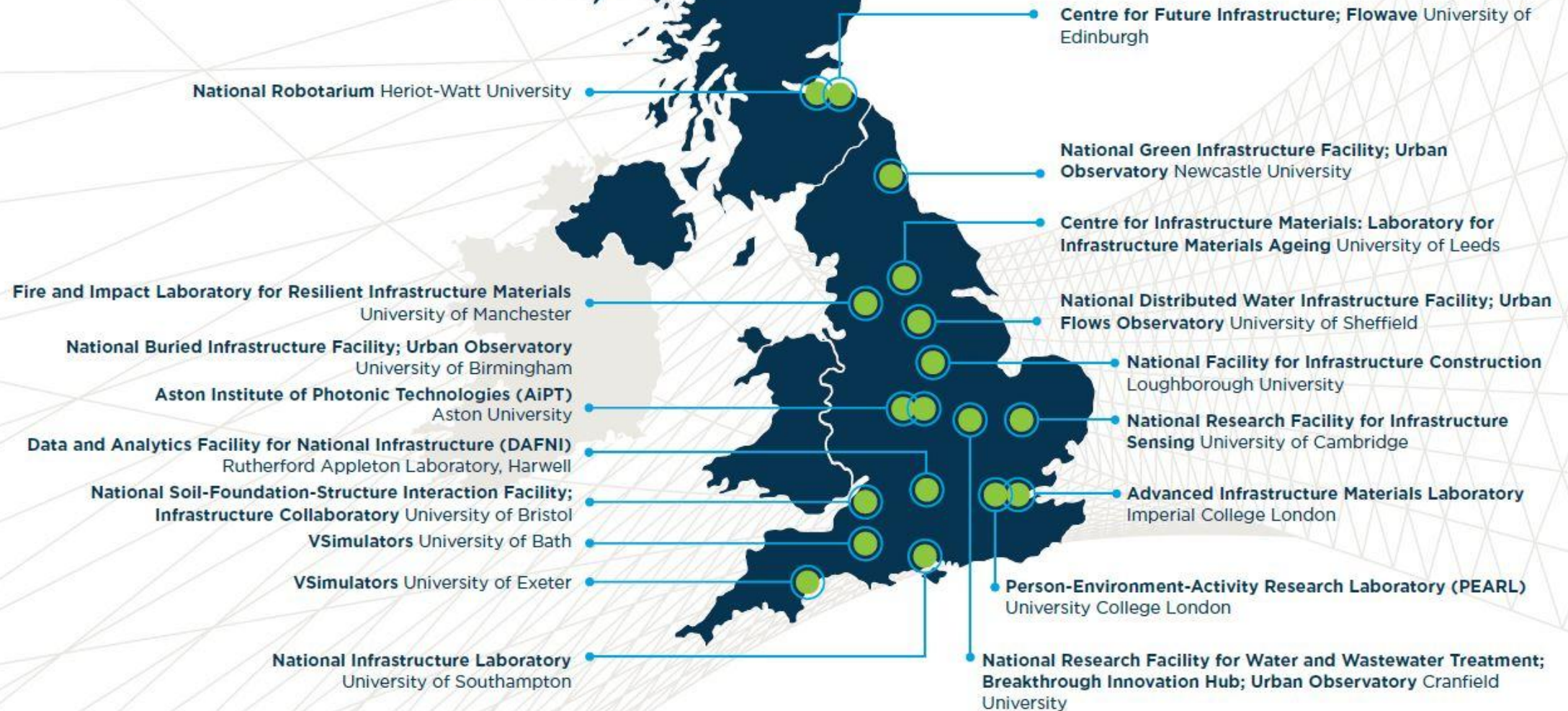
Composition

UKCRIC comprises 18 partner universities and a network of cutting-edge facilities including urban observatories, infrastructure testbeds, and digital modelling platforms.

UKCRIC Services is UKCRIC's start-up company, focusing on higher TRL projects.



