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Scotland's Railway Biodiversity Duty Report 2018 – 2020.



SCOTLAND'S RAILWAY
BETTER IN THE MAKING

Brian Beck, Environment Manager

James Morrison, Ecologist

Helen Simmons, Ecologist



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Network Rail Biodiversity Duty Report 2018-2020

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Introduction

Since the previous, Round 2 Biodiversity Duty Report contribution was published in 2017, several important developments and publications for strategies have been realised.

A selection of those in no particular order include, but are not limited to the following;

- Network Rail, National and Regional Business Strategies
- Transport Scotland, National Transport Strategy (Transport Act 2019)
- Transposition of the EU Environmental Impact Assessment Directive 2017 into Scottish Legislation
- Transport Scotland, High Level Output Specification (HLOS) for Control Period 6 (CP6)
- (The Varley Review) Valuing Nature – a Railway for people and wildlife..
- Network Rail, 2018 Guide to the Responsible Railway Plan
- Network Rail, introduction of the Sustainable Land Use Programme
- Network Rail, Environmental Sustainability Strategy 2020 – 2050
- Rail Services Decarbonisation Action Plan, Transport Scotland
- Scotland's Railway, Sustainability Programme Board

Introduction

Scotland's Railway is reviewing the opportunities contained in the National Strategy documents and aligning those with the more challenging targets and timeframes laid out in Scottish legislation. A Scotland specific sustainability strategy is in development to reflect those requirements. Transport Scotland, Network Rail and Abellio Scotrail have combined to form Team Scotland, for a more collaborative approach, intent on advancing railway and transport sector plans to deliver these strategic aims.

The Scotland's Railway Sustainability Programme Board has been formed with constituent members from Transport Scotland, Network Rail, Abellio Scotland and with communications channels to sustain engagement and input from the other Train and Freight Operating Companies and other stakeholders throughout the sector.

The balance of this report, will outline how Network Rail has contributed to the Statutory Undertaker Biodiversity Duty, Round 3 period during 2018 to 2020 and how that is intended to be developed to deliver the Biodiversity aspects for Scotland's Railway and transport sector in the future.

Brian Beck, Environment Manager, Capital Delivery, Scotland's Railway

James Morrison, Ecologist, Works Delivery, Scotland's Railway

Our Green Code 

	ALWAYS save energy and fuel by turning off equipment, heating and lighting when not in use.
	NEVER disturb protected species or their habitats without permission from the regulator.
	ALWAYS minimise waste and recycle via the correct bin.
	NEVER allow hazardous discharges or site materials to enter a watercourse without consent.
	ALWAYS minimise noise and respect our neighbours.

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Strategy and Development



Strategy and Development

During 2018 Network Rail updated how it would deliver its sustainability strategy. That was outlined in the ¹ Responsible Railway Plan at a tactical level. The main environmental aspects were an enhanced revision of the existing Contractual Standards, to be more sustainably focussed by inclusion of the Social Value and Responsibility in that document, ² NR/L2/ENV/015v8, Environment and Social Minimum Requirements.

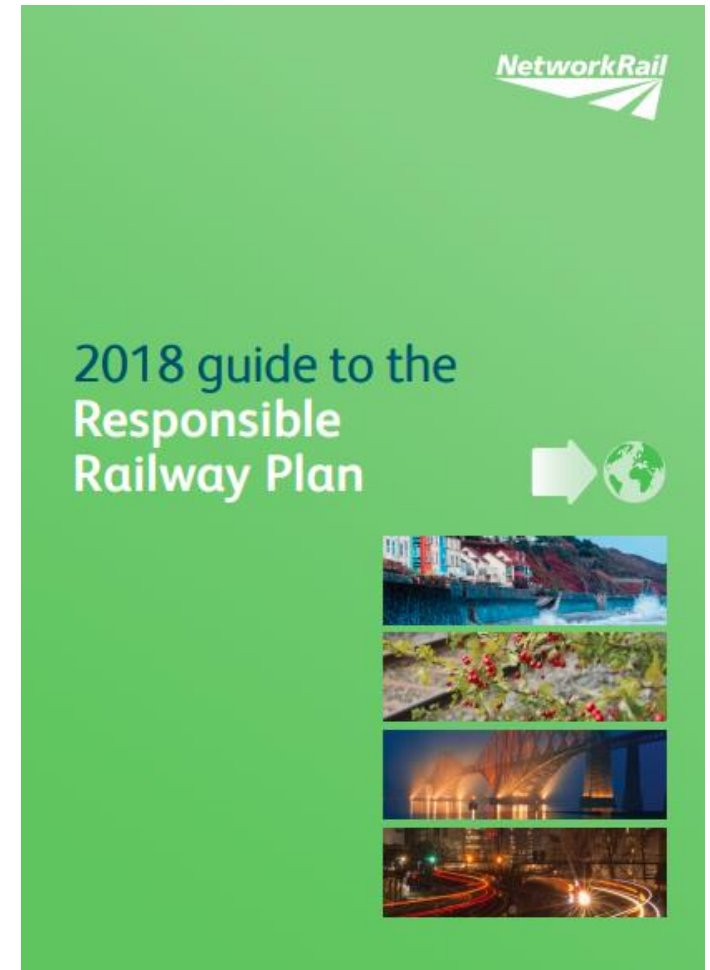
In fact, most of those aspects were already being delivered and now, by inclusion in the standard, how those aspects would be included were articulated.

Existing Environmental and Sustainability ³ Policies were updated and published simultaneously

¹ <https://safety.networkrail.co.uk/wp-content/uploads/2018/08/Responsible-Railway-Plan-Final-Booklet.pdf>

² <http://networkrailstandards/StandardHeaderView.aspx?id=30049>

³ <http://networkrailstandards/StandardHeaderView.aspx?id=27572>



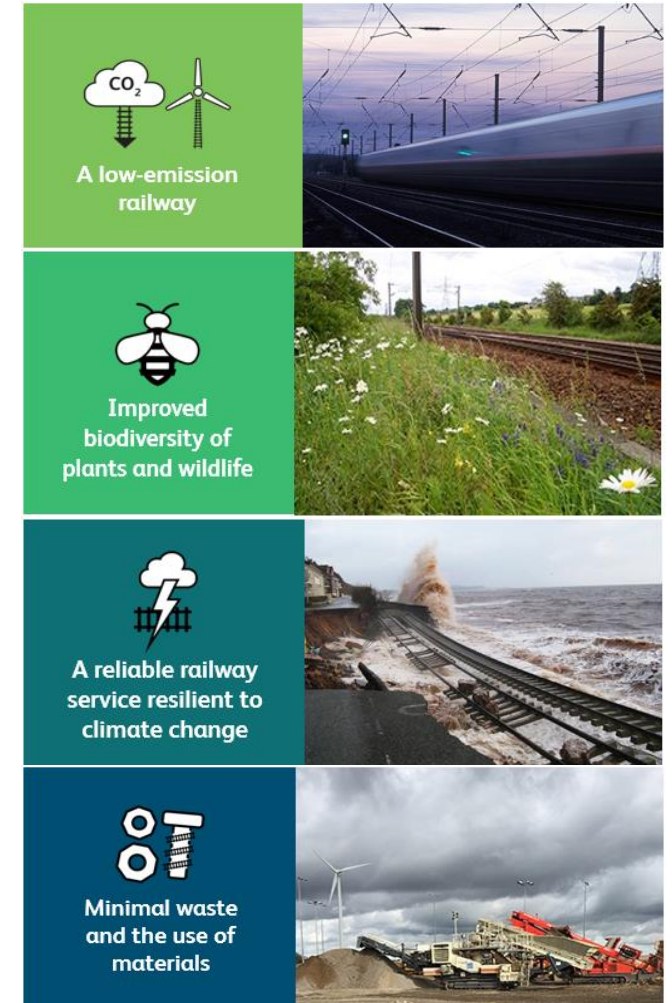
Strategy and Development

The Varley Report was subsequently published, challenging Network Rail to demonstrate how it will work to minimise harm to railway habitats, deliver a net positive benefit to biodiversity and it included 6 key recommendations.

