Network Rail and Office of Rail and Road

#20507 Independent Reporter Review of Environmental Sustainability Data

Final Report

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1 Executive Summary

1.1 Purpose

In the role as Independent Reporter, Arup was appointed by the Office of Rail and Road (ORR) and Network Rail (NR) to undertake a network-wide audit of the system reliability and data accuracy of the environmental sustainability data as reported in the Network Rail Annual Return for 2019/2020[1] (the full list of KPIs and data is provided in Appendix A and a copy of the Statement of Works is provided in Appendix B) covering the aspects shown in Table 1 below.

The review was carried out in line with the System Reliability Grading System and Accuracy Grading System set out in Appendix C. It included a review of related documentation and an engagement phase where key Network Rail teams and staff were interviewed.

This Executive Summary provides an overview of the findings and recommendations linked to the assigned scores for system reliability and data accuracy. The results of the assessment are summarised in Table 1 below – the specific findings and recommendations for each KPI are detailed in Section 2 and Section 3.

Table 1: Confidence Grades Assessments Overview

KPI Aspects	System reliability				Data accuracy							
Scope 1 & 2 emissions	A	B	C	D	1*	1	2	3	4	5	6	X
Carbon footprint reduction	A	B	C	D	1*	1	2	3	4	5	6	X
Carbon intensity of electricity	A	B	C	D	1*	1	2	3	4	5	6	X
Reduction in carbon emissions	A	B	C	D	1*	1	2	3	4	5	6	X
Reduction in energy use	A	B	C	D	1*	1	2	3	4	5	6	X
Waste diverted from landfill	A	B	C	D	1*	1	2	3	4	5	6	X
Waste sent to landfill	A	B	C	D	1*	1	2	3	4	5	6	X
Total waste	A	B	C	D	1*	1	2	3	4	5	6	X
Environmental incidents	A	B	C	D	1*	1	2	3	4	5	6	X
Environmental close calls	A	B	C	D	1*	1	2	3	4	5	6	X
SSSIs	A	B	C	D	1*	1	2	3	4	5	6	X
ESI	A	B	C	D	1*	1	2	3	4	5	6	X

[1] https://www.networkrail.co.uk/wp-content/uploads/2020/07/Network-Rail-Infrastructure-Limited-Annual-Return-2020-data-tables-1.xlsx

1.2 Key findings, assessment and recommendations

1.2.1 Energy and Emissions

The Energy and Emissions KPIs are primarily used to report on and evaluate performance related to carbon emissions and energy use. The raw data are extracted from meters, invoices and profile data and are managed through a series of steps, characterised by a high level of automation and centralised management.

The system reliability assessment has shown that the reporting process is robust, and that datasets are correctly linked, allowing NR to appropriately report on their carbon emissions and energy use. Due to minor issues regarding lack of documentation, energy and emissions KPIs are scored a B for reliability.

The data accuracy assessment is divided by the KPIs reported under energy and emissions. Scope 1 & 2 CO_2e emissions, carbon footprint reduction, reduction in carbon emission and energy use ratio, and the carbon intensity indicators have all been given a score of 1.

In terms of best practice, there is an opportunity to increase engagement and exchange between regions and with the central team. Lastly, by providing a clearer view on performance against set objectives and targets within the Annual Return, NR could bring more clarity to the reporting – if deemed necessary given that graphics of performance over time against targets are already provided within the periodic SHE report.

1.2.2 Waste

The Waste KPIs are used to monitor and report on resource use performance, and to improve management of waste. The data are partly based on figures provided directly by the waste contractors, and partly on estimates. The data are passed through a series of consolidation and validation steps, where the data are continually sense-checked, and outliers examined by the NR Regional teams and the Central team.

In terms of system reliability, the reporting process has been determined to be robust, allowing NR to appropriately report on waste performance. Due to a high reliance on estimates and contractor data, the waste KPI has been awarded a B for reliability.

The data accuracy assessment showed that waste data are accurate within 5%, resulting in an accuracy score of 2.

To improve the combined score, the Reporting Team recommends that NR develops clearer processes for streamlining and documenting the data management process, for example by keeping an updated tracker of all waste movements and introducing a process to continually review figures reported in the tracker. Further, it is recommended that NR revises the waste metrics to include a wider focus on materials and resources – the Reporter Team understands this is already in progress and that a Circular Economy indicator will be incorporated in the reporting by 2024.

1.2.3 Environmental Incidents and Close Calls

Environmental Incidents and Close Calls data are used to show adherence with legal requirements, evaluate performance and to improve environmental management. The data are compiled based on on-site observations, through a series of classification and reporting steps, with many levels of NR being involved in the process. The classifications process inherently involves a high level of manual input.

The system reliability assessment has identified concerns with the reporting process, specifically regarding a lack of guidance for categorisation of incidents and a lack of evidence of process documentation for this metric. Due to the identified issues, the reporting process reliability has been given a score of C.

The data accuracy assessment showed that Environmental Incidents and Close Calls data had some errors, yielding accuracy scores of 4 and 3 for Environmental Incidents and Close Calls respectively.

In terms of best practice, a more detailed set of environmental incident guidance is recommended - this is something that NR has already identified, and a new guidance document is currently being prepared. Additional possible improvements include implementing clear processes with roles and responsibilities outlined and determined timeframes and actions. NR should also consider consolidating their data management into one system, with additional functions for classifications, roles and lessons learned included. By adding additional incident categories, the accuracy of the reporting could be increased through reduced ambiguity. Finally, to ensure that the suggested improvements are disseminated throughout NR, guidance and procedures for staff training should be developed.

1.2.4 Sites of Special Scientific interest

The Sites of Special Scientific Interest (SSSI) KPI is used to adhere to legal requirements, and to track the current ecological and geological state of NR's land holdings. SSSI data is provided to NR by Natural England, NatureScot and Natural Resources Wales. The data are then validated centrally. The data management process is characterised by manual input and processing.

The main shortcoming identified in the system reliability assessment is related to the dependence on manual extraction and compilation of data. Whilst it is acknowledged that the amount of data is limited, automating its input would reduce the risk for error. Based on these factors, an assessment score of B has been given to the SSSI reporting process for reliability.

The data accuracy assessment determined that the SSSI data are accurate within 1%, giving an accuracy score of 1.

In terms of SSSI reporting, there is no recognised industry best practice against which NR's methodology can be measured. To improve on wider habitat management, the Reporter Team has identified two main opportunities, increased data efficiency measures and introduction of a natural capital and social returns approach.

1.2.5 Scorecard measure – Environmental Sustainability Index (ESI)

The Environmental Sustainability Index (ESI) is used to provide an aggregated environmental performance score to report on overall progress against the sustainable development objectives and against the Environmental Sustainability Strategy. The process for deriving the score is completely centralised, and highly automated. The score is calculated based on weighted emissions, energy and waste data.

Due to a lack of supporting guidance and process descriptions, the reliability assessment has been allocated a score of B. The data accuracy assessment for the ESI has resulted in a score of 2 with the assumption that input data is correctly brought in. The data within the spreadsheet seems accurate as per the review although the score can only reasonably align with the accuracy scores provided for Energy and Emissions and the Waste KPIs which make up this indicator.

Linking the different spreadsheets and keeping consistent records of version changes would be strongly recommended and to automate updates in order to reduce errors. It could also be beneficial to examine existing frameworks designed to provide aggregated sustainability performance scores based on best practice benchmark assessments such as the Global Real Estate Sustainability Benchmark; GRESB for infrastructure assets.

1.3 Acknowledgements

The Independent Reporter Team would like to thank both ORR and NR staff for their assistance with this review.

1.4 Summary of recommendations

Recommendations have been formulated and prioritised following the below key:

Table 2: Key for prioritisation of recommendations

High	Medium	Low
Actions which are immediately actionable, within NR's control, and which will directly support a higher score from either or both a system reliability or data accuracy scores.	Actions which can be more readily implemented, or which bring less direct improvement to directly from either or both a system reliability or data accuracy scores.	Broader, long-term actions to be considered at a later stage, which NR might have less control over.

Table 3 on page 6 provides an overview of all recommendations.

Table 3: Summary of Recommendations

Reference No.	KPI	Recommendation to Network Rail	Benefits	Evidence of Implementation	Location in Text
High priority					
SOW20507-1	Energy & Emissions	Develop formal documentation of reporting procedures. Roles and responsibilities should also be documented along with any assumption taken in the methodology employed.	This will mitigate current risks to reporting, improve continuity, support review and audit activities, facilitate communication across departments and staff, and increase transparency.	Documentation detailing the full reporting process.	3.1.4
SOW20507-2	Energy & Emissions	Reporting procedures should document any internal audit or review requirements for all KPIs, specifying associated roles and responsibilities and the frequency of these activities, including procedures for evaluation and updates.	This will facilitate potential future amendments to the reporting process.	Documentation over implementation of processes for continual review.	3.1.4
SOW20507-3	Waste	Clarify the methodology by which waste quantities have been obtained for each waste stream for each date reported, including waste density conversion factors used. Procedures should be documents, including methodology and assumptions taken.	This will mitigate current risks to reporting, improve continuity, support review and audit activities, facilitate communication across departments and staff, and increase transparency.	Documentation detailing the full reporting process.	3.2.4

Reference No.	KPI	Recommendation to Network Rail	Benefits	Evidence of Implementation	Location in Text
SOW20507-4	Environmental Incidents & Close Calls	Develop more detailed environmental incident guidance with clear examples for each of the environmental incident classifications (category 1-4) and environmental incident types as well as clear processes and procedures for incident reporting and investigation.	More detailed guidance will reduce ambiguity and inaccuracies in reporting	We note that new guidance has been developed and will be effective as from 2021 or later.	3.3.4
SOW20507-5	Environmental Incidents & Close Calls	Develop procedures and better document the environmental incident reporting roles and process steps including actions such as updating NR procedures and processes to prevent reoccurrences. The environmental incident and close call reporting processes should be audited at regular intervals (e.g., yearly).	This will mitigate current risks to reporting, improve continuity, support review and audit activities, facilitate communication across departments and staff, increase transparency and facilitate potential future amendments to the reporting process.	Documentation detailing the reporting process	3.3.4
SOW20507-6	Environmental Sustainability Index (ESI)	Formalise the documentation of the process steps used to derive the ESI, including the rationale for the weight given to the different components that make up the ESI.	This will mitigate current risks to reporting, improve continuity, support review and audit activities, increase transparency and facilitate potential future amendments to the reporting process.	Documentation detailing the reporting process	3.5.4
SOW20507-7	Environmental Sustainability Index (ESI)	Ensure traceability between the Annual Return Excel workbook, and the information provided in the Excel workbook used to calculate the ESI on an annual basis, is high and that there is no discrepancy between the figures reported in these two different sources.	Systematic and well documented procedures will increase transparency and minimise errors. By automating the reporting process, the risk for errors can be minimised.	Updated spreadsheets and system for archiving previous versions	3.5.4
Medium priority					

Reference No.	KPI	Recommendation to Network Rail	Benefits	Evidence of Implementation	Location in Text
SOW20507-8	Energy & Emissions	Develop a process for validation and continual reviews of clearly documented procedures.	This will ensure that KPIs remain relevant, foster continual relevance and improvement of the reporting process and support the coordination of activities to address gaps in the data verification such as where assumptions are applied and cannot readily be investigated.	Documentation over implementation of processes for formal review of procedures.	3.1.4
SOW20507-9	Energy & Emissions	Formalise procedures to integrate the role of the Regions in the reporting and/or in the way the data should be used, in alignment with the NR devolution agenda. They could potentially include a set of minimum requirements for the Regions teams to support the data validation activities and provide further certainty for data accuracy.	This will support data validation activities, increase data accuracy, improve use of resources and competencies, aid in identifying and communicating on best practice and address the risk of inconsistency in the reporting process.	Documentation	3.1.4
SOW20507-10	Waste	Carry out reviews of the waste logs of all waste producers to ensure that the destinations reported are indeed correct (e.g. if a waste stream for a specific date is reported as being sent for a reuse activity, checking that this has been identified correctly).	This will increase transparency and accuracy of the reporting process.	Documentation of waste log review processes.	3.2.4
SOW20507-11	Waste	Ensure that the % by weight for each waste stream reported as recycled or recovered, excludes any rejects/residues, which should be covered elsewhere (e.g. disposal) according to where their final destination was.	This will enable more accurate reporting.	Guidelines on waste stream categorisation	3.2.4