UKCRIC's Facilities



Annual impact

>£47M

RESEARCH
FUNDS
LEVERAGED



of which

>£1.5M

is from
**COMMERCIAL
SOURCES**



175

RESEARCH
PROJECTS
using UKCRIC
FACILITIES



RESEARCH PROJECTS
to the value of

>£68M

using
UKCRIC
FACILITIES



40



NON-ACADEMIC INSTITUTIONS
using UKCRIC FACILITIES

of which



18



are **LARGE CORPORATE
BUSINESSES**

and of which



18



are **SMALL and MEDIUM-SIZED
ENTERPRISES**

30

**RESEARCH
PROJECTS**

are with
**INTERNATIONAL
PARTNERS**



173

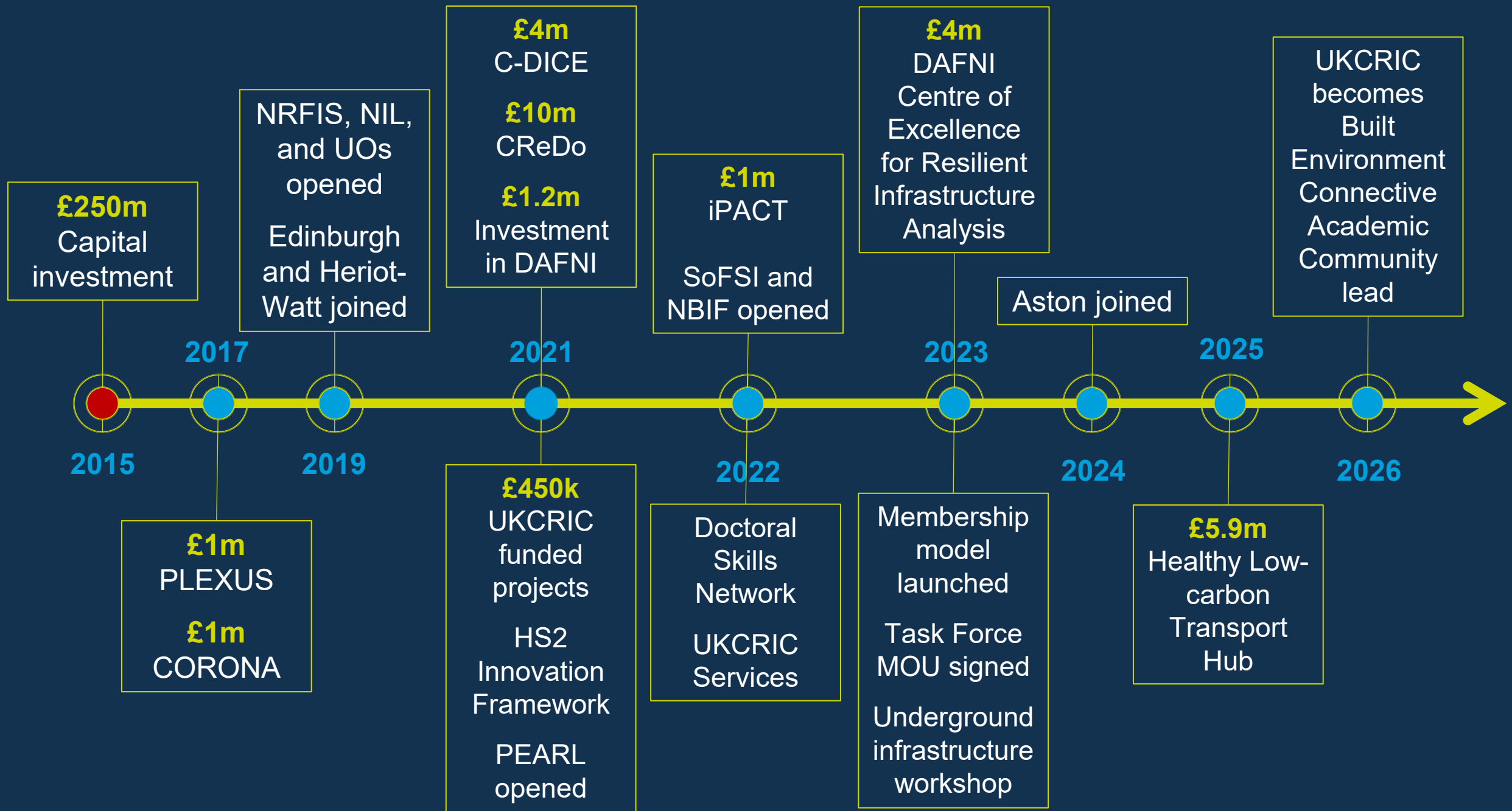
PUBLICATIONS

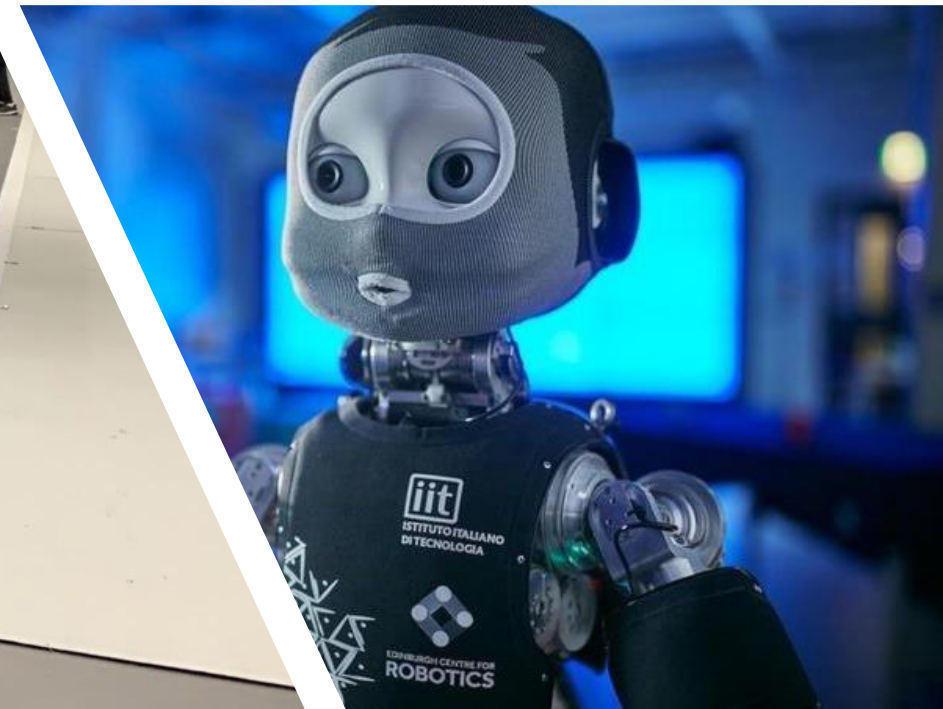
of which

133

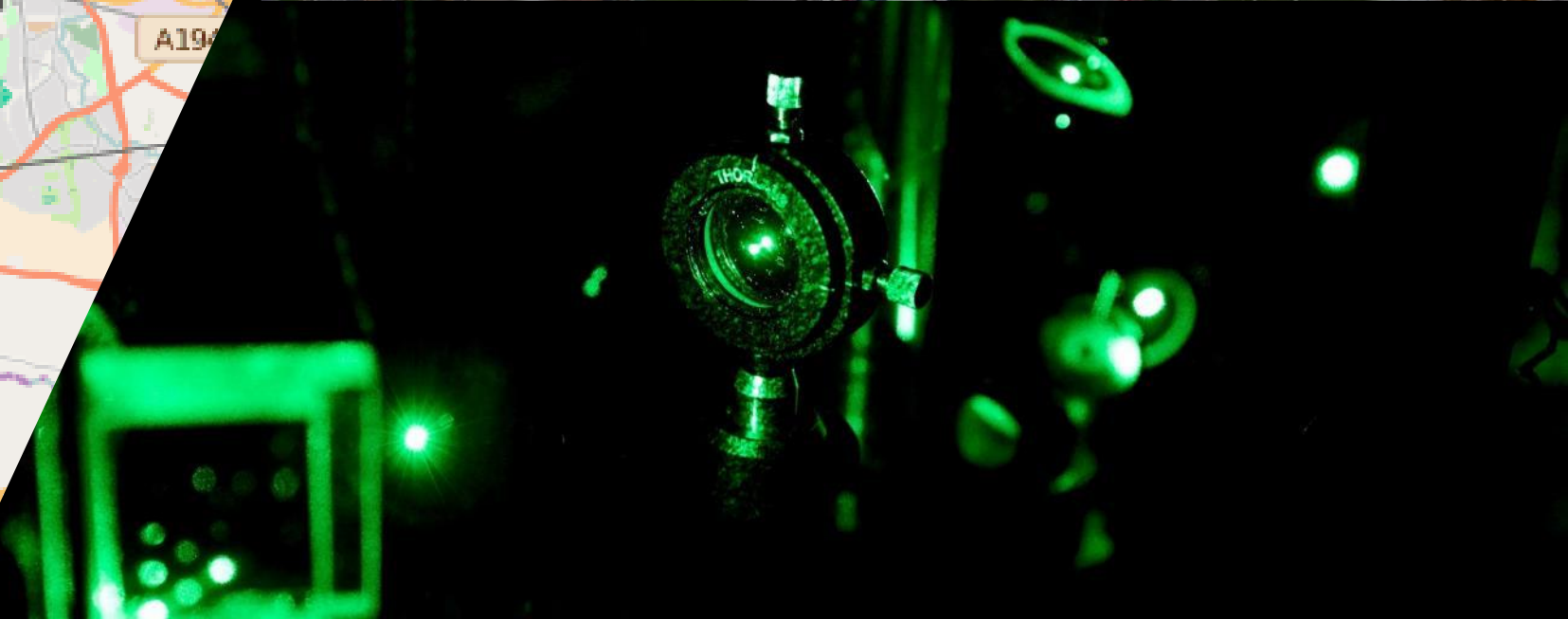
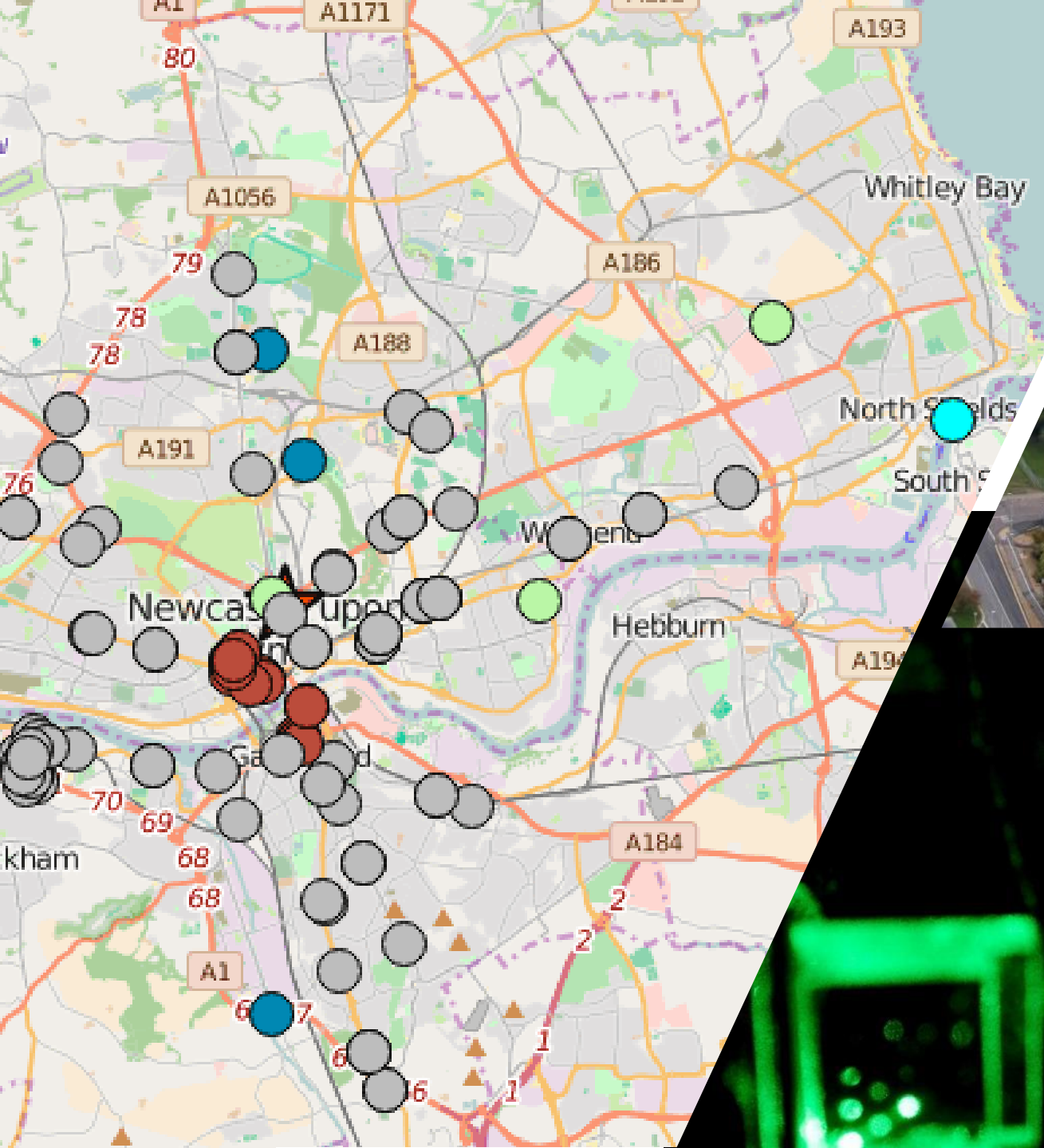
are
**ACADEMIC
PUBLICATIONS**