Network Rail, reflected on those recommendations and in response agreed to implement a Sustainable Land Use (SLU) Programme, with an aim, not just to recognise and improve the biodiversity aspects, but to consider the wider estate and how focus would be brought to bear on four key aspects and these were included in the ⁴Network Rail Environmental Sustainability Strategy;

- Low emission railway with additional Air Quality Improvements
- Improved Biodiversity of plants and wildlife
- A reliable railway, resilient to climate change
- Minimal waste and the use of materials

Transport Scotland reviewed the proposed adoption of those responses by Network Rail and supported those proposals in Scotland



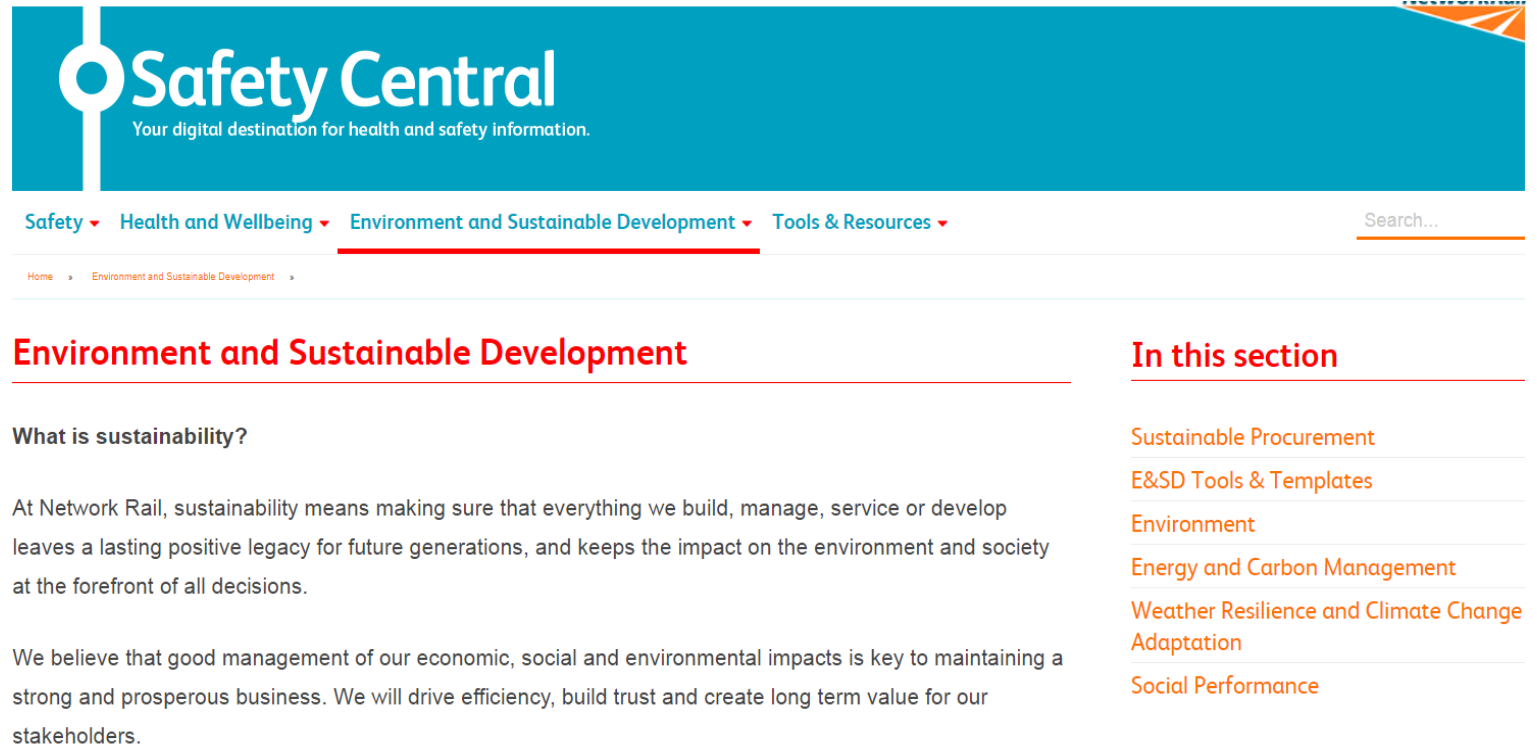
Environment Management System

Network Rail, Infrastructure Projects and Route Services Divisions held ISO14001 and that formed part of the overall Integrated management System, that included Safety and Quality, etc..

During 2020 Network Rail devolved into a regional structure to more closely align with the customers under Putting Passengers and Freight First, ceding but aligning with that certification while it maintained its EMS. The Scotland Asset Management organisation is also aligned with ISO 55001 Asset Management Systems Requirements.

During this reporting period an Environment and Sustainability Portal has been set up, populated and is live within Network Rail Safety Central. Links to environmental processes, standards, templates and guidance can be publicly accessed on line via that portal <https://safety.networkrail.co.uk/home-2/environment-and-sustainable-development/>

Network Rail also work within GRIP, Governance for Infrastructure Projects to provide evidence of structured approach to delivering value for funders and A new Biodiversity Action Plan is due for publication at the time of writing this report



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Environment and Sustainable Development

What is sustainability?

At Network Rail, sustainability means making sure that everything we build, manage, service or develop leaves a lasting positive legacy for future generations, and keeps the impact on the environment and society at the forefront of all decisions.

We believe that good management of our economic, social and environmental impacts is key to maintaining a strong and prosperous business. We will drive efficiency, build trust and create long term value for our stakeholders.

In this section

- Sustainable Procurement
- E&SD Tools & Templates
- Environment
- Energy and Carbon Management
- Weather Resilience and Climate Change Adaptation
- Social Performance

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Planning and Stakeholders



Planning and Stakeholders

Network Rail has a myriad of stakeholders and interested parties. From early consultations with Transport Scotland, Environmental Regulators, Local Town Planning Authorities to public, passengers lineside neighbours, domestic and commercial there is huge interest in what is being planned or delivered.

Collaboration with third parties, landowners and others requiring access to the railway estate is key and working closely with Abellio Scotrail also helps at development stages to inform those parties.

Network Rail, Property and Estate Asset Managers play a critical role to help inform liaison with all of those stakeholders

Recent examples of that were a series of open consultations before and during the Aberdeen to Inverness enhancements.

Similar engagement is continuing during the development phase of enhancements around the Glasgow and Busby to East Kilbride and Barrhead



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MAINLINE RAIL CLOSURES

OUTLINED TO COMMUNITY

THE planned works for the Aberdeen to Inverness rail upgrade, which will see considerable improvements in services from Inverurie, Inverness and the new Kinross station, were outlined at a meeting in Inverurie on Tuesday as planning progresses for all elements of the project.

Opening the meeting, which was attended by around 100 members of the public, community and business representatives, Network Rail's project sponsor Kevin Rowley explained the background to work and the improvements that it will bring.

"The Aberdeen to Inverness line is approximately 106 miles long and is primarily single track with some passing loops.

Current passenger journey times average around two hours 25 minutes and the irregular services between Aberdeen and Inverness means that it does not offer an attractive alternative to road travel.

The rail improvement project will be delivered in phases and aims to provide incremental benefits throughout the life of the scheme.

The long-term aim of the project is to deliver a two-hour journey time end-to-end with an hourly service by 2016, but over the next two years work will be concentrated on the eastern end from Inverurie to Aberdeen, with some work also being carried out at Inverurie.

Improvements include the regrading of the track between Aberdeen and Inverurie, signalling enhancements between Inverurie and Elgin, platform extensions at Inverurie and Elgin, the relocation of some stations, long extensions of the track at Forres, and infrastructure to allow new stations at Dalnairn and Kinross.

With the Elgin and Forres work now completed, attention is turned to the Inverurie section which will be carried out in two phases as Mr Rowley explained. "The first phase concentrates on Aberdeen to Dyce in 2016."

"Between May and August we will be taking a complete blockade of the line shutting it completely between Aberdeen and Dyce which we know will cause significant disruption."

"It is significant work that requires a significant disruption in the area and there is no getting past that. We will be substituting replacement bus services between Dyce and Aberdeen."

by DAVID PORTER

Network Rail's Kevin Rowley - "Between May and August we will be taking a complete blockade of the line shutting it completely between Aberdeen and Dyce, which we know will cause significant disruption."



Upgrade discussion: Attending the meeting in Inverurie Town Hall on Tuesday were (from left) BAM's Phil Rae, ScotRail's Scott Prentice, J G Ross, Graeme Ross, Network Rail's Kevin Rowley, We Are Inverurie's Iain Sinclair and Inverurie BID's Ashley Wilson. Photograph by David Porter

Continued on page 4

Planning and Stakeholders

Cognisance of environmental and heritable constraints is considered during these phases too. Steps are taken through early engagement by the Network Rail Town Planning Team to identify protected species, or harmful ones as well as Listed Structures, Statutory Designated sites, such as Sites of Special Scientific Interest, Ramsar, Special Areas of Conservation and Special Protection Areas.

Marine Protection Areas, Tree Protection Orders and urban conservation areas are considered too. Permissions and Licenses are sought from the appropriate agencies, SEPA and Nature Scotland (formerly SNH) and specific mitigation is advised to our supply chain through the Network Rail Environment Management Systems through the Governance for Railway Infrastructure Projects process

Suitable arrangements may then be considered and applied by Network Rail internal Ecologists or by the designers and contractors in the supply chain.

