NUTTALL BOWSER

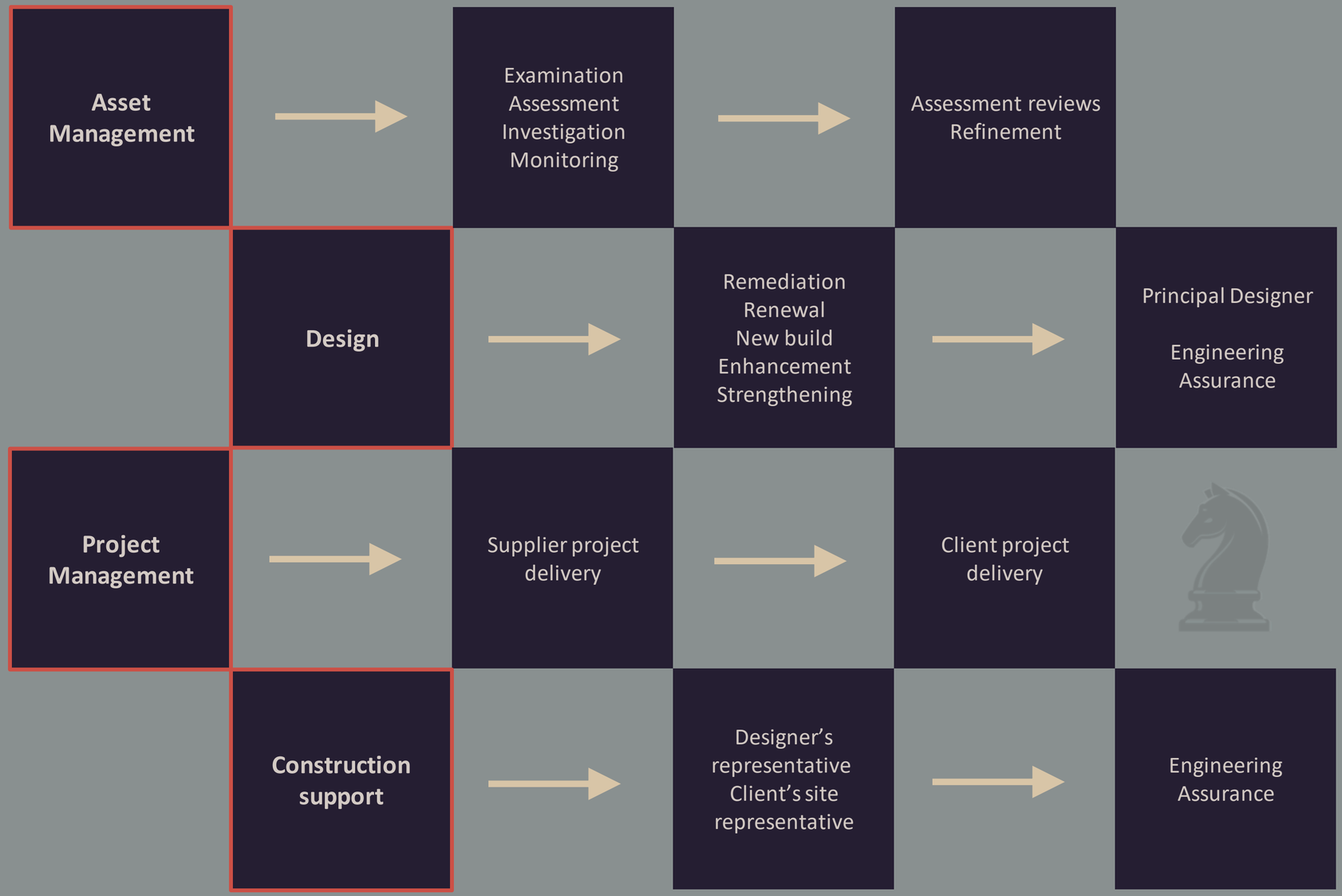
Bridges & Structures

Specialist Engineering Consultancy

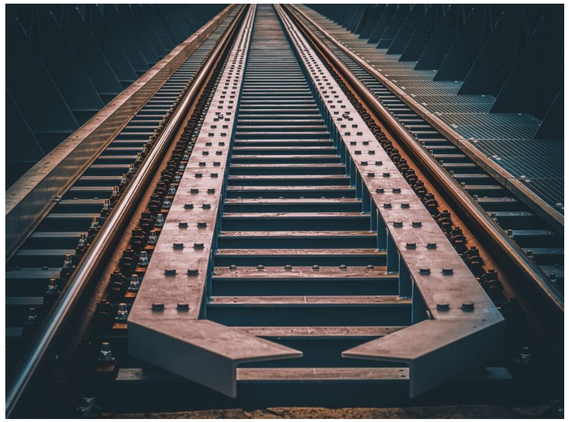
Contents

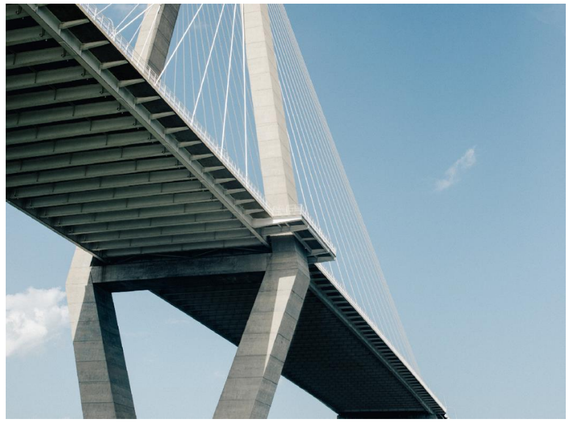