Stakeholder Engagement

- Collaboration of 25 HEIs
- Network of >700 individuals (within and without the formal collaboration)
- Stakeholder Challenge Group chaired by Mark Enzer [Ofcom](#), [RICS](#), [DfT](#), [EA](#), [CIRIA](#), [Arup](#), [Siemens](#), [RAEng](#), [NPC](#), [Catapults](#), etc.
- International Advisory Board, chaired by Lord Robert Mair
- Comms & marketing [PoliticsHome](#), [UKCRIC Connected](#), [website](#), [socials](#)
- Engagement & influence [NISTA](#), [DSIT](#), [MHCLG](#), [UKRI](#), [Net Zero Industry Infrastructure Coalition \(Motts\)](#), [Resilience Shift \(ARUP\)](#); [London Resilience Forum](#), [Digital Framework Task Group](#), [Digital Twin Working Group](#), [PAS186 Smart Cities](#), etc.
- Framework Agreements [HS2](#), [Heathrow](#), [National Rail](#), etc.
- UKCRIC Services (higher TRL work) [Built Environment Connective](#), [MHCLG](#), [Manchester Prize](#), [Lower Thames Crossing](#), [systems thinking in the built environment prospectus](#), [RTO grants](#), etc.

Skills and Training

Professional and Policymaker Training

- Workshops for Network Rail asset managers

Centres for Doctoral Training Programme

- Supporting member's CDTs with added-value skills and training opportunities

Doctoral Skills Network

- Over 200 doctoral students

C-DICE Centre for Postdoc Development in Infrastructure, Cities and Energy

- Training – linked to UKCRIC and Energy Research Accelerator (ERA)
- Development – funded placements and secondments
- Sandpit programme – the net zero carbon challenge
- Impact – delivering knowledge exchange events

The Future

- Moving away from a paid membership model to a free, network model
- Retaining our Stakeholder Challenge Group and International Advisory Board
- Retaining our comms and marketing channels
- Focusing on:
 - Expanding our network for the benefit of network members (e.g., brokering and supporting collaborative research bids)
 - Engagement & influence opportunities (e.g., knowledge exchange broker)
 - Framework agreements and similar
 - UKCRIC Services (e.g., impact broker)
 - Skills and training opportunities

National Infrastructure Laboratory, opened by Andrew Haines on 27 September 2019



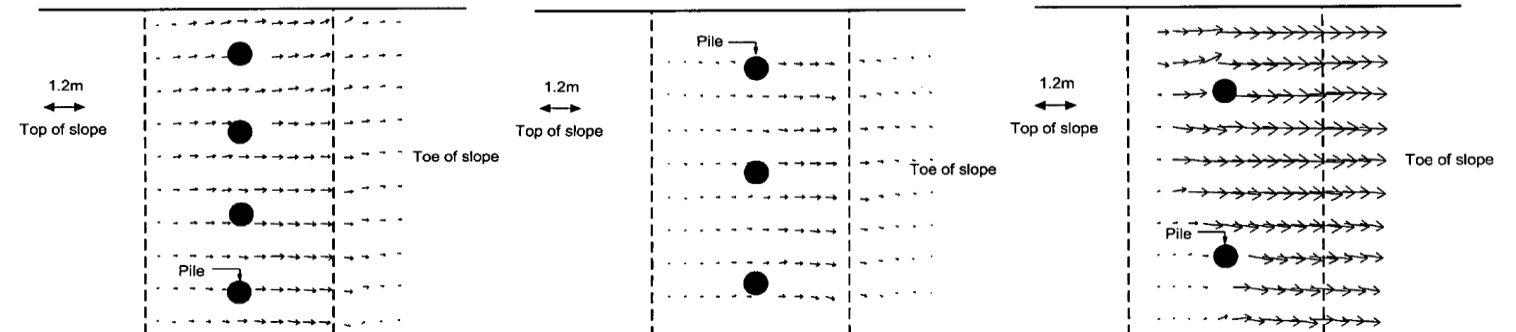
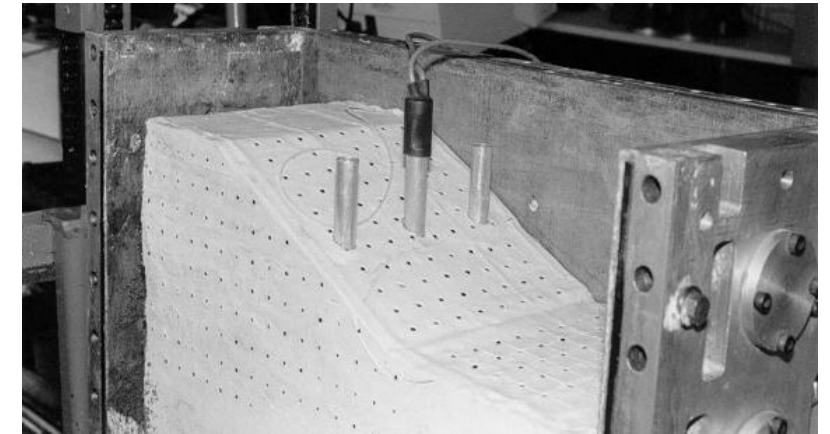
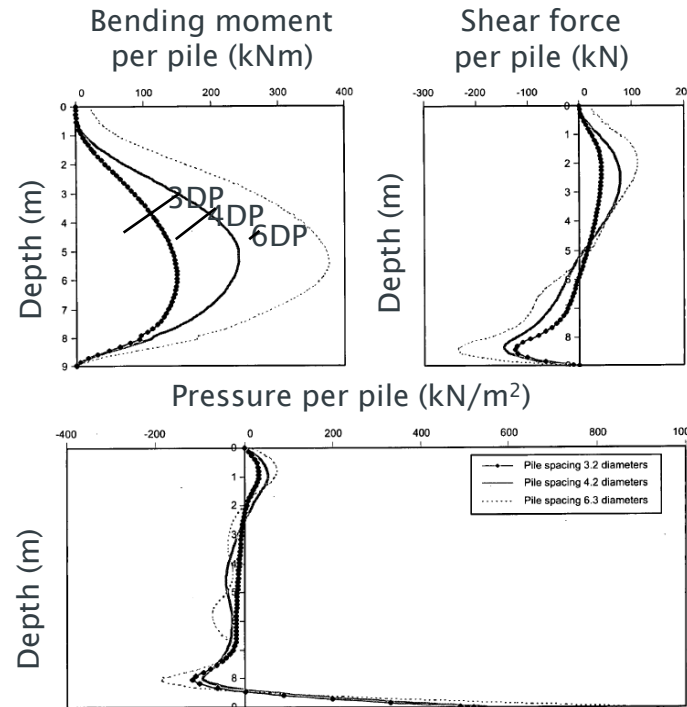
The Queen
Elizabeth Prizes
for Education