Reference No.	KPI	Recommendation to Network Rail	Benefits	Evidence of Implementation	Location in Text
SOW20507-12	Environmental Incidents & Close Calls	Develop and deliver regular staff training regarding environmental incidents management and reporting processes.	Structured procedures for staff training will ensure that other implemented improvements are disseminated throughout NR.	Documentation and training records	3.3.4
SOW20507-13	Environmental Incidents & Close Calls	Provide a data management system that reports incidents, provides points of contact, notifications and timeframes for incident investigations in one data system across the business.	This will facilitate reporting and create a more streamlined process.	Reporting system	3.3.4
SOW20507-14	Environmental Incidents & Close Calls	Expand and provide greater granularity (as per list in 3.3.4) of environmental incident types.	This will provide greater understanding of different environmental incidents across the business.	Incident type register.	3.3.4
SOW20507-15	SSSIs	Automate data transfers to address the potential of risks of errors in transferring the data as per the current reporting process.	Increased efficiency and minimised risk for inaccuracies.	Reporting system	3.4.4
Low priority					
SOW20507-16	Energy & Emissions	We suggest to report “Reduction in non-traction carbon emissions and energy use against CP5 exit baseline” under Table 59 instead of Table 60, as they relate to Table 50 emission figures. Alternatively, the link between data reported under the two tables should be made clearer so that it is easier to follow where the changes to the percentages used occurs.	This will clarify the connection between calculations.	Updated Annual Returns format	3.1.4

Reference No.	KPI	Recommendation to Network Rail	Benefits	Evidence of Implementation	Location in Text
SOW20507-17	Waste	Ensure that waste producers keep logs of daily waste movements, whereby different waste streams are logged separately, according to their European Waste Catalogue (EWC) code.	This will increase transparency and enable more detailed review of the reported data.	Provision of waste tracker	3.2.4
SOW20507-18	Waste	Review waste metrics and consider including more/ different metrics focusing on materials and resources, and the upper tiers of the waste hierarchy (prevention and reuse).	Expanding on the current KPIs will align NR's reporting more closely with best practice and enable more well-informed management.	Updated KPI scope	3.2.4
SOW20507-19	Environmental Incidents & Close Calls	Develop procedures for evaluation of incidents, investigations and learning lessons on how to improve processes and systems.	This will enable continual improvement, both of the reporting process and of the incidents and close calls management.	Documentation	3.3.4
SOW20507-20	SSSIs	Engage with Statutory Nature Conservation Organisations (SNCOs) to develop a system by which only sites within the landholding which have had their condition assessed in the last year should be provided to NR.	Increased efficiency.	Updated process	3.4.4
SOW20507-21	SSSIs	Enhance strategic approach to environment management based on existing tools and link up with the regions to deliver increased value in the long term.	This will increase efficiency, improve continuity, and facilitate communication across departments and staff.	An updated SSSI process	3.4.4
SOW20507-22	ESI	Consider aligning the ESI with other industry benchmarks, such as GRESB, the Global Reporting Initiative, the recommendations from the Task Force	Adopting an already recognised and tried out approach to aggregated reporting will facilitate potential	Documentation outlining justifications for	3.5.4

Reference No.	KPI	Recommendation to Network Rail	Benefits	Evidence of Implementation	Location in Text
		for Climate-related Financial Disclosures, or ISO14001 for environmental management.	improvements to the ESI. This will also support reporting more transparent and accessible information as well as providing more possibility to benchmark performance.	current methodology and potential alignment with external frameworks.	

2 Introduction

2.1 Background

Over recent years, NR has developed and begun reporting on a renewed series of Environmental Sustainability KPIs. The KPIs support the Environmental Sustainability Strategy, launched in September 2020, which sets out the following four core priorities to deliver its vision of delivering a sustainable railway:

- A low emission railway
- A reliable railway service that is resilient to climate change
- Improved biodiversity of plants and wildlife
- Minimal waste and sustainable use of materials

Table 4 below lists aspects in scope of this reporting and for which more detailed KPIs are ultimately reported in the Annual Return – those are detailed further down in the report as our assessment is presented.

Table 4: Environmental Sustainability KPIs reported in the Annual Return

Aspects		**KPIs**
Energy and emissions	Scope 1 & 2 CO_2e emissions	Scope 1 & 2 CO2e emissions for England and Wales
		Scope 1 & 2 CO2e emissions for Scotland
		Network-wide Scope 1 & 2 CO2e emissions
	Carbon footprint reduction	Total carbon emissions from the electricity NR procure at their manned sites
		Total carbon emissions from the gas NR procure at their manned sites
	Carbon intensity of electricity, traction and non-traction	Annual average carbon emissions factor for traction electricity NR supply to train operating companies (market-based)
		Annual average carbon emissions factor for non-traction electricity NR consume (market-based)
		Reduction in non-traction carbon emissions (tCO2e) against CP5 exit baseline
		Reduction in non-traction energy use (kWh) against CP5 exit baseline
Waste		Waste diverted from landfill and re-used
		Waste diverted from landfill and recycled
		Waste diverted from landfill and recovered (converting waste material into energy e.g. composting)

Environmental incidents and Close Calls	Environmental Incidents	Environmental incidents caused by activity of NR or its infrastructure contractors
		Category 1 (major impact) environmental incidents
		Category 2 (significant) environmental incidents
		Category 3 (minor) environmental incidents
		Category 4 (negligible) environmental incidents
		Aggregated number of incidents per 100,000 hours worked
		Category 1 (major impact) environmental incidents per 100,000 hours worked
		Category 2 (significant) environmental incidents per 100,000 hours worked
		Category 3 (minor) environmental incidents per 100,000 hours worked
		Category 4 (negligible) environmental incidents per 100,000 hours worked
	Environmental Close Calls	Environmental events without environmental impact
		Percentage of Close Calls closed out within one month of logging
Sites of Special Scientific Interest		The % of sites in England in favourable or recovering condition
		The number of impactable features within SSSI sites in Scotland that NR manages
		The % of impactable features within SSSIs in Scotland that NR manages in favourable or recovering condition

In addition, NR has developed a scorecard measure, the Environmental Sustainability Index (ESI), as part of this reporting. The aim of this indicator, which is derived from aggregated emissions, energy and waste data, is to provide a single environmental performance score to assess overall performance against sustainable development objectives and against the Environmental Sustainability Strategy.

2.2 Mandate aims and requirements

In the role as Independent Reporter, Arup was appointed by the ORR and NR to undertake a network-wide audit of the system reliability and data accuracy of the reporting for the KPIs for 2019/2020 listed in Table 4. Other reported figures (for other years or forecasts) are considered on an ad hoc basis where it is deemed necessary to support our review.

The processes for managing the KPI reporting are now well-established within NR. Hence, the objective of this review was to measure the system reliability and data accuracy of the KPIs in scope, to ensure data management and reporting is effective, and to identify any potential opportunity for improvement. In addition,

the review provides further insight with respect to the overall strategic approach and reporting scope, based on best practice.

The review was carried out in line with the System Reliability Grading System and Accuracy Grading System shown in Appendix C. It is worth noting that the system reliability assessment was supported by a structured assessment following the reliability criteria listed in Appendix E. For data accuracy, while it was agreed a comprehensive audit could not be conducted to align fully with the Accuracy Grading System, assumptions were taken to derive an indicative score based on findings and checks performed on limited samples of the data. As the assessment is reported for each KPI, the rationale is provided alongside the score, reflecting on the documented findings.

2.3 Report Structure

Section 3 in this report provides the key findings for each of the KPIs. This is presented in a structured way and by topic. Each topic's subsection then presents the assessment that has been made for the individual KPIs in terms of system reliability and data accuracy. Recommendations are then formulated within the subsections and summarised at the end of the report.

Our approach, the summary of meetings conducted, and the glossary terms are presented hereafter.

2.4 Our Approach

This study is designed around assessing the key requirements set out in the Statement of Works, for each KPI in scope:

- The processes and procedures by which NR captures data and targets workplace interventions, as well as all relevant documentation and systems;
- The calculations used to derive the measures, including the validity of any assumptions, the appropriateness of any conversion factors, and the completeness of input data;
- The reliability, quality, consistency, completeness and accuracy of reported data;
- Recommendations on how the reporting process can be improved; and
- In addition, the study integrates further recommendations reflecting on best practice and providing recommendations on how the reporting could potentially be improved from that perspective in view of NR's Environmental Sustainability Strategy

Our approach is outlined in the process maps on page 15.

Figure 1: Inception and engagement process.

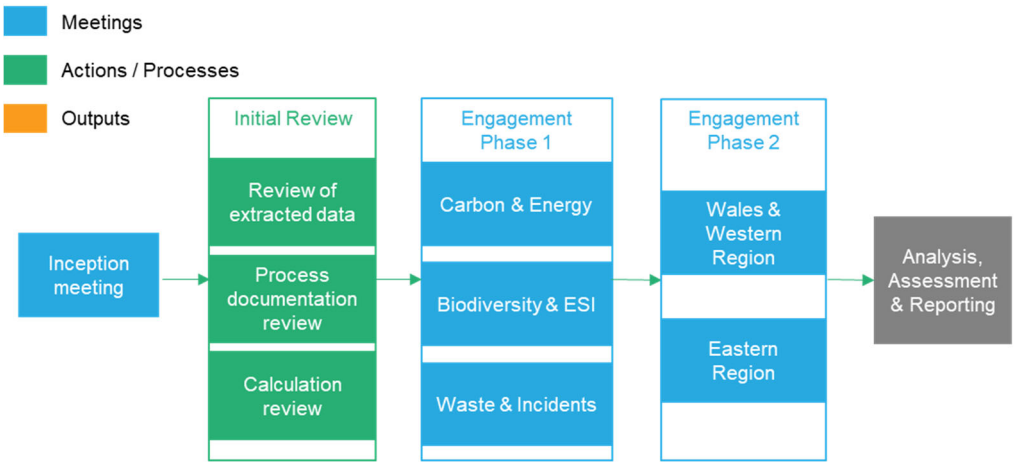


Figure 2: Analysis, assessment, and reporting process.

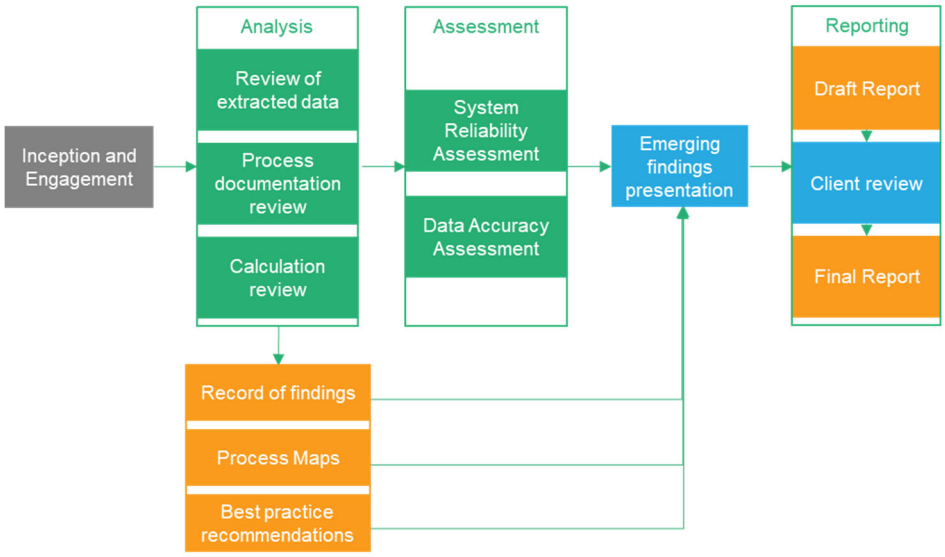


Table 5 lists the meetings which were held during the review process to inform the assessment, and to ensure continuous communication between the reporting team, NR and ORR. As part of the engagement process, a series of relevant documents around each KPI was provided by the different teams and staff involved. A full list of files supplied is included in Appendix D.