Overview

Services



Sectors


Rail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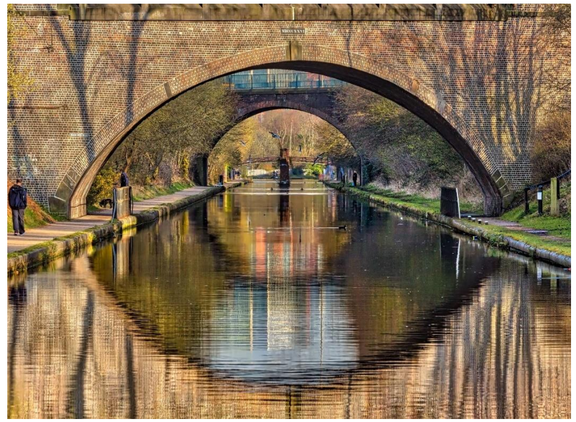
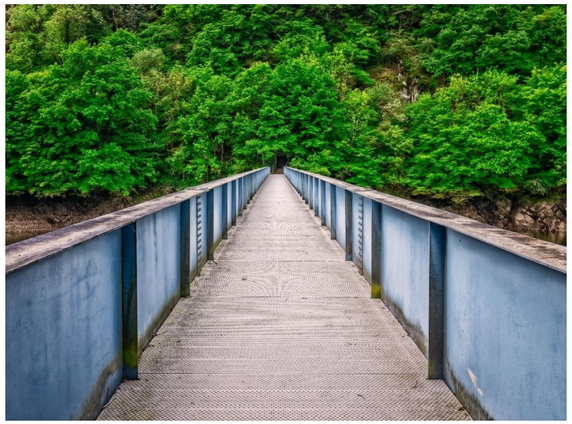
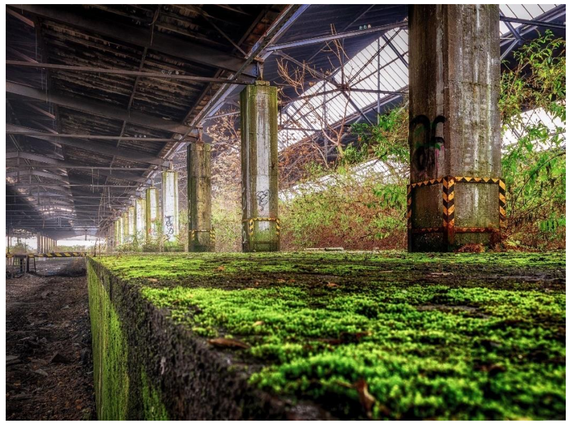