Discrete pile slope stabilization Earthworks

Savings up to £100M in CP5

Strain gauges and inclinometer tubes in piles

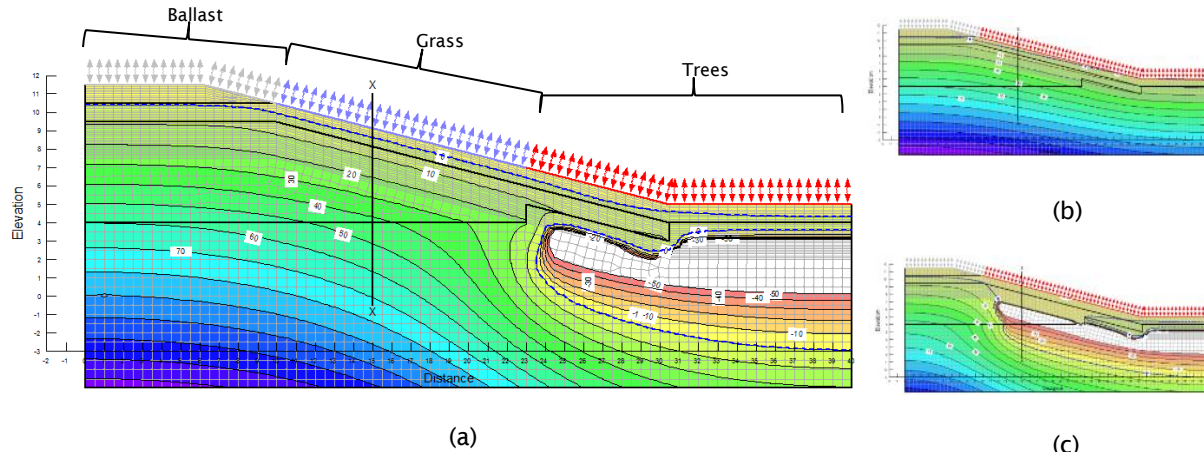
Inclinometer tubes in between piles



- Climate effects and vegetation management

Earthworks

Reduced risk of trains running into landslides by 14%



End of winter (February 2001) pore water pressure contours
(a) For a slope with trees at the toe only (b) for a grass covered slope and (c) for a tree covered slope