During this time the environment manager works closely with the Community Safety Manager and Community Relations teams where opportunities to engage with local community initiatives are identified



Scotland's Nature Agency
Buidheann Nàdair na h-Alba



HISTORIC
ENVIRONMENT
SCOTLAND



SEPA
Scottish Environment
Protection Agency

Buidheann Dion
Àrainneachd na h-Alba



RTPI

Royal Town Planning Institute

marinescotland
I N F O R M A T I O N



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Competence and Resources



Professions Competence Framework

Network Rail Environment Managers and the Technical Authority are working to develop a National Competence Framework that will develop and support all of the professions attain a level of environmental and social responsibility, sustainability competence appropriate for individuals roles.



IEMA Approved Training Resources

Network Rail attain IEMA Approval

The Technical Authority and our Environment Managers around the UK have worked with the Institute of Environmental Management and Assessment (IEMA) to demonstrate individual competence, appropriate to receive IEMA Approved Training Centre status nationally.

Seven Environment Managers had been certified as IEMA Approved Trainers, with plans to grow numbers to cover all geographical areas.



14 individuals within the Scotland region passed the IEMA Foundation Course in Environmental Management exam and attained Associate level IEMA membership. One and Two day courses will be available to enhance competence of managers and front line staff



Some of the first Scotland IEMA trained cohort received their certificates from Alex Hynes, MD, Scotland's Railway

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Case Studies and Delivery



Case Studies, Capital Delivery

Orchy Otters



Following the sighting of a family group of Otters at Orchy viaduct, work was temporarily suspended as mitigation. An Ecologist identified field signs and monitored 3 potential holts.

Cameras were installed to check whether the locations were in use and at what level if so.

The report of findings were submitted to SNH who ruled that a full licence application was not required and work was recommenced with note to be alert for further presence.



Cognisance of local wildlife

Craigendoran “Rock of the Otters”

The sea defences and local ‘willed way’ coastal path had been severely eroded with the rock armour all but gone.

The new rock wall was topped off with units, pre-cast to help deflect the impact of waves & the underfoot conditions were improved & widened when re-instated with the recovered topsoil

Posters were displayed so that the work-force could identify otters & other local wildlife, including overwintering fowl. This led to great interest with the local community

The contractors employees demonstrated that all the necessary ecology surveys & mitigation arrangements had been implemented



New local materials were sought from a quarry close by & recovered material was recycled into other products at the same quarry.

More info on Otters can be found at;
<http://www.ukwildottertrust.org/>



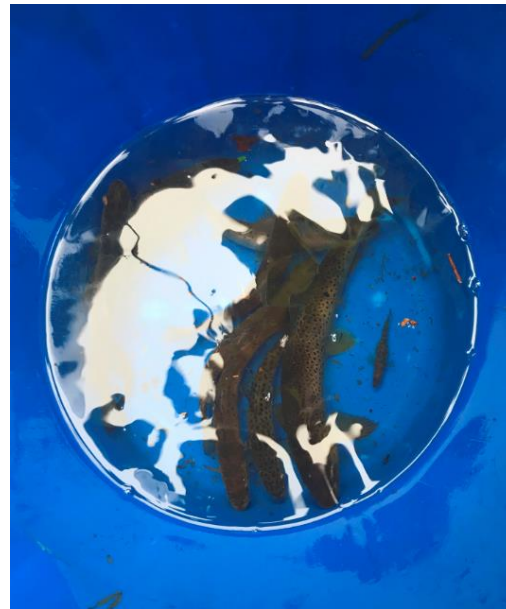
Scour Protection and Mitigation

Marykirk and Stackbridge Viaducts

Suitable controls to prevent water pollution at the site were implemented.

The delivery team also maintained daily contact with the local fishery board, who attended site daily to monitor progress ensuring impact to local biodiversity was mitigated. Fisheries staff also carried out fish rescues on any found to be out with the main flow of water and translocated those safely.

Working with local bodies is business as usual approach in these circumstances



These competent experts work closely with the project teams and contractors and with input from local angling boards as well.

Note the amber and red warning indicators used to inform operations colleagues when the river reaches hazardous levels on the structure at UB 44, Stackbridge.

INNS Impacts

Invasive Non Native Species; Noxious Weeds Impacts

Another issue that Network Rail needs to manage is non native plant species, that may damage infrastructure or earthworks and pose risk of injury to staff.

The weeds and other species may form a monoculture that reduces diversity of other species, preventing a good mix of biodiversity.

One example included; a Network Rail engineer reported a concern that some vegetation colonised a location where new infrastructure had been installed.

The species was subsequently identified as Japanese Knotweed. There's significant risk that continued growth of the JK will damage sensitive components of machinery / instruments.

Further treatment will be required, introducing further costs and risks to staff and the local maintenance team include similar findings into an INNS management database, to allow future treatment of these noxious plants.



Bat Roost Protection Plan

Free Kirk Underbridge



While Network Rail has increased the number of internal ecologist resources, there is still a need to use suppliers / consultants due to demand and particularly at busy times of the year with seasonal aspects.

The majority of our Principal Contractors and Framework suppliers have either in-house ecology resources to support the delivery of works or have their own Framework environmental suppliers.

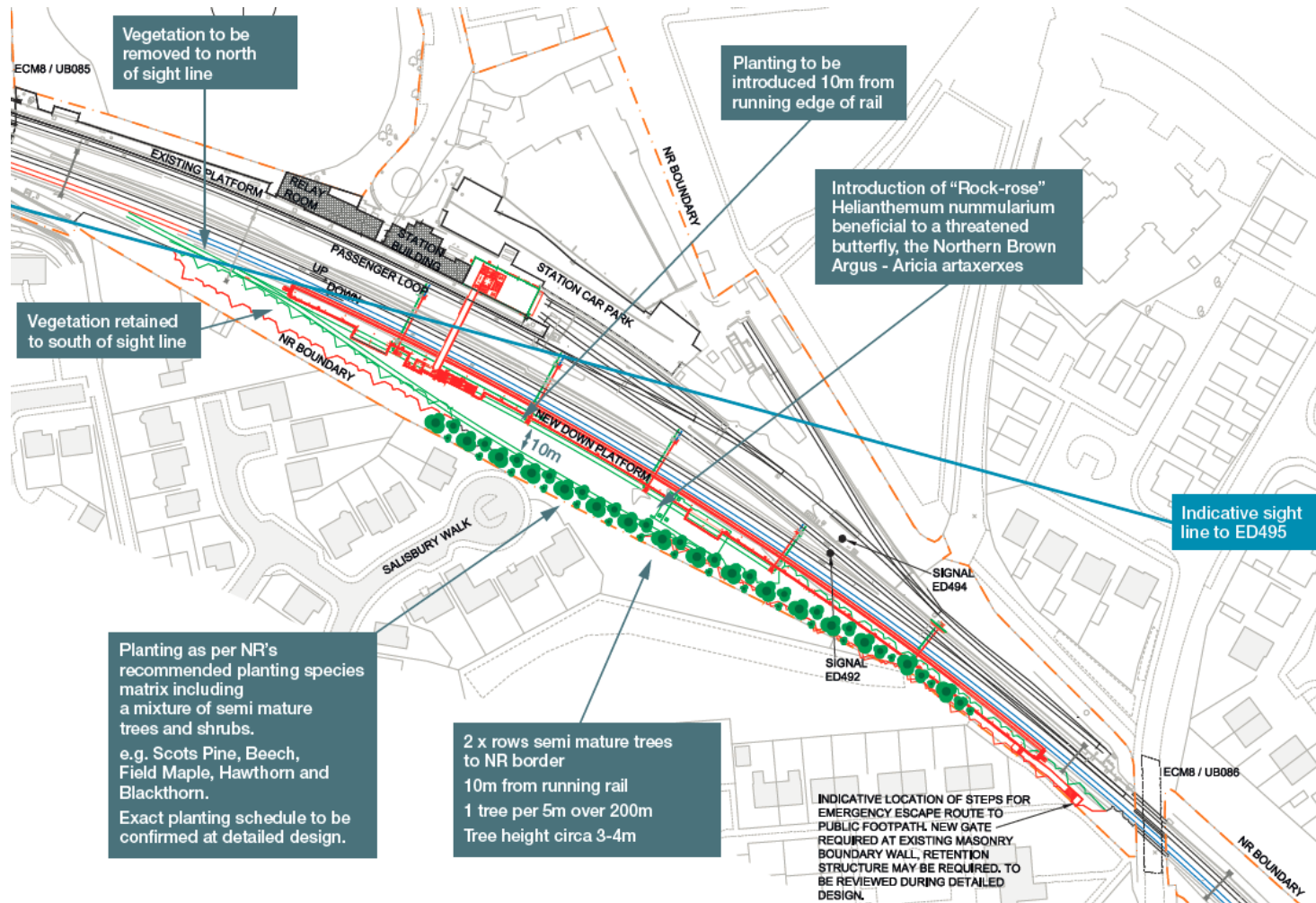
Bat roosts were identified within the inspection areas of one of the many structures that Network Rail inspect and maintain. Key repairs as part of that regime are required.