Maritime


Environment

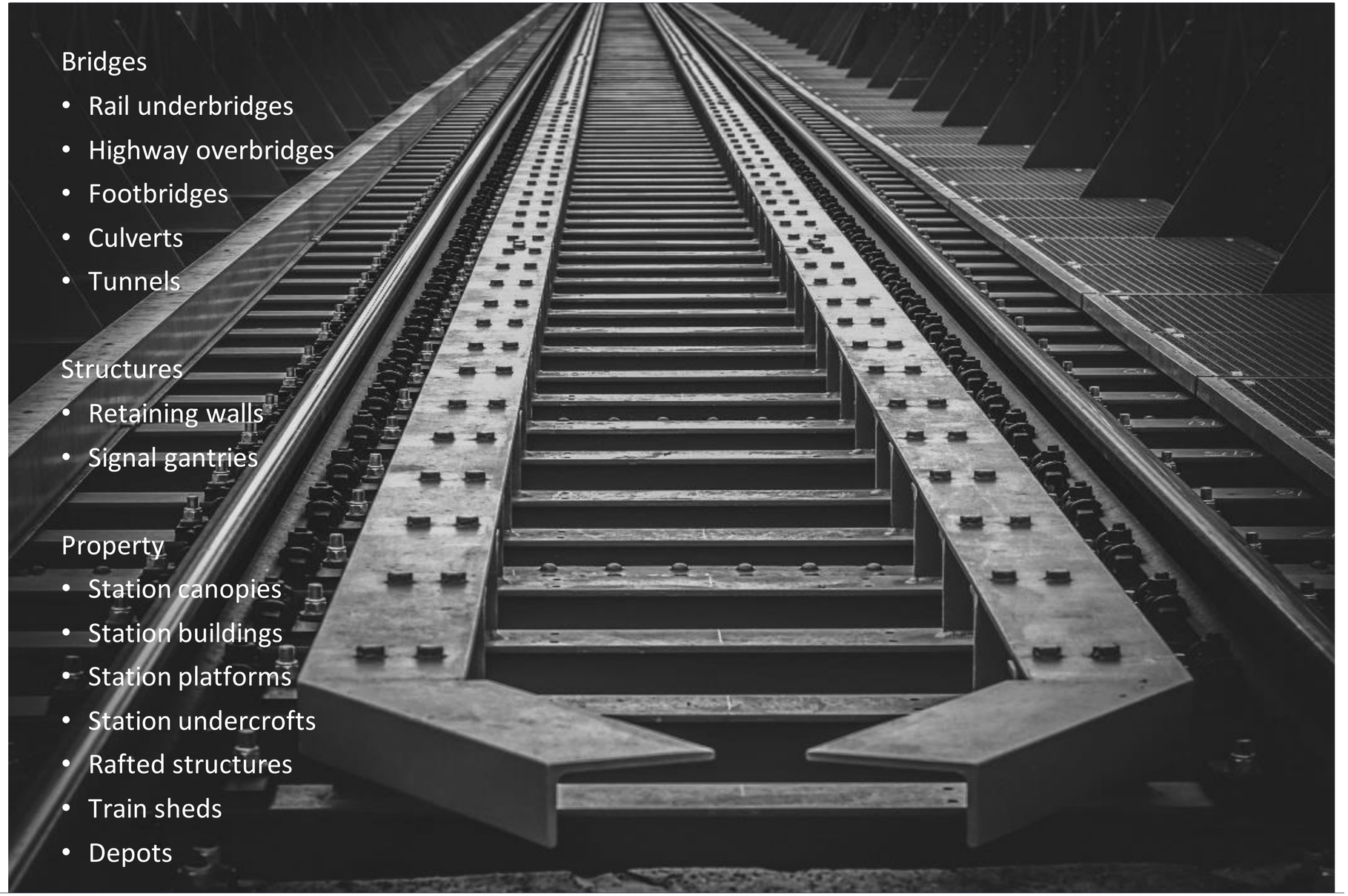

Heritage


Industry

Sectors
Rail

Sub-sectors

- National Rail
- Underground
- Private Railways
- Heritage Railways
- Former Railways
- Restoration / Adoption



Sectors
Road

Sub-sectors

- Motorways
- Local roads
- Private Roads
- Footpaths
- Cycleways

Bridges

- Highway overbridges
- Footbridges
- Culverts

Structures

- Tunnels
- Retaining walls
- Information gantries

Property

- Salt barns
- Depots

Stages

Initiation

- Business case
- Project criterion
- Scope definition
- Scope evaluation

Conception

- Reference design
- Feasibility studies
- Scoping reports
- Options reports
- Value engineering
- Constructability studies
- Risk analysis

Development

- Approval In Principle (Outline design)
- Detailed design permanent works (design & third party CAT III checking)
- Temporary works design (design & third party CAT III checking)
- Engineering Assurance