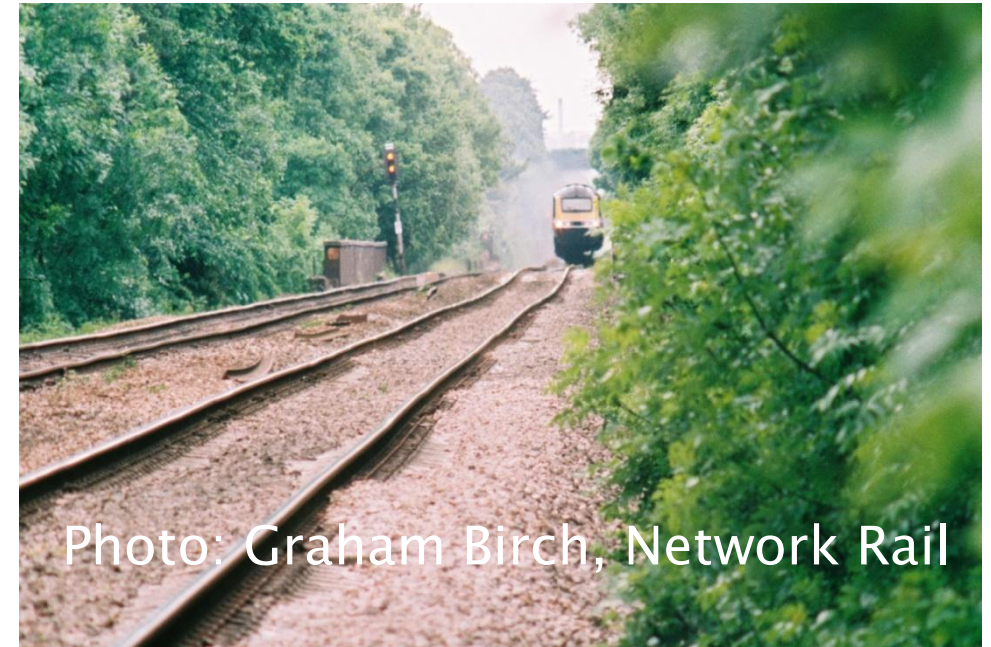
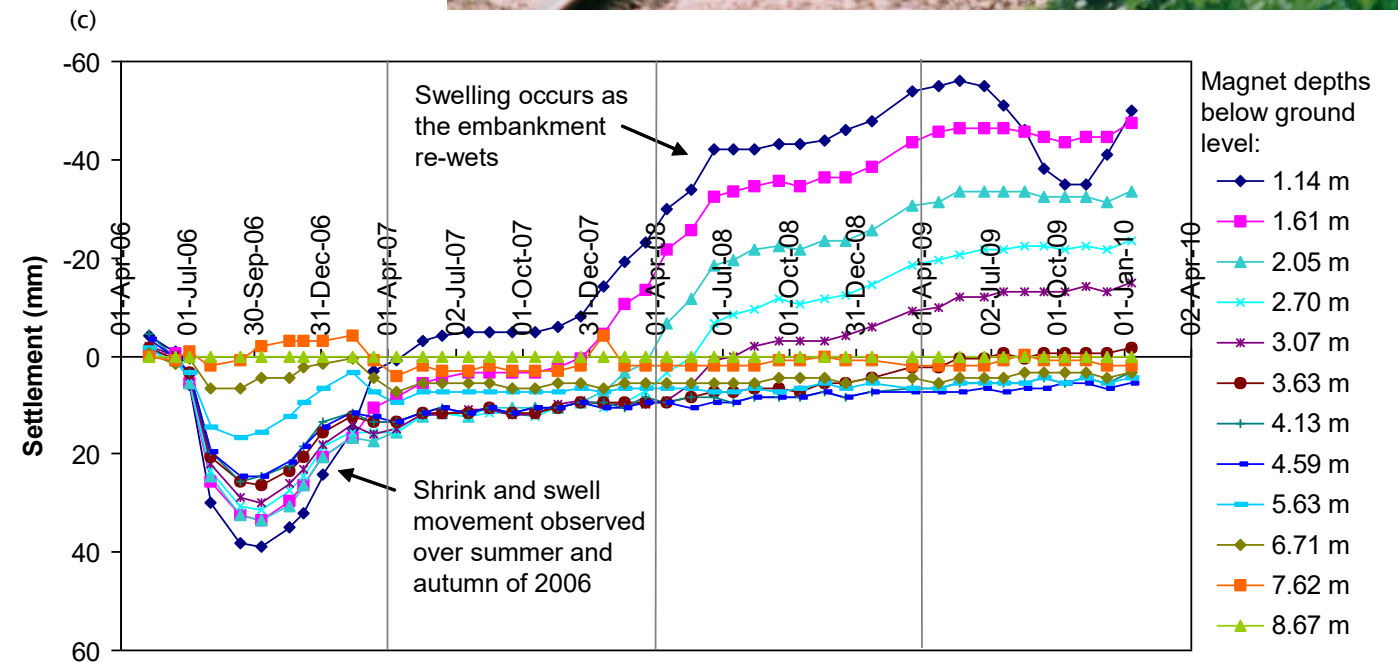
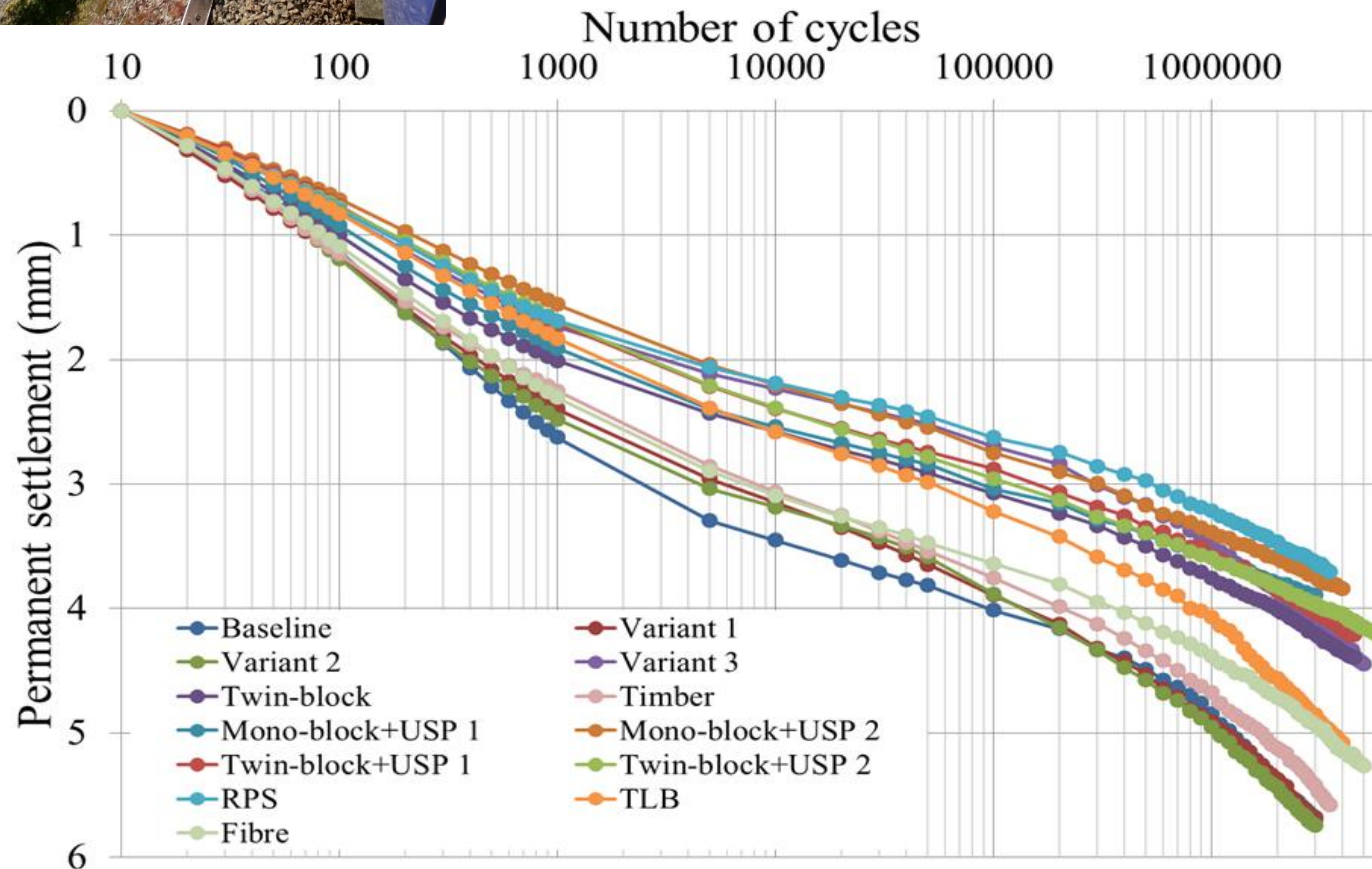