A Bat Roost Protection Plan was produced as part of a bat licence application to Nature Scotland. That was submitted to Network Rail Environment Manager and Ecologists for review and comment.

The result is a temporary exclusion under licence and when the inspection covers are replaced, those new components will have a bespoke “letterbox” opening to allow continued use by the bats.

Dunbar Planting for Nature

Help for Critically Endangered Pollinators on the East Coast



Local Knowledge of a critically endangered butterfly species helped inform the environmental strategy for the new platform enhancement at Dunbar Station.

The Capital Delivery Environment Manager worked closely with the Butterfly Conservation Trust and Senior Lineside Engineer to identify a planting regime to help the recovery of the Northern Brown Argus and the Small Blue butterflies species.

The Northern Brown Argus in particular has a symbiotic relationship with Rock Rose, which was included in the planting plans.



More info on Butterfly Trust can be found at; <https://butterfly-conservation.org/>

Support for Wildlife Conservation



Highland Mainline and Aberdeen to Inverness Enhancement Projects

One of the projects Principal Contractor organisations identified and included in the Environment Management Plan submission, an opportunity to help organisations that support local wildlife.

The project team worked with the Scottish Wildlife Action Group (SWAG) and helped provide tracking equipment

Partnering with the Scottish Badger Association (SBA) the team helped deliver 23 events, that ranged from presentations, talks, walks, stalls, children's activities, print making workshop and tracking workshops that engaged with over 400 participants

Badgers and Railways

The Eurasian badger *Meles meles* is a member of the weasel family that includes otters, pine martens and stoats. Badgers live in social groups or 'clans' consisting of family members and individuals who have moved in from neighbouring territories. These clans live together in setts – an underground network of tunnels and chambers.

Although they are classified as carnivores they are omnivorous in nature, opportunistically foraging for earthworms, insects, fruits, nuts, bulbs and more. Badgers occupy a wide range of habitats including woodland, sand dunes, moorland, cliffs, rock crevices, man-made structures and more.

Railway environments provide ideal habitat for badgers; they are often sloped and vegetated to provide cover, as well as benefiting from minimal disturbance as these areas are fenced off from people and livestock. The badgers will often follow the linear features of the embankments to feed, as these act as 'corridors' due to the vegetation cover and privacy provided.

Badger setts

Badgers will often have a number of setts dotted throughout their territory. There are four different types of sett:

- Main** – A main sett is occupied year-round and is often used for giving birth and raising cubs. There is usually only one main sett per clan.
- Annexe** – These are generally nearby a main sett (within 150m) and there are paths linking these together. These may not be occupied year-round.
- Subsidiary** – These can be some distance from a main sett, and are generally not occupied year-round. Some paths may be visible into the wider area.
- Outlier** – These are usually small, with only a couple of entrances, and are used sporadically. They may also be used by other mammals.

Badger field signs

Foraging
Badgers may leave characteristic 'muffle' holes, made by grubbing with the snout to locate their food. They may also leave characteristic irregular excavations, caused by digging with the forepaws to access food underground.

Paths
Badgers use the same paths over generations to navigate through their territory. Their paths tend to be about 15-20cm wide, often padded down to the bare earth and continuing under obstacles such as fallen trees. Where branches, tree trunks or stones lie across the path, they are normally worn smooth with moss removed. Where paths cross under barbed wire fencing, badger hairs may be present.

Prints
Badger footprints may be found around the sett entrance, in heavily excavated spoil or along muddy or sandy sections of their paths. The palm pads have a kidney shape, being wider than they are tall. All the toes won't necessarily register on the ground but toes will point directly upwards, and will sit in an arc above the palm pad. Claws may be visible in the print. When badgers walk their hind legs, tall into the prints made by their front feet, creating what is called a 'double registration'.

Hair
Badger hairs may be found on the surface outside sett entrances or at grooming areas, amongst discarded material within the spoil heap, or caught on barbed wire, fencing or scratching trees throughout their territory. Their outer or 'guard' hairs are 7-10cm long and have a band of black marked by white at either end. Badger guard hairs are oval in cross section, this can be felt by rolling a hair between the fingers.

Dung pits & latrines
Badgers defecate, urinate and scent mark communally at 'dung pits', or collections of dung pits known as 'latrines'. These tend to occur near fence features, main setts and on the edge of territories.

Bedding
Bedding material is collected copiously at certain times of year and may be found as bedding tails (old or fresh) by the sett entrance, discarded along badger paths or mixed in amongst the spoil heap.

Scratching posts & trees
Scratching trees and play posts may be found close to main setts. They are usually soft barked trees such as alder and are used for scent marking, stretching and clearing claws.

Badgers & The Law
Badgers are a protected species. The Protection of Badgers Act 1992 (with further amendments in Scotland) protects both the badgers and their setts. A sett under the law is defined as:
"Any structure or place displaying signs indicating current use by a badger"

In brief, it is an offence to:
Kill, injure, take, cruelly ill-treat, dig for, sell, offer for sale, possess, have under one's control a badger.
Interfere with a sett either intentionally or recklessly, damage, destroy, obstruct access to, cause a dog to enter, or disturb a badger when it is occupying a sett.
It is also illegal to attempt to do any of the above or be equipped, or knowingly cause or permit any of the above to happen. There have been recent amendments that also include offences by Bodies Corporate, where there is consent, contrivance or neglect.

Penalties
The penalties for persons convicted of offences against the Protection of Badger Act face a maximum of an unlimited fine and up to three years imprisonment if convicted on indictment.

Works near badger setts
Works in the proximity of badger setts may need to be licensed. Scottish Natural Heritage are the licensing body, and with these licences come certain conditions which include mitigation to avoid any damage or disturbance to the sett and the badgers. As the works occur during the night-time when badgers are active, the risk of disturbance is much higher. During the breeding season, from 1st December to 20th June, badgers are much more sensitive to disturbance. Please seek advice from a specialist as required.

Useful contacts
Scottish Badgers: 07866 844 232
Scottish Natural Heritage Licensing Team: 01463 725 364
British Transport Police: 0800 40 50 40
Police Scotland: 101 (or 999 if crime is in progress)
Crimestoppers: 0800 555 111
SSPCA: 03000 999 999
Report a badger sett, live sighting or dead badger: www.scottishbadgers.org.uk



The joint efforts were recognised with receipt of a Green Apple Award.



Collaborative Working Efficiencies

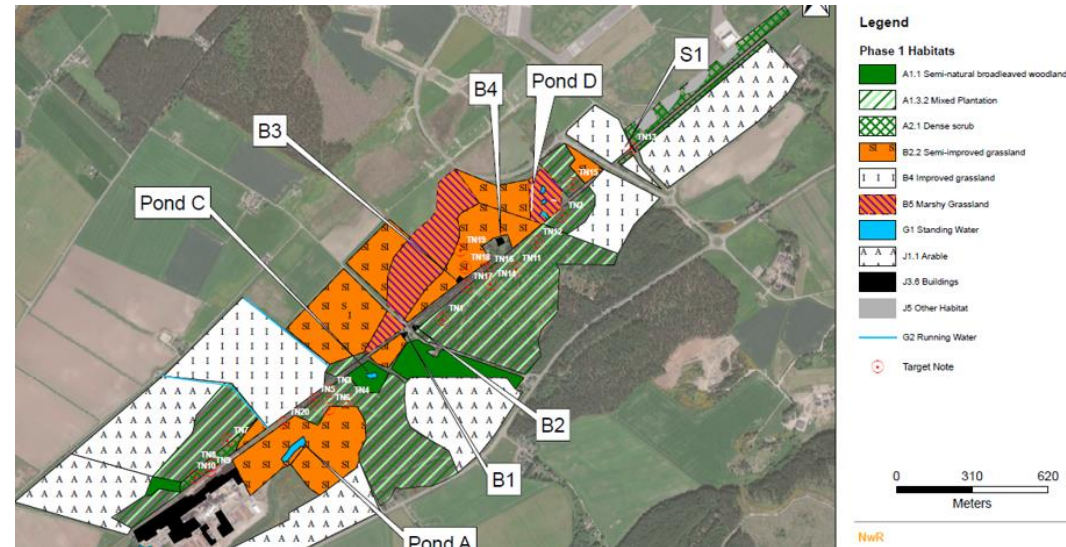
Joint working agreement with A9 and A96 Interfaces

Network Rail and Transport Scotland have joint agreements on sharing potentially sensitive data where pertinent on projects with railway and highway interfaces. Examples include baseline noise assessments during development phases to allow planning at design stage to include mitigation for sensitive human or wildlife receptors



Another includes sharing habitat and ecology survey data to help inform designers and specialist consultants where there may be risks or opportunities to protect and enhance where possible high value areas

That approach realises a considerable saving in costs and effort for publicly funded projects.