Realisation

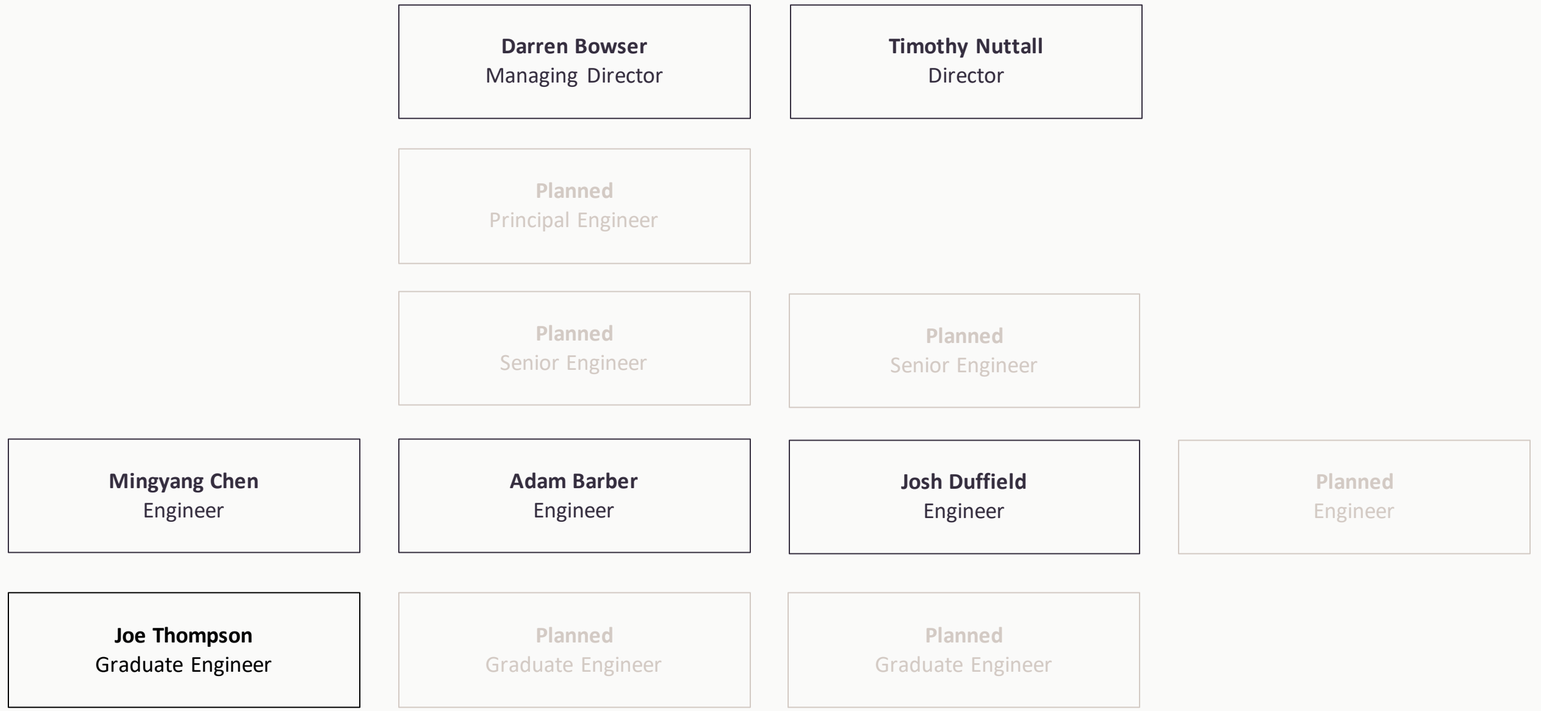
- Construction support
- Progress monitoring
- Client site representation
- Designer’s site representation
- Engineering Assurance
- As-built records
- Health & Safety file

Location

Situated in Bristol serving the whole of the UK and beyond.

People

Our people have a natural passion and intrigue for bridge engineering fueling their dedication and enthusiasm to achieve, develop and focus on the provision of outstanding deliverables and services.



Accreditations

Net Zero

Organisational carbon measurement

- Nuttall Bowser proudly monitors our organisational carbon use to understand our energy consumption
- Our Environmental & Sustainability policy sets out Carbon Neutrally targets for our business
- Our office is located centrally in Bristol within 10m walk of the train station with bike storage facilities
- We are proud to support ‘Engineers declare’ as signed up declarers

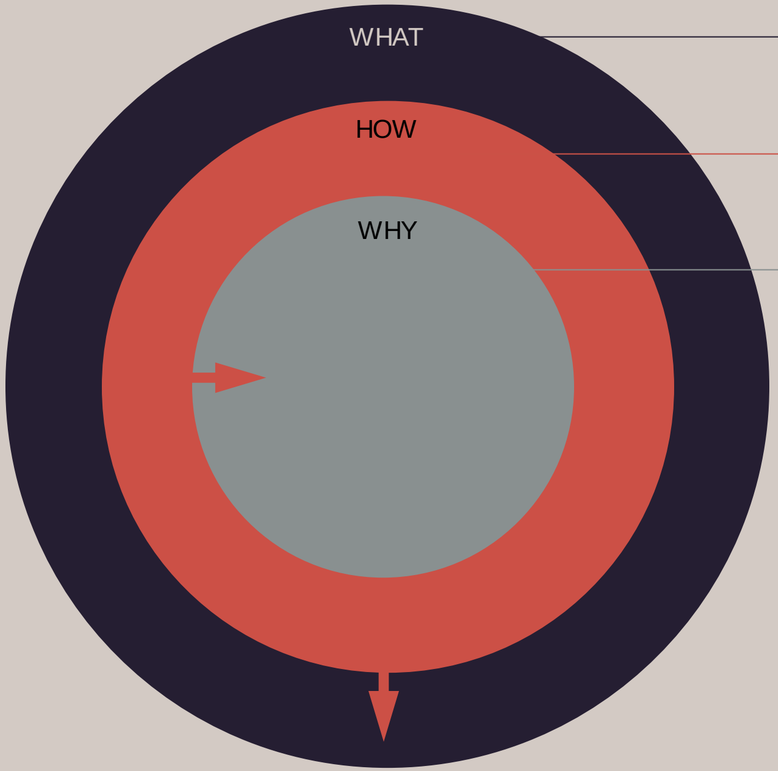
Project carbon measurement

- Nuttall Bowser proudly estimate lifecycle carbon impact on all design projects
- Nuttall Bowser are proud active members of the Bridges Net Zero Group and focus on aiding accessibility of carbon neutrality and best practice for other bodies including upskilling our clients