Table 5: Meetings held during this review

Date	Who	Purpose
22/04/21	Core NR-ORR team	Kick-Off Meeting
12/05/21	Martyn Clark, Alan Bullock, Rossa Donovan	Energy and Carbon Topic Meeting
13/05/21	Neil Strong, Rossa Donovan	Biodiversity and ESI Topic Meeting

13/05/21	Naomi Sandford-De Quincey, Jordan Stanley, Rossa Donovan	Waste and Incidents Topic Meeting
17/05/21	Paul Clark, Felix Chamberlain, Adam De Benedictis	Wales and Western Region Meeting
19/05/21	Kellie Naylor, Iain Scott	Eastern Region Meeting
26/05/21	Core NR-ORR team	Emerging Finding Presentation
10/06/21	Core NR-ORR team	Review Meeting

2.5 Glossary of Terms

Table 6 provides a description of the standard rail industry, sustainability and environmental acronyms and abbreviations used in this report.

Table 6: Glossary of Terms

Abbreviation	Description
CEH	Centre for Ecology and Hydrology
CO_2e	Carbon dioxide equivalent
CP	Control Period
DCP	Designated Competent Person
DRSAM	Director of Route Safety and Asset Management
ESI	Environmental Sustainability Index
EWC	European Waste Catalogue
HoRSHE	Head of Route Safety, Health and Environment
HSEA	Health Safety Environmental and Assurance
KPI	Key Performance Indicator
kWh	Kilowatt hours
NTfT	Non-traction from Traction
NR	Network Rail
ORR	Office of Rail and Road
PR	Periodic Review
SCO	Supply Chain Operations
SMIS	Safety Management Intelligence System
SHEP	Safety, Health & Environment Performance
SNCO	Statutory Nature Conservation Organisations
SMIS	Safety Management Intelligence System
SSSI	Site of Special Scientific Interest
UN SDGs	United Nations Sustainable Development Goals

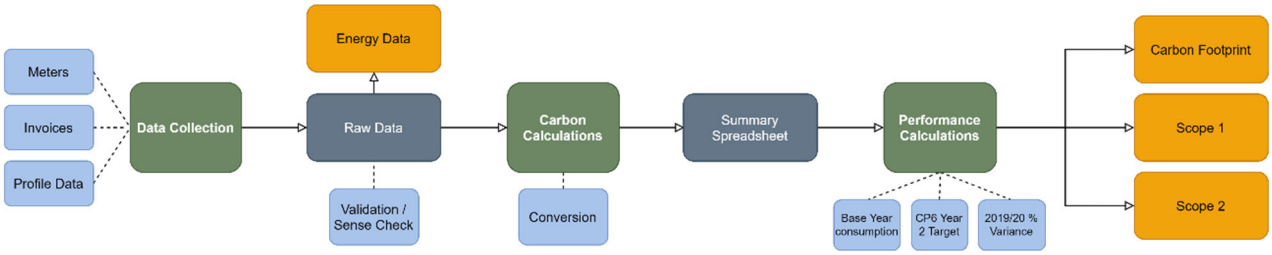
3 Findings, Assessment and Recommendations

This section reports our key findings, assessment and recommendations for each KPI in scope of this review – where relevant, KPI scores have been grouped per aspect. For example, Scope 1 & 2 emissions includes three KPIs in total but those all bear the same assessment and conclusions. This is detailed for each aspect in the subsections hereafter.

3.1 Energy and Emissions

The reporting process for the Energy and Emissions KPIs is relatively straightforward and relies on energy consumption figures extracted by the Energy Bureau from the internal reporting system. A series of steps then occurs to derive the figures ultimately reported in Tables 59 and 60 of the Annual Return. The overall reporting process for those KPIs, which takes place within an internal excel spreadsheet tool called 'NR Emissions Reporting Tool v4.0' is summarised in the below process map (Figure 3).

Figure 3 Reporting process map for the Energy and Carbon KPIs



Data collection is done via meters, invoices and profile data and inputted directly into the NR internal reporting platform. It is assumed that these data are appropriately reported until extracted from the system (next step) and does not affect our assessment.

The Energy Bureau extracts the centrally stored data which are compiled in the Reporting Tool v4.0 – consisting of raw energy consumption figures. The data are then listed in the 'Energy Data' sheet within the Reporting Tool. The data are split by each separate route (Anglia, LNE &EM, LNW, Scotland, South East, Wales, Wessex, Western and others) and the 13 4-week periods which make up the financial year 2019/2020 – the figures are broken down in terms of electricity (kWh), gas (kWh), non- traction from traction (NTfT) (kWh), and NTfT wash-up processes for missing data (kWh).

Validation and sense checks occur at this stage in two ways;

- The Central team performs checks and investigates any outlier or figures which might seem off expectations. Overall, we found the process for conducting those checks appropriate. As part of this process step,

assumptions are taken for the NTfT wash-up processes to resolve missing data in reporting period 13.

- Most NTfT sites have sub-meters but issues do occur in the data collection process through the central reporting system. Most NTfT sites have one and sometimes two alternative supplies to feed the same assets. The NTfT wash-up processes are used to visualise the available data for each site and then estimate the missing consumption. The specific assumption behind this process step could not be verified in further detail but is deemed appropriate and of low risk given the small proportion of this figure compared to the total.

- Communication then occurs with the Regions with the aim for them to sense-check the data and flag any potential issues. As part of our engagement with the Regions teams, we understand that their involvement in this process steps is limited and is not subject to any formal requirements. This poses a risk of inconsistency in the way the checks are conducted and reported back. Our review also found that the Regions conduct their own extraction and analysis of the data to inform operational decisions – in the context of regional devolution with no requirements or guidance from the central team, this poses a potential risk to the way the decisions ultimately contribute to NR's wider strategic objectives. We did however note that the Regions seem to have the adequate resources to conduct these tasks.

From this step, energy data are ready for reporting in the form of regional energy consumption figures split by route, region and period – making up the data points within the Reporting Tool v4.0 from which emissions data are compiled.

Carbon conversion factors are then applied to obtain Scope 1 and Scope 2 emissions figures, in line with official UK Government Greenhouse Gas Conversion Factors for company reporting in 2019. Final carbon values are then aggregated within the 'Region Carbon' spreadsheet and reported by energy consumption type (gas, fuel, electricity). This is done correctly and following the official guidance. The final figures are then summarised in a summary sheet within the Reporting Tool v4.0.

The carbon reduction figures are then derived and reported distinguishing between values for electricity and gas. Carbon intensity of electricity is then reported distinguishing between traction electricity NR supply to train operating companies (market-based) and for non-traction electricity NR consume (market-based). The value is reported as zero because the electricity comes from nuclear or REGOs.

Finally, the variance ratios reported for reduction in non-traction carbon emissions (tCO_2e) against Control Period (CP)5 exit baseline and non-traction energy use (kWh) against CP5 exit baseline are computed on that basis. Those are executed within the Reporting Tool correctly.

3.1.1 System reliability assessment

Overall, the quality of the reporting process is robust, and the datasets and computations across the different steps are correctly linked together. Our

verification steps through the process described above show that the reporting tools in place enable NR to appropriately report on carbon emissions although there are gaps which pose some risks for reporting.

The main risk comes from the fact that raw data and tracking of steps in the calculation methodology is not documented or streamlined, which poses a risk for continuity and consistency for reporting as well as for implementation of strategic objectives. In the context of the devolution of management to the regions, the lack of overall processes and requirements might indeed pose an issue in the way data are processed and used to inform management decisions.

Linked to the above, several assumptions taken at different steps of the reporting process are not adequately documented and cannot be readily verified. The lack of documented procedures and data records resulted in some of the identified gaps not being possible to review. When taken at face value the process holds well together.

On this basis the score assigned for the system reliability is a B, as illustrated in Table 7 below.

Table 7: System Reliability assessment grade for the Energy and Carbon KPIs

System reliability band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Appendix E1 provides a detailed assessment of the reporting system reliability for the Energy and Emissions KPIs following a set of defined criteria, which supports the overall score given and reported in the above table.

3.1.2 Data accuracy assessment

Scope 1 & 2 CO_2e emissions (Table 59)

Scope 1 & 2 CO_2e emissions data are ultimately reported as a total in tonnes for England & Wales and Scotland in Table 59 of NR's annual tables. Table 59 also reports the aggregated figures network-wide by simply adding both categories' figures. Table 8 reports the content of the Annual Return Table 59 – the data in scope of review are the ones reported under 2019/2020.

Table 8: Scope 1 and Scope 2 emissions KPIs

Annual Return Table 59: Scope 1 & 2 CO2e emissions	Reporting unit	2019/2020
England & Wales	tCO_2e	184,439
Scotland	tCO_2e	18,543
Network-wide	tCO_2e	202,982

Based on the review and verification done though the reporting tool, there is no reason to assume that the data are not correctly reported, i.e. by looking at the data and calculations taken within the tool. However, the lack of documented procedures and explanations against steps and assumption taken limit the confidence and the review's ability to give it the maximum score – data accuracy for those KPIs has thus been rated at 1 as shown in Table 9 below.

Table 9: Data Accuracy assessment grade for Scope 1 and 2 CO_2e emissions KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

Carbon footprint reduction (Table 60)

Carbon footprint reduction performance is ultimately reported network-wide in Table 60 of NR's Annual Return tables, through the set of KPIs presented in Table 10 below.

Table 10: Carbon footprint reduction KPIs

Annual Return Table 60: Carbon footprint reduction			Reporting unit	2019/2020
Network-wide	Carbon footprint reduction	Total carbon emissions from the electricity NR procure at their manned sites	tCO_2e	128,459

		Total carbon emissions from the gas NR procure at their manned sites	tCO_2e	12,464
	Carbon intensity of electricity, traction	Annual average carbon emissions factor for traction electricity supplied to train operating companies (market-based)	tCO_2e/kWh	0
	Carbon intensity of electricity, non-traction	Annual average carbon emissions factor for non-traction electricity consumed (market-based)	tCO_2e/kWh	0
	Reduction in non-traction carbon emissions (tCO_2e) against CP5 exit baseline		%	-0.061
	Reduction in non-traction energy use (kWh) against CP5 exit baseline		%	-0.002

Overall, the carbon footprint reduction reported for those KPIs builds on the carbon emissions figures compiled from energy consumption data, which is robust and correctly linked across calculation steps, enabling NR to appropriately report on those aspects. However, due to the lack of documented procedures and evidence, the review is limited to the provision of a maximum data accuracy score for those KPIs.

For the Carbon Footprint Reduction KPIs, looking at carbon emission from electricity and energy, this means a score of 1 was given, as shown in Table 11 below.

Table 11: Data Accuracy assessment grade for Carbon footprint reduction – total carbon emissions from gas and electricity produced at manned sites KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

For the Carbon Intensity indicators, based on the findings documented above, and as the assumptions behind the calculation have been well understood although no evidence was required as part of this scope, a score of 1 was also provided as shown in Table 12 on page 22.

Table 12: Data Accuracy assessment grade for Carbon intensity KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

For the reduction in carbon emission and energy use ratio, the process steps are straightforward with the reported figures directly derived from the data within the Reporting Tool v4.0. A score of 1 was therefore assigned to these two KPIs following the same reasoning followed for the Scope 1 and 2 emissions KPIs – this is shown in Table 13.