Case Studies, Works Delivery

Far North Vegetation Management 2018/2019

A large vegetation management package was issued in 2018 that covered c.22 miles on remote Engineer Line References including the Highland Mainline (HGL2), Kyle of Lochalsh line (KYL) and Wick line (WCK). A number of interesting ecology constraints were identified prior to works starting:

Loch Garve (KYL):

Osprey and Red-throated diver constraints

The above schedule 1 birds were identified during the Preliminary Ecological Appraisal.

Works were programmed to avoid disturbance to the birds during their breeding season.



Habitat Preservation, Selective Felling

Mineral Bridge near Dingwall (WCK)



A section approximately 1km long on the WCK line outside of Dingwall was covered with elm assessed as being in poor health.

The size and condition of the trees presented high risk to both the road and railway safety.

Trees nearest the running rail and road were removed as per specification.



A long strip of pollarded trees was retained to preserve roosting and nesting opportunities for bats and birds.

The stand was further enhanced by installation of 4 x stonecrete bat boxes.

Managing Seasonal Constraints

Culloden (HGL2) – Red Squirrels



A red squirrel drey was identified during pre-felling scoping. This section was bypassed until after the breeding season (February – September inclusive).

Outside of the breeding season the disturbance buffer was thus able to be reduced to 5m or the nearest tree rather than 50m required during the breeding season, allowing the works to be completed to specification.

A buffer of 10m was left and to further minimise potential disturbance to red squirrels, works were de-risked by using habitat piles to process arisings rather than chipping material in this section of the job.

The habitat piles offer nesting habitat for birds and can be used for caching by red squirrels and some bird species. They also offer hibernation potential for amphibians and reptiles.

Protected Species Exclusion

Badgers are frequent neighbours in our lineside. Our fencing renewal and vegetation management programmes overlap with their territories frequently.

Between 2018 and 2020 we have undertaken works in close proximity to over 80 different badger setts under licence and installed over 100 badger gates in our fence lines. The largest sett had over 80 entrances including outliers along a 0.5km string of railway line.

Only one outlier sett was closed under licence during this period in order to renew a station platform.



Exclusion Zones

Typically, our work does not overly disturb badgers:

- Contractors are notified of the presence of badgers in their works area.
- Exclusion zones are erected where zero/restricted works are permitted.
- Works within these zones are supervised by a Works Delivery Ecologist and under a derogation licence.

Within the restricted zones:

- For fencing we microsite posts to avoid impacting setts and install badger gates to allow movement between our boundary and neighbouring habitat.
- All of this allows us to install fencing within the vicinity of setts with negligible impact.
- For vegetation management we supervise the felling of trees within 20m of sett entrances and look to retain some of the scrub cover.
- No machines are allowed within the exclusion zones – but may operate from track.

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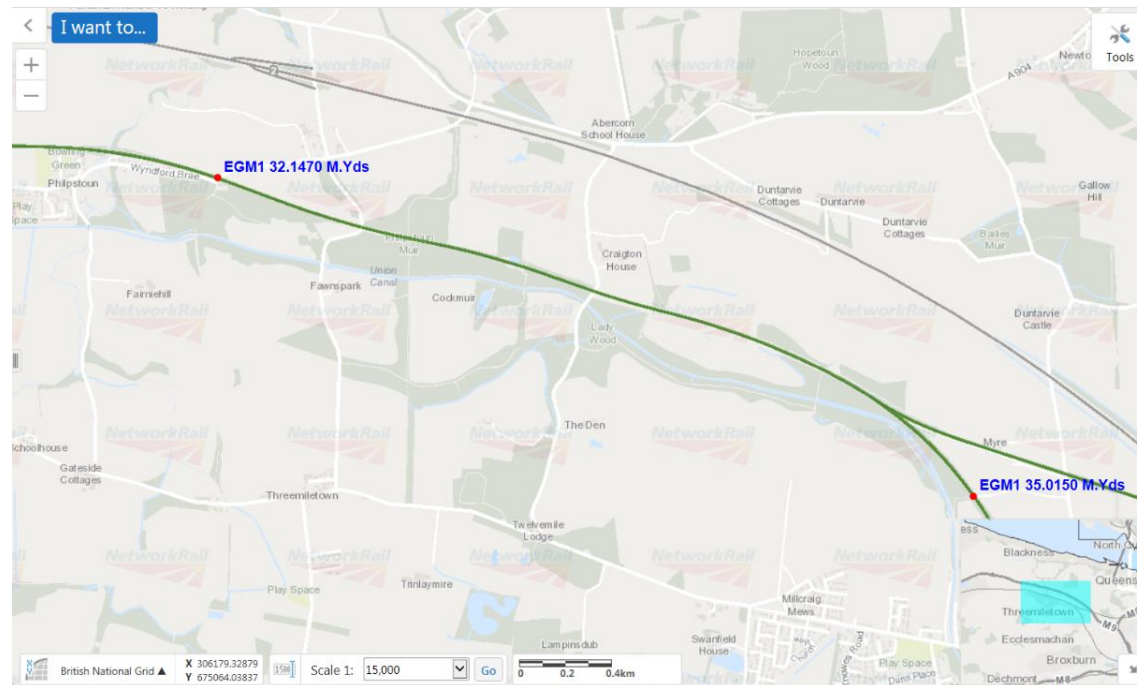


Third Party Trees

Winchburgh Cutting EGM1 –

For decades autumn leaf fall has created operational performance issues along Winchburgh cutting in West Lothian, on the Edinburgh to Glasgow mainline.

Approximately 3 miles of third party trees were targeted for selective thinning of high leaf fall species.



Felling permissions were sought to remove the first 6m of woody vegetation, plus any high leaf fall species in the next zone 6-20m from the boundary.

Works started in November 2019 and completed in October 2020.

The coupes were restocked with a hedgerow mix in the first 6m that included blackthorn, hawthorn, hazel, rowan and holly. Silver birch, wild cherry and oak were also included in the 6-20m zone to ensure no long term loss to the woodland biodiversity and canopy cover.

The tree removal would result in immediate improvements to autumn operational performance.

The species matrix used for restocking futureproofed the work by selecting slower growing, low leaf fall species.

Third Party Trees continued

All trees identified with bat roost potential were retained and Licences were in place to work around four badger setts in the site footprint.

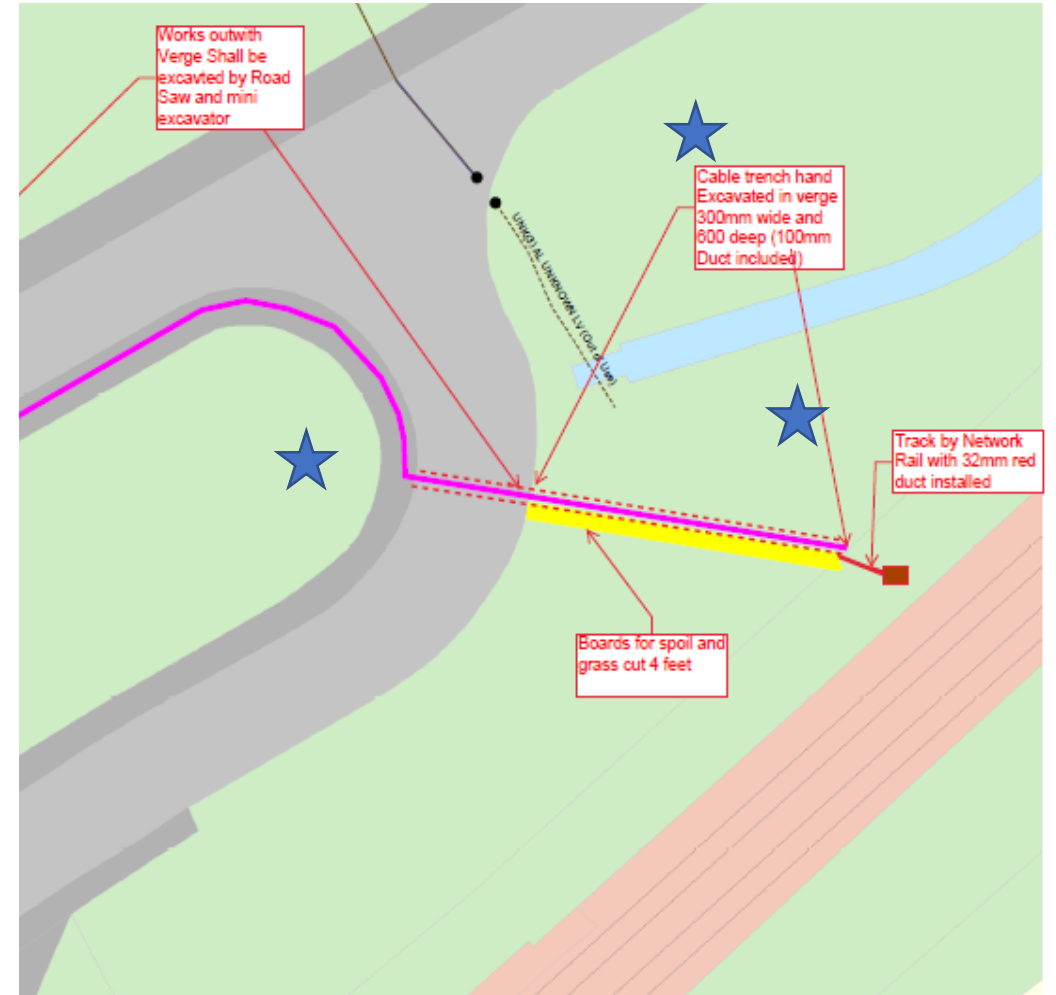
Philipstoun Muir SSSI was present in the footprint. Work was de-scoped in the SSSI to only prune/pollard/remove dead, dying and diseased trees (approximately 48 in total) with permissions from NatureScot (Formerly Scottish Natural Heritage).