‘We bring real insight with a client first perspective. We empower our clients to make informed decisions leading to optimised outcomes’

Purpose, Values & Vision

Our story



OUR VISION

OUR VALUES

OUR PURPOSE

- Purpose – our ‘why’ – why are we doing this and what do want to achieve
- Values – our ‘how’ – the guiding principles that inform how we work
- Vision – our ‘what’ – the outcomes and manifestation of our purpose and values

Darren Bowser

Tim Nuttall

Both Darren & Tim have extensive experience in building, leading and growing high performing teams working for some of the biggest consultancies in the world – earning implicit trust from our peers and clients.

Throughout our careers we have shared a similar ethos on many aspects of leading successful teams that stem from our similar ideals and personal values.

In creating Nuttall Bowser Engineering we mapped our purpose, our values and our vision for the business to guide our journey and enable exceptional experiences for our people and clients.

We support the business being driven and guided by our purpose and values and promote our employees to exude our values and continually to help us and mould and develop our business.

Purpose

‘We knew that we wanted to create a specialist bridge engineering focused consultancy delivering clear differentiators to the market place.

Our purpose can be summarised as optimised outcomes for our people, projects & the planet’

People

- Each employee finds their own purpose & direction – tailored career planning
- Opportunities for our people to continually grow and shape our business
- Reward our people’s performance & behaviours
- Personal & professional goals met without compromise
- Focus on wellbeing and mutual support

Projects

- Relationships built upon implicit trust
- Valued and trusted delivery partners
- Agile response to commencement and change
- Provide insight and real added value over and beyond the deliverables
- Guide our clients with a ‘client first perspective’ by mitigating risks and realising opportunities

Planet

- Support measures to reduce the climate crisis
- Estimate lifecycle carbon use throughout all our design projects and advise / upskill our clients
- Monitor our own organisational carbon use and be carbon neutral
- Contribute to taking care of our local communities

Values

‘The values we have chosen for our business reflect our leadership ideals.

Our values are guiding principles that our employees embrace and exude enabling us to differentiate in our performance and behaviours.’

Agile

We are agile through our expediency in mobilisation, our skillsets and scalability, and in our response to change.

We have a broad and diverse internal and external network to enhance our services.

We are trusted leading specialists and tailor our approach to the immediate needs of both client and project.

Anticipate

We immediately anticipate the risks and opportunities from a client/employee perspective.

We plan for optimal outcomes by informing and empowering our clients and employees to make optimum choices and achieve their goals.

Enhance

We recognise the value in pausing regularly to reflect on every aspect of our business to continuously evolve our approach.

We believe reflection enhances opportunities to learn, improve and refocus our priorities, efforts and approach.

Together

We forge implicit trust between our people and clients alike underpinned by highly reliable performance and behaviors with a ‘One team’ mindset to projects and our business growth.

We openly share lessons learnt, collaborate and challenge ourselves to grow our people and business in harmony.

‘Our vision is to be renowned as a highly trusted and valued partner; the supplier of choice for small, medium and complex projects’

Asset Management

Examination Competence

- Visual Examinations
- Detailed Examinations
- Visual Inspections
- Principal Inspections
- Underwater Examinations
- Inspections for Assessment
- Scour assessments
- PTSI inspections
- PTSI technical plans
- Hidden Critical Elements
- Photogrammetry
- Point clouds
- Topographical surveys

Access methods

- Scaffold tower / Ladder
- Roped access
- Pontoon
- MEWP
- Confined space
- 360º cameras

Visual & Detailed Examinations (Network Rail)

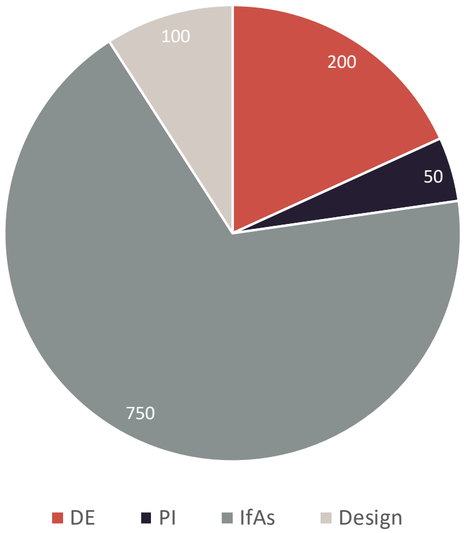
General & Principal Inspections (DMRB)

Hidden Critical Elements

PTSI Inspections & Investigations

Examination Experience

Nuttall Bowser has 20yrs experience in undertaking structural examinations of bridges & property assets within various sectors including rail and road. We undertake examinations for various means including as part of framework contracts, overflow support, repairs and strengthening, and enabling works for wider projects.