Photo: Graham Birch, Network Rail



Track

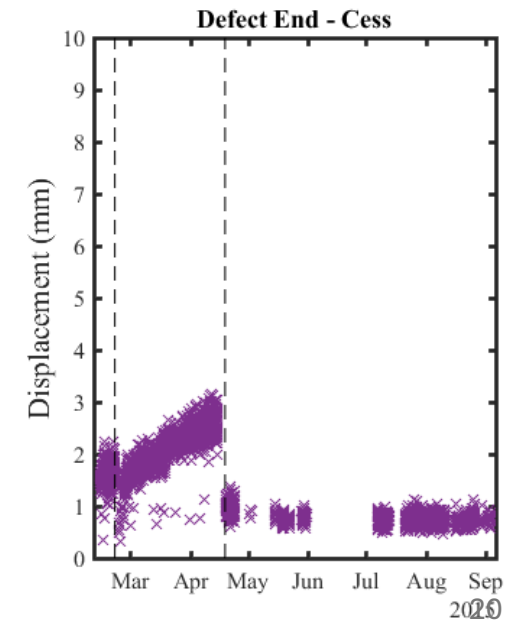
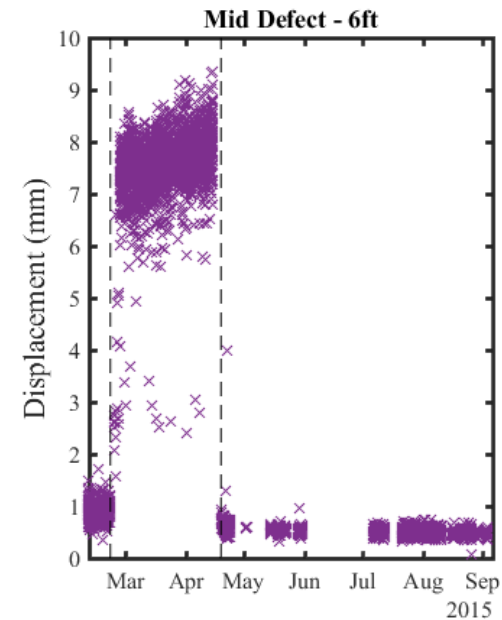
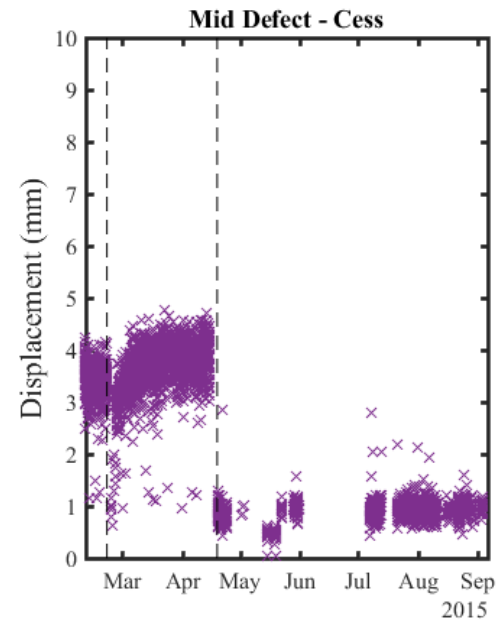
- Reducing ballast settlement