The woodland was enhanced by the installation of 40 stonecrete bat boxes and 24 bird boxes at various locations along the mileage.

Habitat Preservation Fossorial Voles

Protecting Nationally Significant Fossorial Water Vole during GSM-R project north of Garrowhill Train Station, Glasgow



★ Location of water vole burrows

Habitat Preservation Fossorial Voles



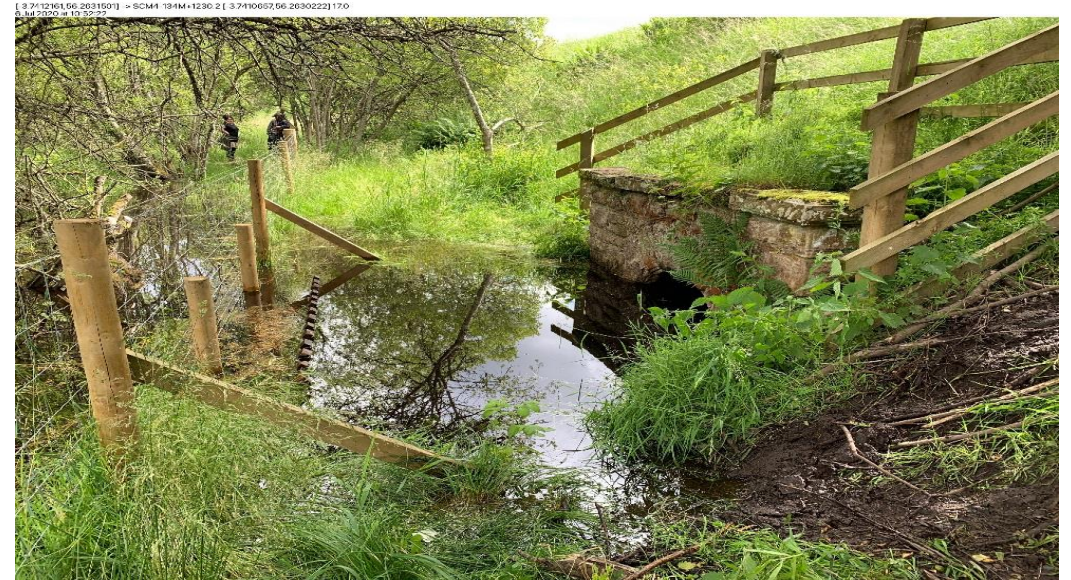
A licence to disturb water vole was applied for and granted from NatureScot. Mitigation measures included protective fencing to avoid damage to water vole burrows, a precautionary approach to vegetation removal, hand searching for burrows within the vicinity of the works and supervision by Works Delivery Ecologist. The work also avoided breeding season. No water vole were harmed and no burrows destroyed. The works remained legislatively compliant.

Infrastructure Protection

Bog Wood and Meadow SSSI – Beavers (2020)

A family of beavers took up residence in our lineside near Gleneagles Station. They dammed inside a culvert and burrowed into the embankment under the Scottish Central Mainline (SCM4).

The impoundment created by the dam has flooded a SSSI designated for wet woodland and fen meadow habitat.



The wet woodland and fen meadow sit on deep peat, therefore the burrows and impoundment present a risk to the structural integrity of the embankment and track stability.

A derogation licence was granted by NatureScot in September 2020 and work is ongoing to remove the dam and exclude the beavers from the lodge.

Infrastructure Protection

Bog Wood and Meadow SSSI – Beavers (2020), Continued

The dam is approximately 2m inside the culvert and 2-3m thick. Works are ongoing to pump the water levels down so that the dam can be safely notched.

The pumps are fitted with floats and contained in pre drilled, mesh covered barrels to prevent wildlife coming to harm while they operate.

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Once the dam is removed and beavers excluded the culvert and surrounding area will be ground proofed to prevent further burrowing.

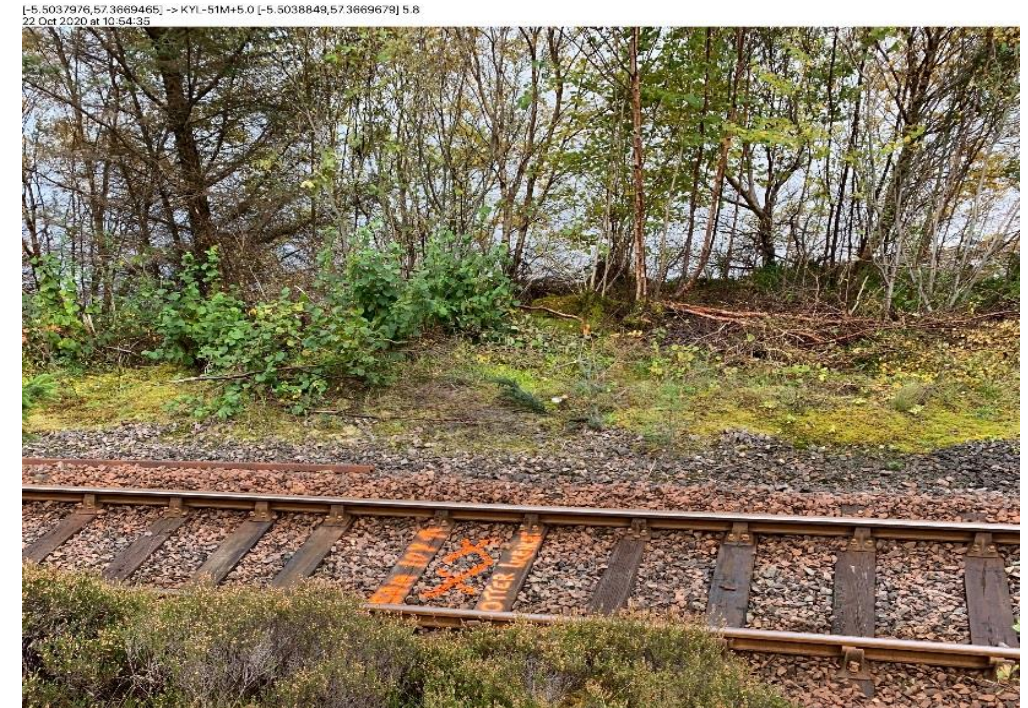
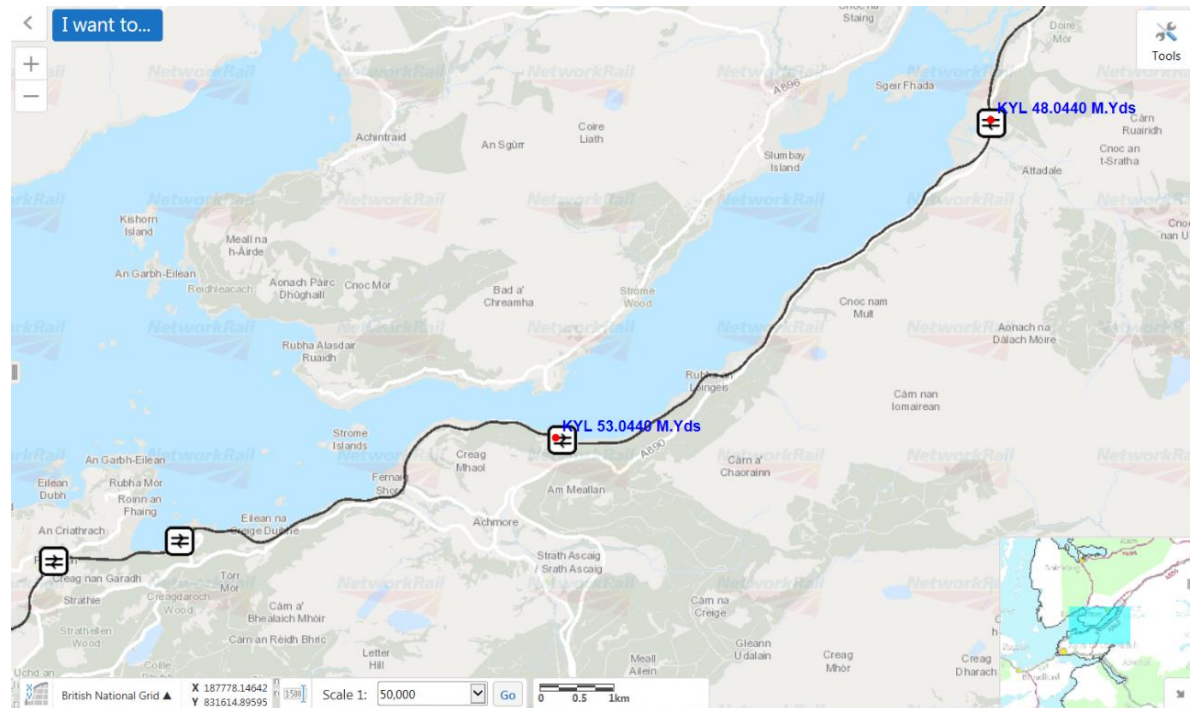
The culvert will be gridded to prevent further damming, but will be fitted with a ramp to allow beavers and otters to pass through safely, without having to cross the railway line.