01 – DETAILED EXAMINATIONS (CEFA)
Network Rail – Wales route

- Examination of circa 40 No. bridges within Core Valley Lines area for Network Rail Wales route

02 – DETAILED EXAMINATIONS (CAFA)
Network Rail – LNW route

- Examination of circa 50 No. bridges alongside Inspection for Assessments for Network Rail LNW route

03 – INSPECTIONS FOR ASSESSMENT (CAFA)
Network Rail – Western & Wales routes

- Inspection for Assessments to circa 750 No. between CP3 to CP6 to inform subsequent Assessment at Level 0, Level 1 and Level 2

04 – REPAIRS & REMEDIATION (DSF)
Network Rail – Western route

- Surveys to circa 100 No. between CP5 to CP6 to inform detailed design of repairs, remediation, strengthening and deck replacements

05 – PRINCIPAL EXAMINATIONS (GWENT)
Gwent County Borough Council

- Examination of circa 20 No. bridges for for Gwent County Borough Council

Assessment Competence

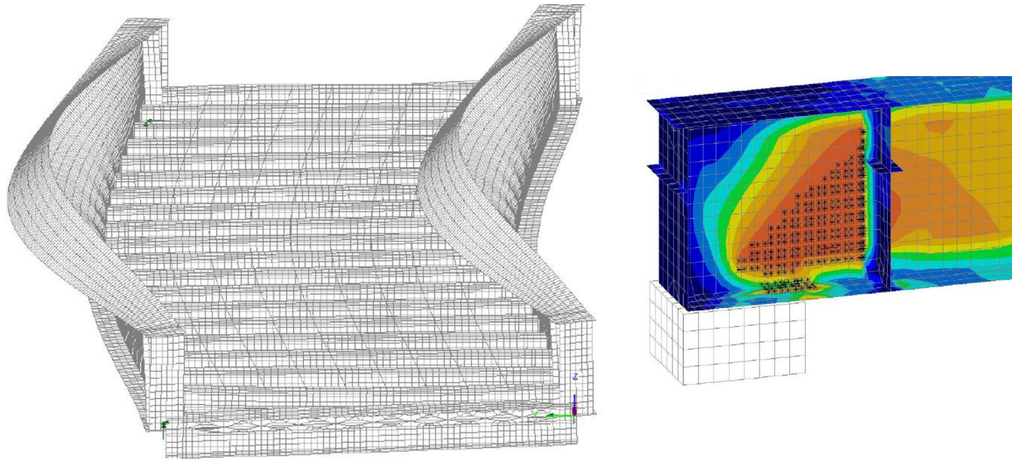
Network Rail

- Level 0 assessments
- Level 1 assessments
- Level 1 assessment reviews
- Level 2 Finite Element Analysis
- National Bridge Strike Initiative
- Scour assessments

Local authority and Major roads

- Level 1 assessments
- Level 1 assessment reviews
- Pier impact assessments to IAN 91

Level 1 & Level 0

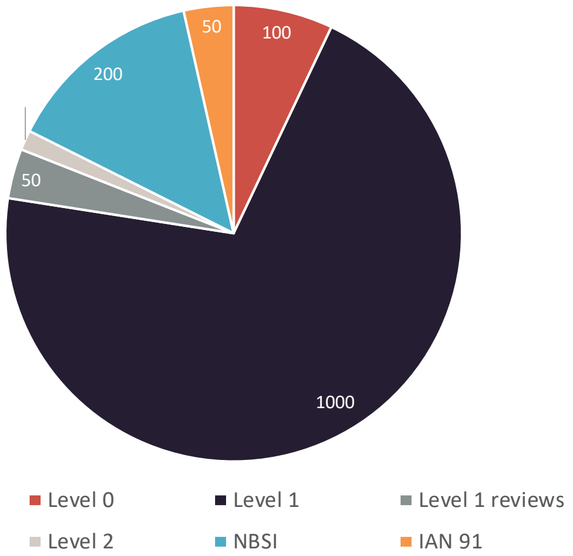


Level 2 – Finite Element Analysis

National Bridge Strike Initiative

Assessment Experience

Nuttall Bowser has 20yrs experience in undertaking structural assessments of bridges & property assets within various sectors including rail and road. We undertake assessments for various means including as part of framework contracts, overflow support, repairs and strengthening, and enabling works for wider projects.