Table 13: Data Accuracy assessment grade for carbon and energy use ratio KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

3.1.3 Appreciation against best practice

Reporting and procedures

Develop a formal documentation of reporting procedures describing the whole reporting process for all energy and emissions KPIs, from data extraction to the Annual Return figures. For each step, a clear description of the data source used, and a detailed description of the related tasks should be provided – the process map in Figure 3 gives a good indication as to how this should be structured. Roles and responsibilities should also be documented along with any assumption taken in the methodology employed. Best practice guidance such as ISO14001 is useful to refer to when shaping such process and procedures.

A formal documentation of reporting procedures will address the current risks to reporting continuity by providing a clear record of the different tasks which can then be more easily communicated and e.g. passed to new colleagues. It will furthermore support any review and audit activities in a more efficient way and facilitate communication across departments and with staff involved. The documentation of any assumption through formal procedures will also support transparency of the reporting and facilitate any potential future improvements or refining of the reporting methodology.

There is also an opportunity for formalised procedures to integrate the role of the regions in the reporting and/or in the way the data should be used, in alignment with the NR devolution agenda. They could potentially include a set of minimum requirements for the Regions teams to support the data validation activities and provide further certainty for data accuracy in particular. It would also be an opportunity to use the NR resources and competencies more efficiently and to identify and communicate on best practice throughout the organisation,

The procedures should also document any internal audit or review requirements for all KPIs, specifying associated roles and responsibilities and the frequency of these activities. This process should include procedures for reflecting on past reporting and enable NR to update the procedures as appropriate when needed. The role of the Independent Reporter scope of works should be integrated in this process along with a review of associated review reports. As mentioned above, this internal review process should also involve the Regions for the review and validation of the data.

The development, validation and continual review of clearly documented procedures will ensure these remain relevant over time. This will thus foster continual relevance and improvement of the reporting process. A more formal review process (involving the Regions) would also support the coordination of activities to address gaps in the data verification such as where assumptions are applied and cannot readily be investigated (as was the case for the wash-up processes used for reporting on emissions for Traction from Non-Traction in period 13).

Presentation format

Specifically, for the KPIs under Table 60: Carbon footprint reduction – reduction in non-traction carbon emissions and energy use against CP5 exit baseline, as the % figures provided for the reduction in respectively carbon emissions and in energy use in non-traction against CP5 exit baseline are based off the emission figures reported under Table 59 and underlying energy data, we would suggest these figures are reported under Table 59. Alternatively, the link between data reported under the two tables should be made clearer so that it is easier to follow where the changes to the percentages used occurs. A clearer articulation of what the percentage indicators relate to will further facilitate the analysis of trends and the effectiveness of reduction activities year-on-year.

Collaboration with the regions

We note in our engagement steps that the Regions teams have their own staff looking at the data to inform decisions at the regional level. Some of them have developed a strong capacity and are exploring different ways of reporting, such as the Wales & Western team, through dynamic dashboards which can be tailored to different reporting needs. It would be valuable to foster more engagement and exchange between the regions and with the central teams, to ensure that available knowledge and expertise can benefit all of NR.

KPIs and metrics used

Energy and emissions reporting has become one of the prominent sustainability aspects for many organisations including in infrastructure and rail. Drivers for this are numerous and include investor, customers, and civil society expectations as well as policy trends. Furthermore, it bears commercial value as stakeholder decisions increasingly integrate climate change and environmental sustainability. The rail industry has an inherent opportunity to satisfy many of the associated stakeholder expectations.

As such, NR's current data management enables them to adequately report on energy and emissions, including the Environmental Sustainability Strategy. However other organisations also report on other or additional KPIs which could be considered by NR. Those include cumulative historical emissions and embodied carbon. Furthermore, there could be an opportunity to report on different levels of detail, for example by distinguishing different operations and types of emissions sources along the railway.

Science-based targets

It is noted that NR have committed themselves to wider sustainable development goals and is the first railway organisation in the world to set ambitious science-based targets to cut carbon emissions and help limit global warming to 1.5°C. It is also noted that they are working in partnership with their supply chain to become more environmentally sustainable and aiming for 75% of their suppliers, when measured by their emissions, to have adopted science-based targets by 2025. Based on this, it would be opportune to better represent how the performance reported in the Annual Return contribute to these targets and provide an indication of the extent to which NR is on track to reaching them.

3.1.4 Recommendations

Based on the findings of our review and reflecting on the assessment scores, we have developed the following recommendations with the aim to provide actionable guidance in order for NR to move to a maximum score around both system reliability and data accuracy:

Table 14: Energy and emissions KPIs recommendations

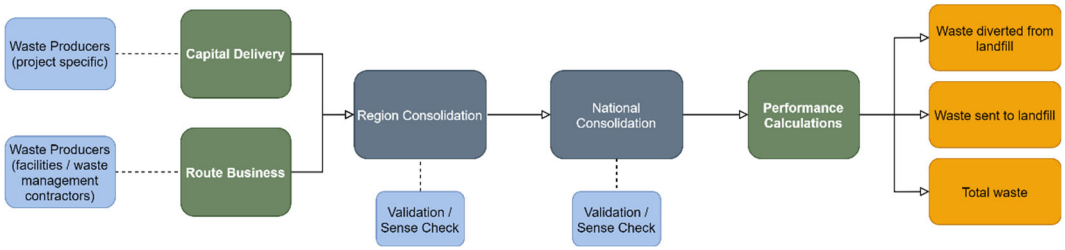
Recommendations	Priority (High – Medium – Low)
Develop a formal documentation of reporting procedures describing the whole reporting process for all energy and emissions KPIs, from data extraction to the Annual Return figures. For each step, a clear description of the data source used, and a detailed description of the related tasks should be provided – the process map in Figure 3 gives a good indication as to how this should be structured. Roles and responsibilities should also be documented along with any assumption taken in the methodology employed. Best practice guidance such as ISO14001 is useful to refer to when shaping such process and procedures.	High
The procedures should document any internal audit or review requirements for all KPIs, specifying associated roles and responsibilities and the frequency of these activities. This process should include procedures for reflecting on past reporting and enable NR to update the procedures as appropriate when needed. The role of the Independent Reporter scope of works should be integrated in this process along with a review of associated review reports. As mentioned above, this internal review process should also involve the Regions for the review and validation of the data.	High
Development, validation and continual review of clearly documented procedures that will ensure these remain relevant over time. This will thus foster continual relevance and improvement of the reporting process. A more formal review process (involving the Regions) would also support the coordination of activities to address gaps in the data verification such as where assumptions are applied and cannot readily be investigated (as was the case for the wash-up processes used for reporting on emissions for Non-Traction from Traction in period 13).	Medium
Formalise procedures to integrate the role of the regions in the reporting and/or in the way the data should be used, in alignment with the NR devolution agenda. They could potentially include a set of minimum requirements for the Regions teams to support the data validation activities and provide further certainty for data accuracy. It would also be an opportunity to use the NR resources and competencies more efficiently and to identify and communicate on best practice throughout the organisation.	Medium
For the KPIs under Table 60: the figures for "Reduction in non-traction carbon emissions and energy use against CP5 exit baseline" are reported in % and are based off the	Low

emission figures reported under Table 59 and underlying energy data. We suggest that, as they are referring figures from Table 59, they are reported under the latter Table. Alternatively, the link between data reported under the two tables should be made clearer so that it is easier to follow where the changes to the percentages used occurs. A clearer articulation of what the percentage indicators relate to will further facilitate the analysis of trends and the effectiveness of reduction activities year-on-year.	

3.2 Waste

Total waste quantity, waste quantity diverted from landfill (distinguishing through different KPIs between waste re-used, recycled, and recovered) and waste quantity sent to landfill is reported in Table 61 of the Annual Return. The process map in Figure 4 presents the reporting process that takes place for the Waste indicators.

Figure 4: Reporting process map for the waste indicators



The source data is supplied by the waste producers and the business units. The waste data are reported in waste tonnages, sent for reuse, recycling, recovery, and disposal. The waste management route taken by any specific waste stream is determined by the waste producer. This is documented and the reporting is compiled within an Excel spreadsheet. Waste producers are required by law to manage waste in accordance with the waste hierarchy, and this is part of their waste Duty of Care requirements[2].

Clear definitions on reuse, recycling, recovery, and disposal are provided by NR, allowing the minimisation of any ambiguity when it comes to waste producers determining the waste management route for various waste streams. Nonetheless, there is a remaining likelihood that waste producers may interpret and report some waste destinations differently (e.g. reporting landfill restoration under reuse activities).

Waste quantity data is 'gross' and assumes all waste sent down a specific management route is wholly dealt with via that route. In reality, this may not be the case. For instance, there may be rejects/residues from a waste stream sent for recycling which may then be sent to a destination other than recycling (likely to be recovery or disposal).

It is important to note that the process for quantifying waste movements is unclear. No information has been provided as to how waste quantities have been obtained, including any density conversion factors used to estimate quantities in tonnage from quantities originally reported in volume. Therefore, reporting relies on the waste producers carrying out accurate density conversions – this review does the same and relies on the assumption that the source data is correctly reported to NR.

Meanwhile, it is understood that the weight data supplied is a combination of actual weight records and estimates based on past weight records. The reliance on estimates seems to predominate, which might ultimately challenge data accuracy.

[2] Department for Environment Food & Rural Affairs (2018), *Waste duty of care: code of practice*, Available from: https://www.gov.uk/government/publications/waste-duty-of-care-code-of-practice/waste-duty-of-care-code-of-practice (Accessed 11 June 2021).

The assumption in itself is sound – but there might be an opportunity to improve on this.

A series of consolidation and validation steps occur to sense check this information, which provides comfort with respect to the reliability of the figures provided. These steps occur at both a regional and central level of the NR organisation. In both instances, the data is reflected upon, and any unexpected figures or outliers are then investigated to ensure they are sensible with respect to the reality of the activities. Outlier data contributing to below-minimum performance are reported. Through our engagement this has proven to be done sensibly with NR (central and Regions teams) relying on adequate capability.

Fly-tipping creates a significant volume of waste for NR and is partially captured within the system. When fly-tipping is collected by internal business units, it is covered within the weight reports, but the system does not capture the quantity or final destinations of individual fly-tips.

The data are then compiled within the NR excel reporting tool and calculations are applied to be able to report on the KPIs in Table 61. This is done in a correct manner and poses no issue in terms of the steps taken, which enable NR to report on waste appropriately.

Overall, the reporting lacks a streamlined and formally documented process. This poses a risk for continuity and consistency for future reporting, as well as for the implementation of strategic objectives.

For instance, a tracker of all actual waste movements has not been provided, therefore, the review process has not taken into consideration raw data on waste movements. It is expected that raw data trackers/databases shall include the information listed in Section 3.2.4. In addition, it is unclear in which way and how often waste producers are checked in terms of compliance with their waste Duty of Care requirements, including:

- Challenging any incidents where the waste hierarchy is not being followed, as appropriate;
- Ensuring that if any outliers are identified (which are confirmed to have been correctly reported following the validation process) they are queried to ensure that there is a clear understanding of why they have happened, and rectified, if and as necessary;
- Checking that waste producers' hand-over the waste to appropriately licenced waste carriers, which in turn send the waste to appropriately permitted or exempt waste management operations;
- Checking that any waste managed on-site by various waste producers (e.g. in a reuse activity) has an appropriate permit or exemption, and follows the necessary quality protocols, where appropriate;
- Checking that non-hazardous waste transfer notes and hazardous waste consignment notes are produced appropriately for the various waste movements, and that these are retained by the waste transferors and transferees for at least two years (for transfer notes) and three years (for consignment notes);

- Ensuring that fly tipping incidents are appropriately monitored and reported, but also that appropriate training, surveillance, and containment measures are put in place to minimise fly tipping issues; and
- Checking that information on proportional ratios for waste being reused, recycled, and recovered are received for all waste movements from waste carriers, accompanied by the appropriate evidence (waste tickets).