Protected Species

Kyle Line Otters - KYL

A five mile vegetation management package was delivered on the Kyle of Lochalsh line between Strome ferry and Attadale in October 2020.

This coastal stretch of line had high levels of otter activity including a number of non-breeding resting up sites.



The work site was divided into sections and classified into risk categories for otter presence.

These were delineated by line paint on sleepers to ensure operatives were aware of constraints in their works area.

Protected Species

Kyle Line Otters – KYL, Continued

A non-licensed method statement was implemented to de-risk the works by eliminating the need for chippers on sections of the job where otters were recorded.

Arisings were stored in habitat piles instead and electric chainsaws were used instead of petrol powered chainsaws to reduce noise and potential disturbance impacts.

[-5.5189034,57.3607067] -> KYL-51M+1345.5 [-5.5187482,57.3606329] 12.4
22 Oct 2020 at 12:00:23



[-5.5189430,57.3607054] -> KYL-51M+1347.2 [-5.5187654,57.3806224] 14.0
22 Oct 2020 at 12:00:42



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Network Rail Biodiversity Duty Report 2018-2020

Indirect Benefits and
Social Value;
Sustainable Procurement,
Site Management,
Community and Early
Engagement



Sustainable Procurement

Sustainably procured timber

Network Rail is committed to purchasing 100% sustainably procured timber and materials to mitigate damage to virgin environments.

A hierarchical approach is applied to primarily source timber that is Forest Stewardship Council approved, or alternatively, approved by Programme for the Endorsement of Forest Certification.

Suppliers and contractors must be able to demonstrate that traceable chain of custody to ensure the source is sustainable.

Finite resources

Application of that approach is vital to prevent over-consumption of limited resources that are either finite or cannot regenerate in short timescales.

Example; one of the supply chain quarries has local constraints and has 30 years worth of raw materials before it is exhausted. Examples of working methods overleaf are case studies of the need to change and add value.



Efficient Materials Management

Recovery, Treatment and Re-Use on site and efficiencies

Network Rail, Transport Scotland and Abellio Scotrail worked together to deliver Aberdeen to Inverness enhancements via a blockade, rather than months / years of weekend disruption

Maintenance of P-Way include tamping & new ballast drops. During renewals, this serviceable material can be lost, due to time constraints during track access possessions.

That requires additional wagon space, that can be avoided if serviceable material is kept on site for re-use, reducing transport of both existing and production of new, virgin materials

During Year 1 blockade, 10, 000t of existing ballast on the A2I programme was identified as fit for re-use and a further 25, 000t was re-used during the programme Year 2 Blockade.



The ballast was sampled, sieved & re-used at point of origin; Carbon Saving of extracting raw material was IRO 675 tonnes CO2 (Processing not included)

Transport Emissions savings for vehicles was calculated at 1, 183 tonnes CO2

Costs Savings; subject to modal delivery option, mean transport reductions were estimated at £250,000 and low impact landfill tax, IRO £100,000

Safety benefits removed thousands of road journeys & reduced delivery driver fatigue

Queen Street Station Circular Economy

100% of Inert demolition materials, Timber and Metal were recycled on this project and 94% of mixed waste was also diverted from landfill

Resource efficiency opportunities during demolition phase of Queen Street Station enhancement were included in the invitation to tender. The successful bidder included allowances for that opportunity and Network Rail had an early engagement meeting with the demolition supplier, with following headline benefits realised;



Timber was re-used for asbestos removal chambers. That and other timber chipped for Bio-mass fuel within the UK, due to age, poor condition, etc. and one other use was conversion into cattle bedding

The Waste Treatment Station was located at Charles Street, Glasgow instead of Wishaw which saved 56 miles round trip per journey saving 46.3tCO₂ and 69.5tCO₂ in virgin materials in the local economy

Inert materials were re-used by house builders, contractors and road building companies that included use as sub-base in housing, construction and road network projects as it contained an element of fines, which is easy to compact

Examples of end of lines buyers for the materials from this project, included Persimmon, Wimpey, Grahams Construction and Multiplex



Social Value, Early Engagement

Science, Technology, Engineering & Maths

Infrastructure Projects Scotland and North East staff presented level crossing safety, environment & sustainability themes to 180 S1 – S3 pupils during a STEM day at a local Secondary school.

2018 was the Year of Young People. Along with other ongoing initiatives such as Girls into Engineering (GIE), individuals in the Scotland team have volunteered to be STEM Ambassadors



Attendance by IP SNE staff and graduates at a Glasgow STEMfest event in 2017 reached 30 senior schools and Network Rail continued to support that event in 2018 and 2019

Embedding Social Responsibility into the Business

During CP5, Framework contracts were opened to tender. The Scotland Safety & Environment Team introduced Social Responsibility questions into the Invitation to Tender.

Bidders commitments included that aspect and all parties worked collaboratively to embed social value into the Rail Sector, with Scotland leading the way. The Technical Authority noted that as best practice, subsequently adopted that as a UK nationwide requirement and Social Value questions are now mandated in all Tender exercises

The Scotland Team efforts were recognised at the National Aspire awards, winning the Social Value Category



Environmental Volunteering

Network Rail staff are permitted and encouraged to use volunteer leave to help local charities and communities, especially where there are railway interfaces.

Examples include where new projects interact with lineside neighbours or where the Network Rail Community Safety Manager can help reduce trespass or anti-social behaviours.

The following is a flavour of the types of volunteering has made a difference;

Springburn Community Allotments, pond repairs with Froglife. RSPB Baron's Haugh, pruning and path repairs. RSPB Lochwinnoch Access for All path repairs and Lochwinnoch Bio-Blitz



Environmental Volunteering

800 trees planted with the John Muir Trust, at Schiehallion and Loch Tommel

Access for all users improvements on the John Muir Way,

Dunbar Borders Forest Trust, Corehead, Moffat; 1200 Silver birch planted and removal / recycling of over 1000 tree guards from more mature specimens.



Environmental Volunteering



Stirling Station Enhancements and Kerse Road Bridge;

Tree planting with local schools at Kerse Road to compensate for new works impacts.

Redundant office equipment from the project was donated locally.

Residual office furniture was cascaded to a Community Youth project in Glasgow that provides safe places for a variety of community groups. Senior project worker, Arthur McNeaney said that the donation will help more centre users access training and that they were able to cascade their older furniture to other local community initiatives



Environmental Community Support

Involvement with local communities is important for Network Rail. Some environmental and sustainability examples include;

Local wildlife conservation group, CARG had to move out of their regular venue. Network Rail hosted their bi-Annual evening meetings and supported volunteering at community events.