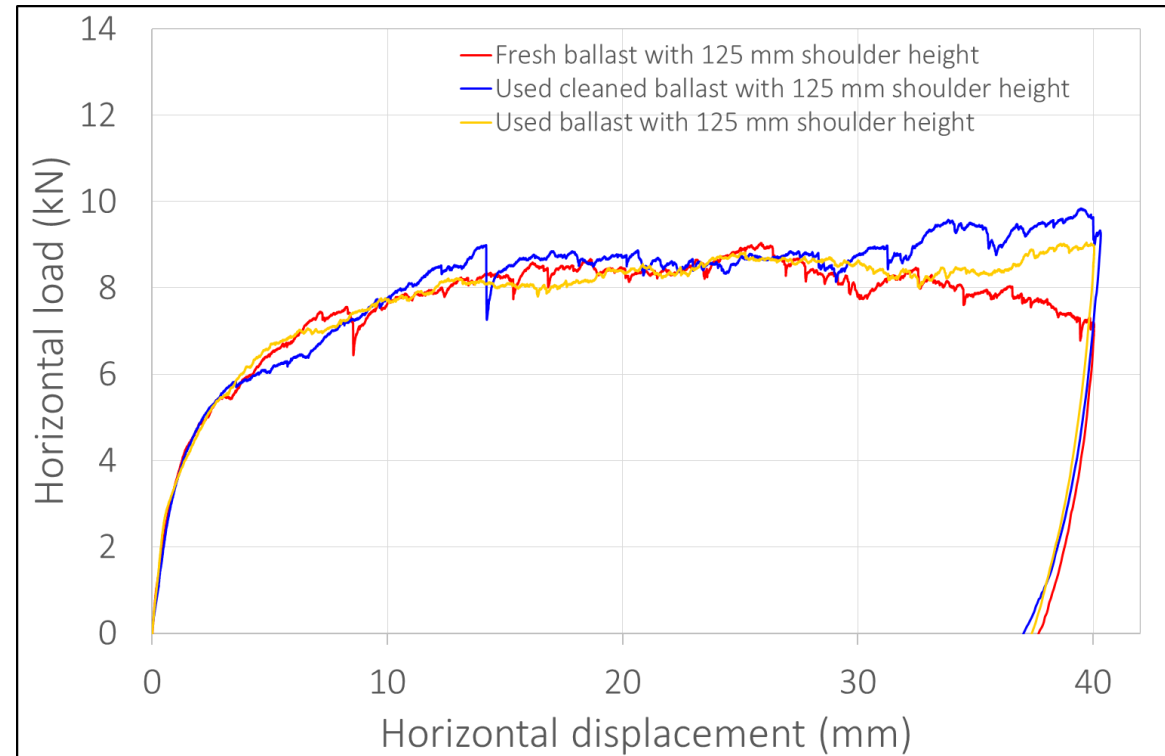
Track

- Targeted repair of defects

Saving £20k p.a. per site in reduced maintenance

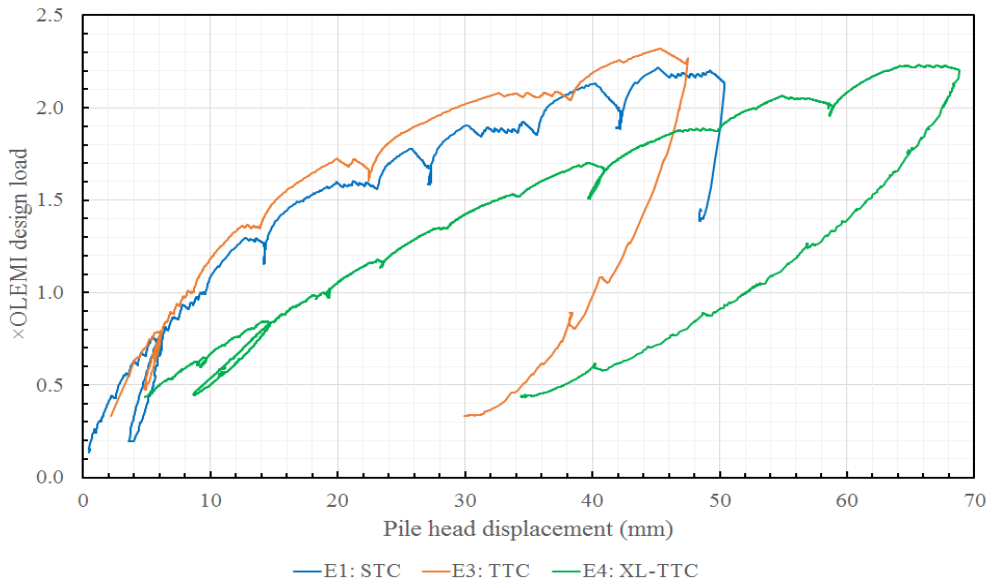


Managing buckling risk: sleeper lateral resistance



- Reduced length OLE mast pile foundations

Saving £0.6Bn 2018-20; Rescued GWEP / MML



Electrification (1)

- Reduced clearance under bridges (Tony

Ref:	NRA/2/CIV/074
Issue:	01
Date:	02 December 2017
Compliance date:	03 March 2018

Level 2

Specification

Design and Installation of Overhead Line Foundations

Content approved by:

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Technical Lead

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Simon Abbott
Standard and Control Document Owner

Content approved by:

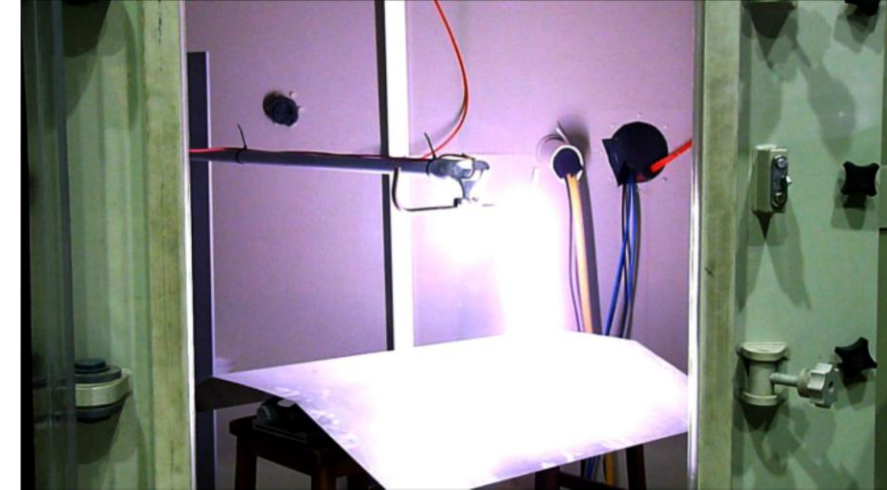
Philip Doughty
Standard and Control Document Owner

Approved for publication by:

Mick McManus
Standards and Controls Management team

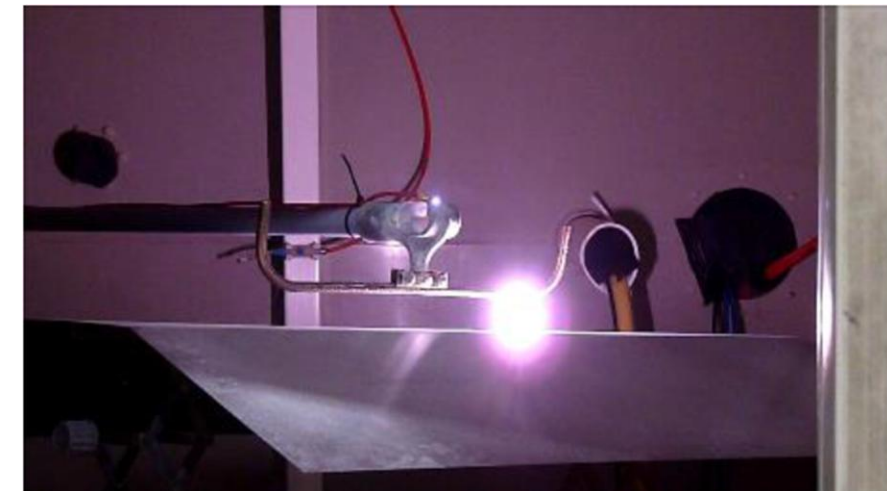
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Network Rail



Flashover distances without (above) and with (below) surge arrestor

Saved £40-50M on one bridge



Working with industry

- Input to HS2 Pilot Study Reviews, reducing costs of earthworks by 100s of £M
- HS2 / RAEng Research Fellowship analysing Boddington trial cutting and embankment
- Chair, HS2 Independent Geotechnical Expert Panel
- Report to HS2 on track forms for crossing the Cheshire salt plain
- Review of settlement calculations and monitoring proposals for HS2 Euston tunnels
- Review of SMD effects on track geometry quality
- Nuneham viaduct
- Brantsy Tunnel





Royal
approval!

Thank you!

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