01 – SAC, CEFA, & CAFA FRAMEWORK CONTRACTS
Network Rail – Western & Wales routes

- Framework delivery from control period CP3 to CP6
- Level 0, Level 1, Level 2 (FEA) and Level 1 reviews for bridge and property assets
- Circa 20 No. per annum (Wales route) & 50 No. per annum (Western route)
- National Bridge Strike Initiative – circa 200 structures

02 – WESSEX CAPACITY ALLIANCE
Network Rail – Wessex route

- Enabling Level 1 assessments for platform extensions to east side of station for Kirow crane loading
- Circa 200 No. spans analysed

03 – DARTMOOR LINE ADOPTION
Network Rail – Western route

- Enabling assessments for Dartmoor line (DAC) adoption by NR between Crediton and Okehampton
- 38 No. assessments of masonry arch and steel underbridges & overbridges

04 – SOUTH GLOS. PROFESSIONAL SERVICES FRAMEWORK
South Gloucestershire County Council

- Circa 20 No. Level 1 assessments of highway bridges including RC boxes and pre-stressed concrete decks

05 – PIER IMPACT ASSESSMENTS (SWTRA)
South Wales Trunk Road Agent

- Circa 30 No. BD60/IAN91 assessments for bridge pier impact loading with outline optioneering for substandard elements

Design

Repairs / strengthening Competence

Steelwork repairs

Deck refurbishments

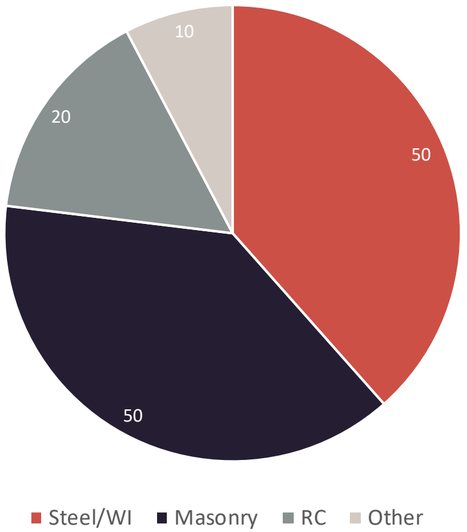
Masonry arch repairs

Reinforced concrete repairs

Repairs Experience

Nuttall Bowser has over 20yrs experience in undertaking structural repair & strengthening of bridges & property assets within various sectors including rail and road.

We undertake repairs & strengthening for various means including condition led, assessment inadequacy, and enabling works for wider projects.



01 – WESTERN YR4 RENEWALS
Network Rail – Western route

- Repairs to masonry arch railway viaduct Stapleton Rd
- Repairs to metallic half-through underbridges at Chittening, Little Cheverell and Muller Rd

02 – CP6 PACKAGE C
Network Rail – Western route

- Repairs to 4 No. masonry arch underbridges

03 – CP6 PACKAGE 16
Network Rail – Western route

- Repairs to Sea Mills Viaduct viaduct, St James Viaduct and Cholsey Overbridge deck

04 – CP6 YR2 STEEL REPAIRS
Network Rail – Western route

- Repairs to 3 No. metallic underbridges at Willow Vale, Pilly Vale & North Row

05 – CP6 YR1 ARCH REPAIRS
Network Rail – Western route

- Repairs to 5 No. masonry arch underbridges

06 – WINDSOR VIADUCT
Network Rail – Western route

- Repairs and waterproofing to 12 spans of Windsor viaduct masonry arches

Repairs Case Study

MLN1 104m 3ch
(Bathford Road)

F001-3 repairs
Scope: Repairs to improve BCMI to 60+

Surveys:

- Condition and geometric survey
- Photogrammetry

Outcome:

- Precise defect plans based off photogrammetry
- Repairs not feasible due to risk of weakening (i.e. removal stonework in compression)
- Recommendations:
  - Feasibility report for replacement
  - F001/F002 for bridge replacement
  - Enhanced asset management exam regime and monitoring

Repairs
Case Study

CNX 6m 6.75ch
(Sea Mills Viaduct)

F001-3 repairs
Scope: Repairs to improve BCMI to 60+

Surveys:

- Condition & Geometric survey

Outcome:

- Descope of unnecessary scour protection
- Main girder web repairs at cross girder supports achieved via overplating support cleats leading to huge reduction in risk/costs compared to traditional methods
- Delivery of 80 No. repair drawings:
  - Pier bracing replacement
  - Main girder web, flange & stiffener repairs
  - Substructure repairs