3.2.1 System reliability assessment

Based on the above observations, the overall data reporting process, with the supply of source data by the waste producers, is sound and thus enables NR to report appropriately on all waste KPIs.

A reliance on estimates for the reporting in the current period, based on past weight records, tends to show there could be improvement brought to the process to increase the reliability and accuracy of the reporting. The reliance on waste producer's data also limits the degree of control on the data that is provided at the source to compile the indicators ultimately reported in the Annual Return Table 61.

Based on these observations, the system reliability was assessed and given a score of B, as shown in Table 15 below.

Table 15: System Reliability assessment grade for Waste KPIs

System reliability band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Appendix E2 provides a detailed assessment of the reporting system reliability for the waste KPIs following a set of defined criteria, which supports the overall score given and reported in the above table.

3.2.2 Data accuracy assessment

All waste KPIs are reported based on the reporting process described above and ultimately summarised in the Annual Return Table 61 as per Table 16 on page 30.

Table 16: Waste KPIs

Annual Return Table 61: Waste		Reporting unit	2019/2020
Network-wide	Waste diverted from landfill - Re-used	Tonnes	564,581.14
	Waste diverted from landfill – Recycled	Tonnes	1,464,121.46
	Waste diverted from landfill – Recovered	Tonnes	72,619.91
	Waste sent to landfill	Tonnes	34,238.29
	Total waste	Tonnes	2,135,560.79
	Diverted from landfill	Tonnes	2,087,103.62
	Waste re-used or recycled	%	95
	Non-hazardous waste diverted from landfill	%	97.7

As mentioned above, there is a lack of clarity on the degree at which waste tonnages have been estimated in relation to actual weighted figures, which suggest that there are weaknesses in the data accuracy. The same applies to proportional ratios for waste reused, recycled, and recovered.

The proportion (in %) of various waste streams reported as being reused, recycled, and recovered via a certain route is in many cases reliant upon past data obtained from the various waste carriers. For instance, it may be assumed that if 78% of the waste sent to a specific facility ended up being recycled on a given occasion, then the same proportion of waste would be recycled at the same facility on a different occasion. Assuming that the composition of the waste following certain waste routes, management routes and destinations remains consistent, then this approach is not invalid, although in practice it is likely to decrease the accuracy of the results.

Proportional ratios (%) are calculated and reported for waste reused or recycled as well as for non-hazardous waste diverted from landfill. Those are compiled directly from the waste quantity figures following an appropriate process that is easy to trace in the internal reporting system.

Based on these observations, the data accuracy was assessed and given a score of 2, as shown in Table 17 below.

Table 17: Data Accuracy assessment grade for Waste KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%

X	Data accuracy cannot be measured

3.2.3 Appreciation against best practice

Reporting and procedures

The reporting lacks a streamlined and formally documented process. This poses a risk for continuity and consistency for future reporting, as well as for the implementation of strategic objectives.

For instance, a tracker of all actual waste movements has not been provided, therefore, the review process has not taken into consideration raw data on waste movements. It is expected that raw data trackers/databases shall include the following information listed in Section 3.2.4. In addition, it is unclear in which way and how often waste producers are checked in terms of compliance with their waste Duty of Care requirements, including:

- Challenging any incidents where the waste hierarchy is not being followed, as appropriate;
- Ensuring that if any outliers are identified (which are confirmed to have been correctly reported following the validation process) they are queried to ensure that there is a clear understanding of why they have happened, and rectified, if and as necessary;
- Checking that waste producers' hand-over the waste to appropriately licenced waste carriers, which in turn send the waste to appropriately permitted or exempt waste management operations;
- Checking that any waste managed on-site by various waste producers (e.g. in a reuse activity) has an appropriate permit or exemption, and follows the necessary quality protocols, where appropriate;
- Checking that non-hazardous waste transfer notes and hazardous waste consignment notes are produced appropriately for the various waste movements, and these are retained by the waste transferors and transferees for at least two years (for transfer notes) and three years (for consignment notes);
- Ensuring that fly tipping incidents are appropriately monitored and reported, but also that appropriate training, surveillance, and containment measures are put in place to minimise fly tipping issues; and
- Checking that information on proportional ratios for waste being reused, recycled, and recovered are received for all waste movements from waste carriers, accompanied by the appropriate evidence (waste tickets).

Types and metrics used

The overall non-hazardous landfill diversion reported for 2019/2020 (see Table 16), is approximately 98%, which is in line with industry best practice. However, it should be noted that it is common for projects to achieve over 99% landfill diversion for non-hazardous construction, demolition, and excavation waste.

While waste metrics used are good practice, it is suggested that they might be revised to focus on materials and resources, with consideration given to the following:

- Proportion (%) of recycled/ secondary content in construction materials;
- Waste generation rates (e.g. tonnes/m^2);
- Proportion of waste reduction achieved (%) relative to a chosen baseline (e.g. tonnes/m^2); and
- Reporting separately on proportion (%) of waste reused and proportion of waste recycled.

In addition, local authorities used to report recycling rates based on 'gross' tonnage but now apply agreed 'wastage' rates to account for contamination that, ultimately, finds its way to lower tier waste management routes on the waste hierarchy (i.e. recovery and disposal, instead of reuse and recycling).

We understand that a Circular Economy KPI is in development and planned to be implemented by 2024 – these considerations could be integrated as part of this indicator development.

3.2.4 Recommendations

Based on the findings of our review and reflecting on the assessment scores, we have developed the following recommendations with the aim to provide actionable guidance in order for NR to move to a maximum score around both system reliability and data accuracy:

Table 18: Waste KPIs recommendations

Recommendations	Priority (High – Medium – Low)
Clarify the methodology by which waste quantities have been obtained for each waste stream for each date reported. This shall include any waste density conversion factors used. This should be documented in procedures to ensure process is clearly defined and can be passed to colleagues as necessary. This should include documentation on the methodology and assumptions taken notably with respect to the reliance on estimates.	High
Carry out reviews of the waste logs of all waste producers to ensure that the destinations reported are indeed correct (e.g. if a waste stream for a specific date is reported as being sent for a reuse activity, checking that this has been identified correctly).	Medium
Ensure that the % by weight for each waste stream reported to have been recycled or recovered, excludes any rejects/residues, which should be covered elsewhere (e.g. disposal), according to where their final destination was.	Medium

Ensure that waste producers keep logs (e.g. a waste register) of daily waste movements, whereby different waste streams are logged separately on a daily basis, according to their European Waste Catalogue (EWC) code, with specific information on waste destinations (including facility type, operator and address), destination type (reuse, recycling, recovery, disposal), quantity (reported in a consistent unit, such as tonnes/day) and information provided with regards to any density conversions applied. This can be implemented through specifying supplier requirements for example.	Low
Consider the inclusion of more/ different metrics focusing on materials and resources, and the upper tiers of the waste hierarchy (prevention and reuse)	Low

3.3 Environmental incidents and Close Calls

For the review of environmental incidents and close calls, data for 2020/2021 was analysed, as the detailed data including breakdown of performance across the network was provided for this time period. Environmental incidents and close calls are reported in the Annual Returns under the following KPIs:

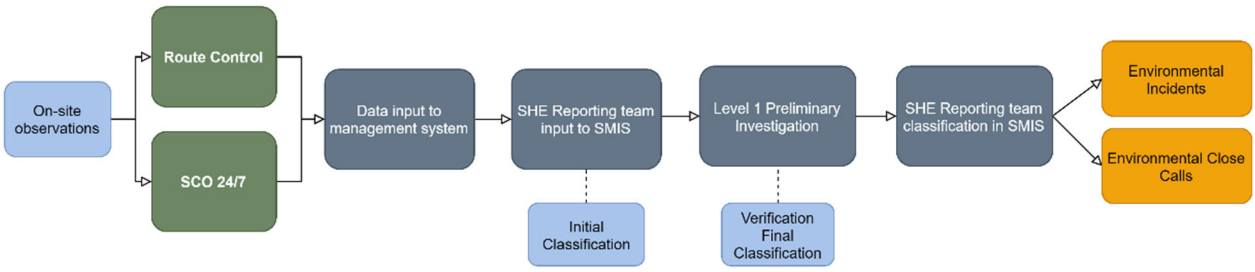
- Number of environmental incidents caused by activity of NR or its in infrastructure contractors
- Number of environment incidents classified by category informing on their significance (major impact, significant, minor and negligible)
- Environmental incidents per 100,000 hours works, aggregated and distinguished between the categories mentioned above
- Environmental close calls are reported through a KPI showing the number of environmental events without environmental impacts.

The Annual Return has stated that the environmental incident data are not accurate due to inconsistency and compatibility issues related to the introduction of SMIS last year.

It is also stated that the percentage of close calls closed out within one month of logging is no longer recorded as a metric and so has not been considered further in this review.

The overall reporting process for the KPIs is summarised in the below process map. We note however the new guidance recently developed for environmental incidents and close calls will provide further detail. Figure 5, therefore mainly informs the assessment for the reporting period in scope.

Figure 5: Reporting process map for the environmental incidents and close calls



Environmental incidents and close calls data are observed on site and reported through a series of steps where individual incidents and close calls are logged and categorised.

3.3.1 System reliability assessment

Our review has identified concerns in terms of the system reliability grading of the reported environmental incidents 2020/2021 data reviewed, specifically regarding a lack of previous guidance for categorisation of incidents and a lack of evidence of end-to-end process documentation for this metric, both of which should, moving forward, be improved through the introduction of the *Network Rail Environmental Incident & Close Call Guidance Note (2021)*.

There are a number of Network Rail procedures and forms that provide process information for reporting and recording environmental incidents (as outlined below) however there was no end-to-end process outlining the overall incident management process from incident occurring to close out and reporting and analysis of incident data:

- *NR/L3/INV/3001/902– Reporting of Accidents, Incidents and Occupational Health*
- *NR/L3/OPS/O45/41.14 Control of Environmental Incidents Procedure Issue: 02, Date: 02/12/17* which outlines the process for assessing and dealing with environmental incidents and spillages to minimise environmental damage and deliver a response.
- *NR/L3/OPS/045/F4.14A Environmental Incident Report Form*
- *NR/L2/OPS/250 Network Rail National Emergency Plan*
- *NR/L3/OHS/0046 The Reporting, Investigation and Recording of Safety and Sustainable Development Events and Close Calls, Issues: 03, Date: 02/06/18*
- *NR/L3/INV/3001 Reporting and Investigation Manual*

Following the occurrence of an environmental incident, they are reported to Route Control or SCO 24/7 who input the details into their relevant incident management system (e.g. IRIS, iTracker, CCIL) and it is assigned an initial classification by the SHE Reporting Team within 5 days of the incident occurring prior to an appropriate level of investigation.