Nature charity, Froglife relies on funding applications. Network Rail supported such an application to the Lottery Heritage Fund and Local Authority. The application was successful to the tune of £250,000 and Network Rail staff will benefit from Biodiversity training as a reciprocal gesture.



During the Holytown to Midcalder electrification project, local community gardens were given a facelift by suppliers and Network Rail staff, including an enhancement of a community polytunnel with new paths and raised beds to permit Access for All planting of vegetables and plants.



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Future horizons



Future tools, processes & technology

A new Biodiversity Standard is in final stages of production as this report is going to press and that will inform an imminent Biodiversity Action Plan.

Selected projects had successfully used the Network Rail Biodiversity Calculator and several projects in Scotland have created a baseline to consistently apportion a biodiversity value

A new Biodiversity Tool has been developed and where pertinent projects will transition to use of that calculator

Use of drones with Hyperspectral cameras and software is in use to assess habitat in difficult to access areas, while keeping operational railway and staff safe

The Biodiversity Metric 2.0
auditing and accounting for
biodiversity

Calculation Tool

Open Tool

Beta Version - December 2019

Beta Test

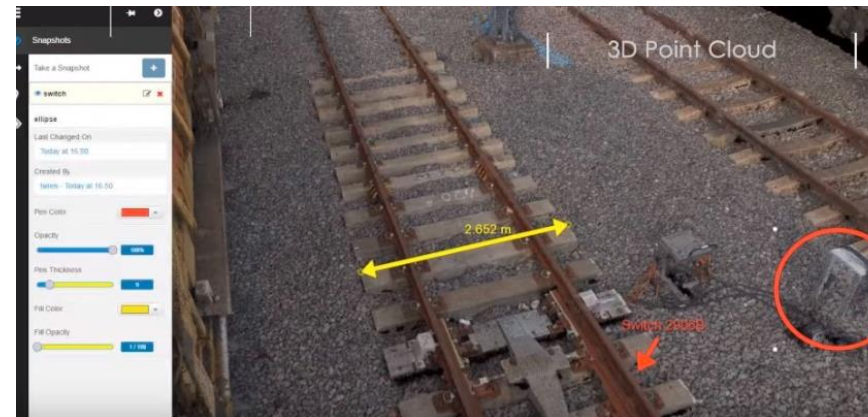
ISBN 978-1-78354-539-1



Biodiversity Calculator

Biodiversity Units Before Works

Phase 1 Habitat	Distinctiveness		Condition
	Band	Score	
Project Total			
Woodland - Broadleaved: semi-natural (Medium)	Medium	4	Moderate
Woodland - Broadleaved: plantation (Medium)	Medium	4	Moderate
Woodland - Mixed: Plantation	Medium	4	Moderate
Scrub - Dense/continuous	Medium	4	Moderate
Scrub - Scattered	Medium	4	Moderate



Minimising use of finite resources

It is mentioned elsewhere in this report and future increased use of the Rail Safety and Standards Board (RSSB) Rail Carbon Tool (RCT) will be used during option selection stages to reduce the volume of materials and valuable finite resources as well as identify carbon reduction opportunities.

Following pilot courses of a switch to an on line platform, due to Covid impacts, training in the use of the RCT is already underway in Scotland

Name	Qty	Units	kgCO ₂ e		
			Single	Total	Project
▶ Kintore Station Draft Assessment					
▼ Compact vs Standard PSP					
▼ Compact					
▶ Sheet Metal Parts	1	kg	921	921	921
▶ 25kV power cable (120 sq mm single core screened)	1	kg	627+	627+	627+
▶ Polycarbonate	1	kg	98	98	98
▶ Other Electrical Items (WEEE)	1	kg	388	388	388
▶ Transformers	1	Aggregated Quantity	471+	471+	471+
▶ Compact Concrete	1	M3	893	893	893
▼ Standard PSP					
▼ Standard					
▶ Sheet Metal Parts	1	kg	7,389	7,389	7,389
▶ 25kV power cable (120 sq mm single core screened)	1	kg	5,930+	5,930+	5,930+
▶ Other Electrical items	1	kg	54	54	54



Scotland's Railway Sustainability Board



Scotland's Railway Sustainability Programme Board

In line with the introduction, Scotland's Railway will continue to investigate and invest in opportunities to further enhance the greenest form of mass transport to meet the needs of the public, local communities and visitors to Scotland

The sectoral approach will be developed as the Board is established and working groups are in place or in development to help deliver objectives. At present those aspects include but are not limited to;

- A Circular Economy Working Group
- Decarbonisation Non-Traction
- Decarbonisation Traction
- Biodiversity and Sustainable Land Use
- Weather Resilience and Climate Change Adaptation
- Social
- Air quality
- Noise
- Conference of Parties (COP26)



Acknowledgements

Slide	Picture / Plate	Location	Contributor and Organisation
10	Community Engagement	Inverurie / Aberdeen	Kevin Rooney, Network Rail
14	IEMA Delegates, Larbert	St Vincent Street	Communications Team, Scotland's Railway
16	Otter Surveys	Orchy Viaduct	Chris Lyall, Network Rail
16	Otter Surveys	River Orchy	AMCO Giffen
17	Otter Management Plan	Craigendoran	Brian Beck, Network Rail
17	Otter Management Plan	Craigendoran	Paul Medley, QTS
18	Electro-Fishing Migration	Marykirk & Stackbridge	Susan Rennie, Network Rail
18	Fish Rescue Translocation	Marykirk & Stackbridge	Amco Giffen and Story Contracting
19	Invasive weeds	Aberdeen to Inverness	Craig MacKenzie, Network Rail
20	Bat Roost Protection Plan	Free Kirk Underbridge	Gerald Brown, Network Rail
20	Bat Roost Protection Plan	Free Kirk Underbridge	Sean Clemie Story, Simon Inger, IKM
21	New Platform Re-Planting	Dunbar	Simon Humble, Bruce Laidlaw, Network Rail
21	New Platform Re-Planting	Dunbar	Anthony McLuskey, Butterfly Conservation Trust
22	Wildlife Conservation	Highland Mainline	David Idebolo, Tom Waddell, Siemens Mobility Ltd.
22	Wildlife Conservation	Highland Mainline	Alexander Koscielski, Siemens Mobility Ltd.
23	Collaborative Working	A9 / A96 Interface	Myra Conn, Transport Scotland
23	Collaborative Working	A9 / A96 Interface	Malcolm McGowan, David Millar, Network Rail
25 – 36	Multiple Pictures	Various Locations	James Morrison, Helen Simmons, Network Rail

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Slide	Picture / Plate	Location	Contributor and Organisation
38	Research Field Visit	Mounsorrel	Brian Beck, Network Rail
39	Material Efficiencies	Aberdeen to Inverness	Malcolm McGowan, David Millar, Network Rail
40	Circular Economy	Queen Street Station	Laura Kelly, Dem-Master
40	Circular Economy	Queen Street Station	Damian, Keaveny, Abellio Scotrail
41	Social Value	Aspire Awards	Corporate Communications Team, Network Rail
41	STEM Events	Scotland wide	Network Rail STEM Ambassadors Group
42	Environmental Volunteers	RSPB Barons Haugh	Alan Simpson, Chris Lyall, Network Rail
42	Environmental Volunteers	RSPB Lochwinnoch	Erik Patterson EP Ecology, Brian Beck, Network Rail
42	Environmental Volunteers	Springburn Allotments	Brian Beck, Network Rail, Louise Smith, Froglife
43	John Muir Way Upgrade	Dunbar Station	Jo Noble, Network Rail and AMCO Giffen staff
43	Tree Planting	Schiehallion / Tummel	David Auld, Alf Maynard, Network Rail
43	Tree Planting, Moffat	Borders Forest Trust	Stuart Ferguson, Network Rail
44	Tree Planting, Kerse Road	Stirling Station	Jacqueline Lloyd, Network Rail
43	Office Equipment Re-Use	DRC Youth Project	Brian Beck, network Rail, Arthur McNeany, DRC YP.
45	Community LNR Support	Hamiltonhill Claypits	Erik Patterson EP Ecology, Brian Beck, Network Rail
45	Clyde ARG Volunteers	RSPB Lochwinnoch	Erik Patterson EP Ecology, Brian Beck, Network Rail
45	Community Gardening	Holytown / Midcalder	Alf Maynard, Network Rail
47	Biodiversity Calculators	Defra / Network Rail	Corporate Communications Team, Network Rail
47	Drone / Cloud Technology	Various	Jack, Mitchell, Malcolm Donald, Plowman Craven
48	Rail Carbon Tool	Various	Rail Safety and Standards Board

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Brian Beck, Environment Manager
brian.beck@networkrail.co.uk
James Morrison, Ecologist
james.morrison@networkrail.co.uk
Helen Simmons, Ecologist
helen.simmons@networkrail.co.uk