Remediation Competence

Spandrel movement

Substructure movement

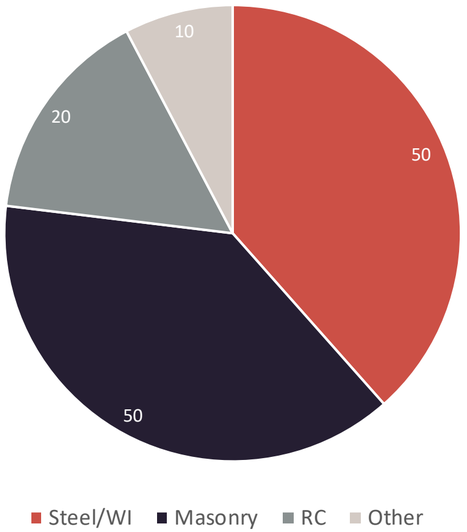
Arch distortion

Wall movement

Remediation Experience

Nuttall Bowser has over 20yrs experience in undertaking structural repair & strengthening of bridges & property assets within various sectors including rail and road.

We undertake repairs & strengthening for various means including condition led, assessment inadequacy, and enabling works for wider projects.



01 – BHL 65 21.5 (STREAM SIDE BRIDGE)
Network Rail – Western route

- Findings report to cause of flattened arch
- Condition and geometric surveys
- Risk assessments for existing and proposed options

02 – DCL 57 24 (NUNEHAM VIADUCT)
Network Rail – Western route

- Findings report to cause of abutment cracking
- Condition and geometric surveys
- Monitoring of bridge abutments

03 – MLN1 7 42.5 (IRON BRIDGE)
Network Rail – Western route

- Findings report to cause retaining wall failures
- Condition and geometric surveys

04 – SWB 100 48.5 (QUARRY BARTON)
Network Rail – Western route

- Findings report to investigate extent of spandrel wall displacement
- Condition and geometric surveys
- F001 to F003 detailed design for steelwork to support displaced spandrel and barrel

Remediation Case Study

BHL 65m 21.5ch
(Stream Side bridge)

Findings Report
Scope: Identify cause of failure and remediation considerations

Surveys:

- Condition survey
- Geometric total station survey
- Desk study

Outcome:

- Cause of arch flattening determined as railway vibration
- Risk assessment for existing and remediation options undertaken
- Remediation considerations:
  Propping to retaining wall,
  Support of footbridge pier,
  Re-encasement = repeat failure

Renewal / New build Competence

Standard Network Rail deck design

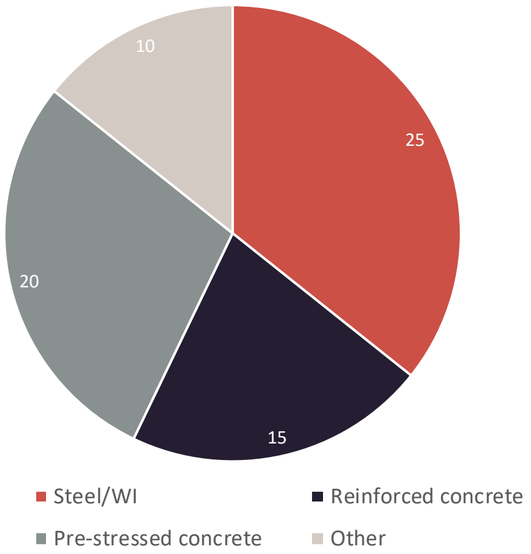
Bespoke deck design

Bespoke deck and substructure replacement

Renewal / New build Experience

Nuttall Bowser has over 20yrs experience in design of bridge deck renewals, complete bridge replacements and new assets within various sectors including rail and road.

We undertake design at various project stages including reference design, outline design and detailed design.



01 – FAENOL AVENUE & PONT DAWN
Conwy County Borough Council

- Feasibility, Outline Design and Detailed design of two reinforced concrete highway bridges comprising integral box and portal frame substructure/superstructure respectively.

02 – MLN1 49 43 (CHOLSEY CATTLE CREEP)
Network Rail – Western route

- Outline and Detailed Design of bespoke reinforced concrete bridge deck carrying four lines of the Paddington to Penzance main line

03 – MLN3 287 67.75 (TREWOON UNDERBRIDGE)
Network Rail – Western route

- Feasibility report for replacement of Llantarnam style half-through box girder rail underbridge
- Outline and Design design of twin deck standard U-type bridges

04 – NEW 286 63 (LESTOON)
Network Rail – Western route

- Replacement of longitudinal troughing deck carrying single bi-directional Newquay branch line
- Outline Design and Detailed Design reinforced concrete deck and subsequent infill option

05 – LOO 1 60 (CANAL)
Network Rail – Western route

- Replacement of rail girder deck carrying single bi-directional Looe branch line
- Outline Design and Detailed Design of bespoke pre-stressed concrete beams, robust curbs and pile supports

NUTTALL BOWSER

Nuttall Bowser,
Generator building,
Counterslip,
Redcliffe,
Bristol,
BS1 6BX