All environmental incidents are currently entered into the RSSB reporting SMIS tool as ‘Environmental Contamination’. The SMIS systems records details of the incidents that have occurred, however SMIS doesn’t currently identify:

- **Reporter:** a responsible person on site who can be contacted to follow up actions taken to immediately respond to the incident.
- **Investigator and Designated Competent Person (DCP):** those who are undertaking the investigation and the DCP are not identified in SMIS, therefore it is difficult to determine who to contact to discuss any actions taken and close out of investigations.
- **Notification:** There is no automatic notification to NR Route HSE Specialist, Route Environment Specialist or Route Environment Managers

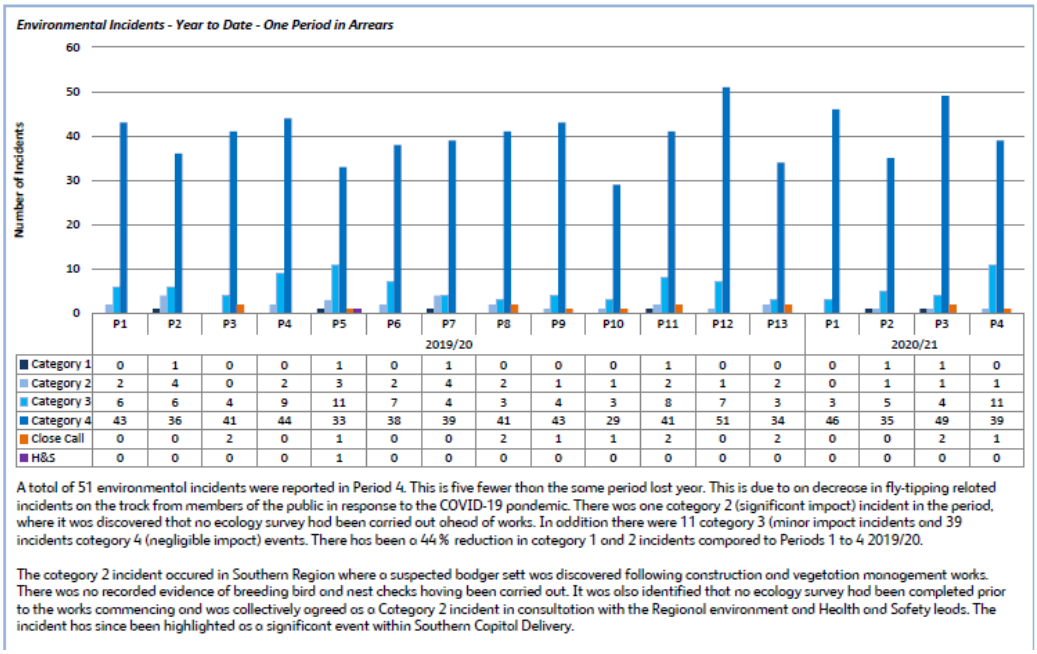
that incidents have occurred therefore it is difficult for local teams to have early visibility of incidents as they occur.

- **Investigation and close out reminders:** whilst the incident manual states that the SMIS event record shall be updated to include details of the investigation and its progress, in practice the internal stakeholder engagement outlined that this step was often not undertaken and there is therefore a lack of visibility making it difficult to ensure environmental incidents are adequately closed out and lessons learnt are shared and disseminated. Depending on the category of incident different level of investigation are undertaken, with Category 1, 2 and 3 incidents an initial report must be taken within 5 working days, for Category 4 incidents the SHE Reporting Team are responsible for confirming the assignment of the category within 10 working days of the incident occurring. There are no workflows or notifications within SMIS to remind those responsible for uploading environmental incident investigations within the required timeframes, including close out actions, route causes and lessons learnt.

The reported environmental incidents are then centrally compiled via an internal reporting tool in an excel spreadsheet. At the end of each period the environmental incident and close calls data for each route is reported at a local level 1 period in arrears in:

- **SHEP Reports:** outline (and stand for) Safety, Health and Environment Performance, including numbers of environmental incidents and close calls by impact category and includes commentary, these are shared with Regional Managing Directors, Route Manging Directors, Directors of Safety, DRSAMs, COOs, HoRSHE's, and key contacts; and
- **TA Directorate Pack:** additional detailed commentary is provided for the Chief Environment & Sustainability Officer to support the TA Opex Meeting including details of actions taken to address environmental incidents (Cat 1, 2 and 3).

Figure 6: Example SHEP Report: Overview of number of incidents and close calls by category level.



	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P1	P2	P3	P4
	2019/20													2020/21			
Category 1	0	1	0	0	1	0	1	0	0	0	1	0	0	0	1	1	0
Category 2	2	4	0	2	3	2	4	2	1	1	2	1	2	0	1	1	1
Category 3	6	6	4	9	11	7	4	3	4	3	8	7	3	3	5	4	11
Category 4	43	36	41	44	33	38	39	41	43	29	41	51	34	46	35	49	39
Close Call	0	0	2	0	1	0	0	2	1	1	2	0	2	0	0	2	1
H&S	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

A totol of 51 environmentol incidents were reported in Period 4. This is five fewer thon the some period lost yeor. This is due to on decreose in fly-tipping reloted incidents on the trock from members of the public in response to the COVID-19 pondemic. There wos one category 2 (significont impoct) incident in the period, where it wos discovered thot no ecology survey hod been corried out ohead of works. In oddition there were 11 cotegory 3 (minor impoct incidents ond 39 incidents cotegory 4 (negligible impoct) events. There hos been o 44% reduction in cotegory 1 ond 2 incidents compored to Periods 1 to 4 2019/20.

The cotegory 2 incident occured in Southern Region where o suspected bodger sett wos discovered following construction ond vegetotion monogement works. There wos no recorded evidence of breeding bird ond nest checks hoving been corried out. It wos olso identified thot no ecology survey hod been completed prior to the works commencing ond wos collectively ogreed os o Cotegory 2 incident in consultotion with the Regionol environment ond Heolth ond Sofety leods. The incident hos since been highlighted os o significont event within Southern Copitol Delivery.

Each period the Technical Authority SHE Data & Reporting Analyst pulls the SMIS data to collate the year to date incidents in an excel spreadsheet. This is used for the Annual Return. The central NR Environment and Sustainability team perform checks and investigate any categorised 'unknown' incidents and review categorisation.

Following our review of internal processes and internal stakeholder discussions, overall, the reporting process for incidents was felt to be embedded within the organisation however it is impacted by the current lack of process documentation and ambiguous guidance. The review has shown that the end-to-end process for reporting on the metric contains a high level of manual entries and categorisation. There are a number of procedures and process covering incident management and reporting which outline the initial environmental incident response and reporting process, however there are inconsistencies across these in terms of clear definitions of environmental incidents and close calls and there is no overarching process overview with roles and responsibilities and timeframes outlined. The collation of environmental incident data centrally and reporting is not currently captured in a process or procedure. The process of understanding lessons learnt and reporting and sharing these is also not documented, although there are local examples in regions where the root causes of incidents and lessons have been disseminated and training undertaken.

Our review has further shown that there are many different systems in place for monitoring and reporting on the environmental incidents and the close out and lessons learnt from investigations. Currently the RSSB SMIS reporting tool is used, and it was observed through review of the SMIS reporting form that there could be greater clarity in the SMIS system relating to environmental incident reporting. This was also discussed in our internal stakeholder discussions and NR had already

sought to amend and improve the functionality and recording of incidents of the RSSB SMIS tool, however, improvements have not been actioned to date.

With regards to close calls, limited information on the systems and processes to capture close calls was provided as close calls are managed through HSEA teams. For Maintenance and Operations, guidance on reporting close calls is provided through Safety Central and environmental close calls are raised in the same way as those for safety. For Capital Delivery, Principle Contractors must report environmental close calls periodically in accordance with NR/L3/0HS/0046 – The Reporting, Investigation and Recording of Safety and Sustainable Development Events and Close Calls within Infrastructure Projects for detailed guidance on reporting close calls within Capital Delivery projects.

On the basis of the observations, a score of C was given to system reliability. This is shown in Table 19 below.

Table 19: System Reliability Assessment grade for Environmental incident KPIs

System reliability band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Appendix E3 provides a detailed assessment of the reporting system reliability for the Environmental Incident KPIs following a set of defined criteria, which supports the overall score given and reported in the above table.

3.3.2 Data accuracy assessment

Table 20 below lists all the KPIs for Environmental Incidents and Close Calls, for which the 2020/2021 figures were provided. Those are reported in Table 62 of the Annual Returns and shown here in Table 20.

Table 20: Environmental Incidents & Close Calls KPIs

Annual Returns Table 59: Environmental Incidents and close calls			2020/21
Network-wide	Environmental Incidents	Environmental incidents caused by activity of NR or its infrastructure contractors	632
		Category 1 (major impact) environmental incidents	6
		Category 2 (significant) environmental incidents	3

Annual Returns Table 59: Environmental Incidents and close calls			2020/21
		Category 3 (minor) environmental incidents	82
		Category 4 (negligible) environmental incidents	534
		Aggregated number of incidents per 100,000 hours worked	0.423
		Category 1 (major impact) environmental incidents per 100,000 hours worked	0.004
		Category 2 (significant) environmental incidents per 100,000 hours worked	0.002
		Category 3 (minor) environmental incidents per 100,000 hours worked	0.055
		Category 4 (negligible) environmental incidents per 100,000 hours worked	0.358
	Environmental Close Calls	Environmental events without environmental impact	4,144

The environmental incident data captured by NR includes the category and types of environmental incidents. Environmental incidents are categorised using the following categories:

- Category 1 (major impact);
- Category 2 (significant);
- Category 3 (minor); and
- Category 4 (negligible)

The reviewed data accuracy for 2020/2021 environmental incident data showed an 8% inaccuracy of environmental incident categorisation, that is incidents that were incorrectly categorised.

The incident data also included a further 14% where it was not possible to confirm correct categorisation as limited environmental incident detail was provided in SMIS, for example for spillages the description may state '*A loose hose on the drive motor of a MEWP at Kettering resulted in a hydraulic spillage.'* or for fly tipping the incident details may state '*Fly tipping reported on embankment at Tadworth*'. This does not help establish which category the incident would fall under as there is no estimate of volume of spillage to determine categorisation or commentary on whether the fly tipping had potential to cause environmental pollution or contamination.

Environmental incident type is also denoted across spillages, fly-tipping, protected sites and species, noise, statutory nuisance and with a category called 'Other'. Spillages and fly-tipping are the most predominate incident types accounting for 66% and 27% respectively for the past year 2020/2021, combined they total 93% of the incidents for the year.

The accuracy of the reported data for Environmental Incidents was on this basis given a score 4. This is shown in Table 21 below.

Table 21: Data Accuracy assessment grade for Environmental Incidents KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

This is mainly due to the following issues within the reporting process:

- Firstly, it was noted that the introduction of the SMIS reporting system has led to inconsistencies in registering individual incidents and the level of detail. This is recognised and commented on in the previous Annual Returns. It was noted that this was technically not a SMIS issue, although it could be set up to prompt more information from the reporter to avoid these issues. Alternatively, updated guidance could support a better use of SMIS and limit this issue.
- Secondly, the guidance used to categorise incidents that was in place during the collection of the data analysed, the *Network Rail Environmental Incident Impact Classification Guidance (2014)* incident matrix, has not provided sufficient guidance to avoid ambiguous categorisation, leading to incidents being incorrectly categorised. NR has already recognised this, and a new *Network Rail Environmental Incident & Close Call Guidance Note (2021)* has been produced. This was also recognised through the internal stakeholder engagement, as it was felt that the previous guidance was out of date and lacked clear definitions.
- Thirdly, there is a lack of formal documentation and processes for training of staff. There were a number of entries that were manually entered to SMIS that incorrectly categorised incidents against the current guidance.

With regards the environmental close calls data 2020/2021, these are recorded across the following types: ecology (plants and animals), pollution (dust, oils), waste, nuisance (noise / lighting), control of chemicals / hazardous substances, and substances hazardous to health. Our review comprised a spot check of data entries and there were a number of incorrectly categorised entries, for example spillages and noise complaints were reported as close calls that should have been reported as environmental incidents.

For Close Calls, a score of 3 for data accuracy was given as the data used to calculate the measure could be verified as accurate within 10%. This is shown in Table 22 below.

Table 22: Data Accuracy assessment grade for Environmental Close Calls KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

3.3.3 Appreciation against best practice

Reporting and procedures

Clear guidance will help to support the existing NR incident procedures and enable all those engaged across the railway, including contractors and industry partners, to manage environmental incidents in a more consistent way. It will enable more accurate reporting and analysis of incidents to be carried out, which will assist in identifying trends and strategic actions required to reduce the number and severity of incidents.

NR has already recognised this improvement action and has produced new guidance Network Rail Environmental Incident & Close Call Guidance Note (2021) (draft provided) to replace the previous Environmental Incident Impact Classification Guidance (2014).

End to end environmental incident and close call reporting process and procedure, which provide an overview of the process from incident occurrence to the reporting in the Annual Return, would bring increased understanding of environmental incident management across the organisation and its importance. Clear processes with roles and responsibilities outlined and timeframes and actions would provide a single source of truth for incident management.

An overarching reporting procedure would address the current risks to reporting continuity by providing a clear record of the different tasks which can then be more easily communicated and e.g. passed to new colleagues. It will furthermore support any review and audit activities in a more efficient way and facilitate communication across departments and with staff involved. The documentation of any assumption through formal procedures will also support transparency of the reporting and facilitate any potential future improvements or refining of the reporting methodology.

There is also an opportunity for formalised procedures to establish review of environmental incident and close call data by the NR Route Environment Specialists as part of NR processes, which should ensure regular review of lessons learnt to enable proactive actions to prevent reoccurrences. This process should further ensure that actions such as updating NR procedures and processes to prevent reoccurrences are outlined and summarised in the reporting data. It would also be an opportunity to use the NR resources and competencies more efficiently and to identify and communicate on best practice throughout the organisation,

The development, validation and continual review of clearly documented procedures will ensure these remain relevant over time and that any changes required to remain of high quality, and integrate any opportunity and innovation, can be implemented. Undertaking an audit of the environmental incident and close call reporting processes at regular interval (e.g. yearly) would foster continual review and improvement of the reporting process. A more formal review process (involving the Regions) would also support the coordination of activities to address gaps in the process, and undertaking 'spill drills' and following the process through from incident occurrence to reporting would be best practice to test control and management processes.

Data management system

NR currently has many different systems in place for monitoring and reporting on the environmental incidents and the close out and lessons learnt from investigations. Implementing a common data management system that manages incidents from end-to-end, from incident occurrence to close out and lessons learnt could make monitoring and reporting more efficient with more accurate data. Currently the RSSB SMIS reporting tool is used, and it was observed through review of the SMIS reporting form that there could be greater clarity in the SMIS system relating to environmental incident reporting. This was also discussed in our internal stakeholder discussions and NR had already sought to amend and improve the RSSB SMIS tool. All environmental incidents are currently entered as 'Environmental Contamination', this could be misleading in that not all environmental incidents relate to contamination. Furthermore, the SMIS systems currently doesn't identify Reporter nor Investigator and Designated Competent Person, it doesn't provide any notification of incidents to local HSE/Environment teams and doesn't automatically provide workflows/prompts to those investigating incidents to provide information according to investigation timeframes. Also, whilst the system allows the investigation information to be attached, in practice this is not taking place and the investigations process is carried out separately and uploaded to other systems such as IRIS. Leading to actions taken and lessons learned, such as systems or processes updated to prevent reoccurrence, not being recorded in the SMIS system.

Environmental Incident Types

For incident categorisation, NR currently captures incident types including:

- Spillages;
- Fly-tipping;

- Protected sites and species;
- Noise;
- Statutory nuisance and
- Other.

There may be opportunity to increase the accuracy of reporting through providing clearer categorisation of environmental incident types, thereby removing as much ambiguity as possible when categorising incidents. For example, under the current NR types, it might not be clear for someone on the ground that an air quality incident should be recorded under statutory nuisance. Greater granularity of incident types and outlining examples of Category 1,2,3 and 4 incidents for each of these types of incidents being included in guidance, may aid all those involved in environmental incident management to have a clearer understanding of incidents categories and types,

Environmental Incident Lesson Learnt

Whilst a robust environmental incident management process is essential in terms of NR managing its environmental impacts and compliance with legislation, thoroughly investigating incidents, gathering evidence and learning lessons on how to improve processes and systems is essential in order to reduce likely reoccurrence. In measuring and monitoring incidents there is opportunity to improve organisational processes and mechanisms to prevent future incidents from happening.

Currently there is not a process for collating and sharing lessons learnt nationally, although this sometimes happens at a local level and there are examples of good practice such as addressing waste recycling rates through focused analysis and training. Introducing a process and clear roles and responsibilities at a local level for NR Route Environmental Specialists as well as the central NR Environment and Sustainability team to coordinate and disseminate lessons learnt at a national level would help to improve learning from the reporting of environmental incidents.

Environmental Incident Training

Regular training across the business ensures that all those involved in the management of incidents understand the processes and their responsibilities, as well as ensuring everyone across the business has a base level of understanding of environmental incident management.

3.3.4 Recommendations

Based on the findings of our review and reflecting on the assessment scores, we have developed the following recommendations with the aim to provide actionable guidance in order for NR to move to a maximum score around both system reliability and data accuracy:

Table 23: Environmental Incidents and Close Calls KPIs Recommendations

Recommendations	Priority (High – Medium – Low)
Develop more detailed environmental incident guidance with clear examples for each of the environmental incident classifications (Category 1-4) and environmental incident types (e.g., spillages, fly-tipping, noise, protected sites and species, statutory nuisance and other) as well as clear processes and procedures for incident reporting and investigation.	High – already addressed
Develop procedures and better document the environmental incident reporting roles and process steps in addition to categorisation of incidents. This process should further ensure that actions such as updating NR procedures and processes to prevent reoccurrences are outlined and summarised in the reporting data. The environmental incident and close call reporting processes should be audited at regular intervals (e.g. yearly).	High
Develop and deliver regular staff training regarding environmental incidents management and reporting processes.	Medium
Provide a data management system that reports incidents, provides points of contact, notifications and timeframes for incident investigations in one data system across the business.	Medium
Expand and provide greater granularity (as per list below) of environmental incident types so there is greater understanding of different environmental incidents across the business: o Air- quality – dust, smoke, fumes odour, or steam; o Archaeology; o Contaminated land; o Ecology & biodiversity; o Heritage; o Lighting; o Noise; o Waste; o Water – spillages & discharges; and o Fly tipping	Medium
Develop procedures for evaluation of incidents investigations and learning lessons on how to improve processes and systems.	Low

3.4 Sites of Special Scientific Interest

NR reports network-wide on Sites of Special Scientific Interest (SSSIs) through a set of KPIs in Table 63 of the Annual Return, denoting:

- In England, the proportion of sites in favourable condition or recovering condition.
- In Scotland, the number of impactable features within SSSIs sites which NR manages and the proportion of impactable features within SSSIs that NR manages in favourable or recovering condition.

SSSIs are a land-based statutory designation, which applies through applicable statute in each country of Great Britain and Northern Ireland, designed to protect ecological and geological assets. The respective laws effectively make it an offence to intentionally or recklessly damage or destroy land known to be a SSSI, or to intentionally disturb species for which a SSSI is designated. It is an offence for a public body such as NR to fail to minimise damage to a SSSI, and landowners must manage SSSIs appropriately to conserve the features of the site.

The relevant statutory nature conservation organisations (SNCOs) (namely: NatureScot, Natural Resources Wales, and Natural England) aim to ensure that SSSIs are managed in such a way that they achieve the status of "favourable condition" against a reference state, although fewer than half of the UK's SSSIs are recorded as being in favourable condition.

As a result of NR's extensive land holdings, they own and manage land within over 600 SSSIs. Whilst a large proportion of these sites are designated for their geological assets, meaning that there is a lower risk of NR's operational activities impacting such sites when compared with those designated for fauna or flora, all SSSIs require targeted management. NR has created individual habitat management plans for each SSSI with the intent of ensuring NR's operations do not reduce the conservation status of these SSSIs (in addition to other designated wildlife conservation sites within the land holding), and that, where possible, NR's actions contribute towards achieving SSSI favourable condition.

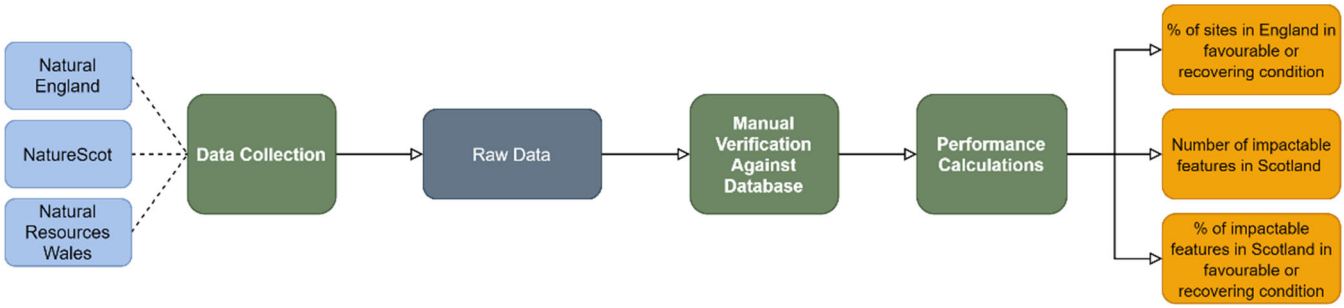
This approach is supported by the Varley Report, which states that: "*Network Rail's approach to lineside vegetation management must be designed to ensure compliance with both its environmental and health and safety duties.*"

To compile the annual reporting, data are requested from the relevant SNCOs regarding SSSI condition. These data are filtered and records of NR-owned SSSIs are manually entered into their central database by NR's environment team. An overview of the process is depicted in Figure 7.

Whilst this activity is completed annually, the data returned by the SNCOs do not change on an annual basis, with assessments of SSSIs carried out by the SNCOs at varying timescales. For example, Natural England suggest that they will visit most SSSIs only every six years to complete a condition assessment, whilst

acknowledging that the regularity of visits may increase or decrease depending on the likely rate of change at any given site[3].

Figure 7 Process map for SSSIs.



Given the manual nature of the data management process, there is potential for human error during data transfer. This is a minor risk and given the low frequency of SSSI condition updates by the SNCOs, any significant, unexpected changes to SSSI condition reported by the SNCOs would be noted and checked by NR, so this is not considered a major risk to the reliability of the method.

In addition, NR are reliant on the accuracy of the data they receive from the SNCOs, but as this is wholly outside of NR's control, it is not considered within the scoring for reliability or accuracy.

3.4.1 System reliability assessment

Overall, the reporting process is sensible and enables NR to report appropriately on SSSIs. A few minor shortcomings were however identified.

The system relies extensively on manual extraction and compilation of the data within the internal reporting tool before the data are transferred to the Annual Return. This poses a risk, deemed minor, for errors in reporting. The fact the data relies on external databases also means there is a limitation to the control with which NR can ensure the accuracy of the data, which is deemed a minor issue acknowledging the assumption that the raw data are indeed correct.

On this basis the score assigned the system reliability assessment based on the provided scoring system is a B, as illustrated in Table 24 below.

Table 24: System Reliability assessment grade for SSSI KPIs

System reliability band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.

[3] HM Government website. "Guidance: Sites of special scientific interest: managing your land" - https://www.gov.uk/guidance/protected-areas-sites-of-special-scientific-interest. Accessed 09 June 2021

B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data are available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Appendix E4 provides a detailed assessment of the reporting system reliability for SSSI reporting following a set of defined criteria, which supports the overall score given and reported in the above table.

3.4.2 Data accuracy assessment

The KPIs for SSSIs are reported through Table 63 in the Annual Return as shown in Table 25 below:

Table 25: SSSI KPIs

Annual Return Table 63: Sites of special scientific interest		**2019/2020**
Network-wide	The % of sites in England in favourable or recovering condition	79
	The number of impactable features within SSSI sites in Scotland that Network Rail manages	53
	The % of impactable features within SSSIs in Scotland that Network Rail manages in favourable or recovering condition	93

A spot check of the data held by NR and Natural England's open access data regarding SSSI condition found 100% agreement in terms of the condition recorded and reported by NR. However, given that a comprehensive audit was not conducted as part of the scope of this review and considering the manual nature of data transfer in the reporting process, a score of 1 is therefore given for accuracy to account for the inherent minor risk of human error that remains. This is presented in Table 26 below.

Table 26: Data Accuracy assessment grade for SSSI KPIs

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

3.4.3 Appreciation against best practice

Data Management Efficiency

The data received from the SNCOs is provided in full on a yearly basis, even though SSSIs are visited every seven years, except in special circumstances. This results in NR engaging in unnecessary data transfer, updating information for sites that have no new information to report. NR could engage the specific SNCOs to develop a system by which only those sites that fall within the landholding and have had their condition assessed in the last year should be provided to NR. Whilst this may represent only a modest saving of time, it would increase the efficiency of data transfer within NR and reduce the risk of errors during data transfer.

Similarly, whilst the risk of human error resulting in inaccurate data reporting is considered low in terms of likelihood and impact, the risk remains. It may be possible to establish an automated system that takes the SNCO data from their system and transfers it into NR's own audit and reporting systems automatically. As the reporting process was not considered an overly time-consuming task, and as this would require engagement with three separate SNCOs with three potentially incongruent data systems, this may be too complex and low impact a task to be considered a priority. Should the data reporting process become more onerous in future, automation of the data transfer process may become a more impactful and viable prospect.

Long term considerations

In terms of SSSI reporting, there is no recognised industry best practice against which NR's methodology can be measured. The process of obtaining data from the relevant SNCO and extracting the relevant data is a simple, low risk process that provides NR with the data they are required to report against and is considered to represent good practice for the required reporting.

In terms of habitat management, NR, through its own well-established internal practices and, supported by the conclusions of the Varley Report, is committed to managing the habitats within its land holding appropriately. The Varley Report further recognises that the Natural Environment and Rural Communities Act 2006 places a statutory duty on NR as an organisation to conserve biodiversity. Management plans are developed for each site to comply with NR's obligations as owner and manager of SSSIs, as well as their own internal commitments to protecting and enhancing biodiversity. Whilst no management plans were reviewed as part of this activity, the process of ecological and landscape management practitioners creating bespoke management plans for each site, and subsequently providing these to the SNCOs, is sound.

In terms of the SNCO's approach to SSSI assessments, the specialist interviews revealed that there are differing practices between Natural England and NatureScot in terms of SSSI management. Natural England currently assess the condition of SSSIs on the basis of individual spatial units within a SSSI, whereas NatureScot assess on the basis of individual features within the SSSI, for instance, specific areas that support specific species for which the SSSI is designated. NatureScot's feature-based approach provides additional granularity on top of the unit-based system, meaning individual areas are managed differently according to the

protected feature and its location. In principle, NatureScot's more detailed, receptor-specific assessment provides opportunities for management to deliver a greater beneficial impact for the features for which each SSSI is designated, thereby providing opportunity to increase SSSI conservation status.

Potentially other organisations may adopt the feature-based approach in the future in recognition of these benefits. This may confer a short-term responsibility on NR to create new or adapt existing SSSI unit-based management plans for this new feature-based approach. As a result, the management plans are likely to be more impactful in terms of affecting SSSI conservation status. In many cases it may result in reduced management requirements, for example, where a SSSI's designated features are located a significant distance from NR's land holdings.

3.4.4 Recommendations

Based on the findings of our review and reflecting on the assessment scores, we have developed the following recommendations with the aim to provide actionable guidance in order for NR to move to a maximum score around both system reliability and data accuracy:

Table 27: SSSI KPIs Recommendations

Recommendations	Priority (High – Medium – Low)
Automate data transfers to address the potential of risks of errors in transferring the data as per the current reporting process.	Medium
Engage with SNCOs to investigate the opportunity to only be provided data for sites that fall within the landholding and have had their condition assessed in the last year	Low
Enhance strategic approach to environment management based on existing tools and link up with the regions to deliver increased value in the long term	Low

3.5 Scorecard measure – Environmental Sustainability Index (ESI)

The scorecard measure is derived from aggregated emissions and energy as well as waste data. It is compiled within a distinct reporting tool based on an excel spreadsheet. It is not reported in the Annual Return but communicated through NR's scorecards. The ESI has been developed to enable NR to report on aggregated sustainability performance.

The carbon and energy component of the indicator were reviewed, and it was noted that the values reported in the ESI spreadsheet differed from the values found in the carbon reporting tool and could not be reconciled; the calculations reported in the NR emissions reporting tool do not correspond to the data reported in the ESI 2019/2020 P13 provided. For energy specifically, the values for the Eastern, North West & Central and Scotland regions could be confirmed, whilst the values for Southern and Wales and Western could not.

The waste metrics used in the ESI are the percentage of non-hazardous waste reused or recycled, and the percentage of non-hazardous waste diverted from landfill, derived from the waste reporting tool (see Section 3.2).

Those two waste metrics are given a weighting of 10% each within the ESI calculation, with the justification that waste significantly outperforms the CP6 targets. The focus is, therefore, on carbon and energy measures, as there is a target to reduce carbon emissions by 25% by the end of CP6. While the weighting appears to be reasonable for waste, the rationale behind it would ideally require some further justification for objectivity purposes.

The ESI utilises a 'bottom-up' data collection system, with data consolidated at regional and later national level used to produce the relevant index data. The waste quantity (weight) data underpins the calculations used to determine performance and the ESI. Weight data taken from actual weighing will be accurate but as the reliance on estimates for these calculations is significant (see Waste section), the overall accuracy of the data can ultimately be challenged.

3.5.1 System reliability assessment

The reporting process is set out in a sound way and yields appropriate figures based on the information included in the ESI spreadsheet. However, a lack of formally documented guidance and process descriptions was noted. There was difficulty in reconciling the source in the ESI spreadsheet to the waste and energy and carbon data. For this assessment, ESI source is taken at face value as it is simply transferred from these other reporting streams. As the ESI spreadsheet does not include any calculations apart from weightings of the parameters, the reliability score given reflects the ones given to the waste and energy and carbon system reliability assessments and thus results in a score of B, as illustrated in Table 28 on page 51.

Table 28: System Reliability assessment grade for the ESI

System reliability band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Appendix E5 provides a detailed assessment of the reporting system reliability for the ESI following a set of defined criteria, which supports the overall score given and reported in the above table.

3.5.2 Data accuracy assessment

As mentioned above, the accuracy of the data could not be verified beyond the content of the ESI spreadsheet. The reason is that the ESI is updated live within the document as new data comes in, and no records are kept which allows for ex post verification. This poses an issue as these data rely on critical figures originated from the energy and carbon reporting spreadsheet for this component of the ESI. For the purpose of this assessment this transfer step is assumed to be correct – the source values in the ESI are taken at face value as they cannot be traced back and reconciled to the source data. Recommendations on this observation are therefore made further below.

On the waste side, it should also be noted that there is a lack of clarity as to how the waste data reported in the Annual Return is linked to the data reported as part of the ESI for 2019/2020. The two data sources appear to have a mismatch, with the ESI excel spreadsheet tool for 2019/2020 reporting that there was a total waste generation of 2,709,763.23 tonnes, as opposed to 2,135,560.79 tonnes, reported in the Annual Return.

Based on the above, the data accuracy assessment for the ESI has resulted in a score of 2 with the assumption that input data is correctly brought in. The data within the spreadsheet seems accurate as per the review although the score can only reasonably align with the accuracy scores provided for energy and emissions and the waste KPIs which make up this indicator. A resulting score of 2 is shown in Table 29 below.

Table 29: Data Accuracy assessment grade for the ESI

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%

1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

3.5.3 Appreciation against best practice

The scorecard measure – ESI – is compiled with the aim of providing an indicator of sustainability which can be more directly referred to in order to assess progress against a strategic ambition. As mentioned, the scorecard measure is derived from aggregated emissions and energy as well as waste data.

Process documentation

By formalising documentation of process steps, overall risks to reporting can be mitigated. Formal procedures also improve continuity and consistency, support review and audit activities, facilitate communication, bring increased transparency and facilitate process reviews and amendments. Formal procedures should further include specific guidance for keeping records of past data.

Automating data procedures

By automating manual processes and transferral of data where possible, the risk for errors can be reduced. Automated procedures further increase efficiency, allowing resources to be spent elsewhere.

Waste weighting

Regarding the weighting placed on waste metrics as part of the ESI, there is constantly developing legislation, policy, guidance, and general efforts in most sectors focusing on the transition to a circular economy. It would be valuable to consider these aspects as for the separate Circular Economy KPI that is under development and planned to be implemented as part of the strategy by 2024. As such, consideration may be given to updating the waste metrics to be in line with the current priorities of moving up the waste hierarchy, focusing on waste prevention and reduction.

ESI Scope and Industry Practices

Reporting at high level on sustainability performance is something many organisations are doing to try and report on impact to their stakeholders, without relying on a set of KPIs which can be too complex and difficult to communicate. We note that the ESI does not integrate the full scope of environmental sustainability reporting, or the objectives embedded in the Environmental Sustainability Strategy. The reason for this is that data for other areas of the Strategy are not collected at the same frequency, e.g. biodiversity net gain cannot

be measured meaningfully every 4 weeks. It is also important to note that the ESI was introduced before the new Strategy was conceptualised and published.

This suggests there might be an opportunity to approach reporting on consolidated impact in a different manner. For example, the GRESB assessment for infrastructure assets provides a useful tool to assess sustainability performance overall and is a useful industry benchmark. In addition, it is a very useful management tool as it is aligned with sustainability management best practice guidance (such as reflected in the Global Reporting Initiative, the recommendations from the Task Force for Climate-related Financial Disclosures, ISO14001 for environmental management). The assessment with GRESB is followed by feedback reports and the gaps identified give way for recommendation to improve management and performance.

3.5.4 Recommendations

Based on the findings of our review and reflecting on the assessment scores, we have developed the following recommendations with the aim to provide actionable guidance in order for NR to move to a maximum score around both system reliability and data accuracy:

Table 30 ESI Recommendations

Recommendations	Priority (High – Medium – Low)
Formalise the documentation of the process steps used to derive the ESI, including the rationale for the weight given to the different components that make up the ESI.	High
Ensuring that the traceability between the Annual Return Excel workbook, and the information provided in the Excel workbook used to calculate the ESI on an annual basis, is high and that there is no discrepancy between the figures reported in these two different sources.	High
Consider including the coming Circular Economy KPI in the ESI	Low
Consider aligning the ESI with other industry benchmarks, such as GRESB, the Global Reporting Initiative, the recommendations from the Task Force for Climate-related Financial Disclosures, or ISO14001 for environmental management.	Low

4 Appendices

Appendix A

Annual Return extract

Annual Return 2020

Sustainable Development

Table 59: Scope 1 & 2 CO2e emissions

			2005/06	2006/07	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2019/20 Forecast	Comment
England & Wales	Scope 1 & 2 CO2e emissions	tonnes	-	-	-	266,294	270,189	253,156	237,974	222,795	196,217	184,439	186,406	
Scotland	Scope 1 & 2 CO2e emissions	tonnes	-	-	-	32,156	31,188	28,831	24,649	23,398	19,937	18,543	18,940	
Network-wide		tonnes	-	-	-	298,450	301,378	281,987	262,623	246,193	216,154	202,982	205,347	

Table 60: Carbon footprint reduction

				2005/06	2006/07	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2019/20 Forecast	Comment
Network-wide	Carbon footprint reduction	Total carbon emissions from the electricity we procure at our manned sites	tCO2e	-	-	-	-	221,320	205,286	187,089	160,260	139,934	128,459	-	
Network-wide	Carbon footprint reduction	Total carbon emissions from the gas we procure at our manned sites	tCO2e	-	-	-	-	10,305	11,299	11,183	13,206	12,063	12,464	-	
Network-wide	Carbon intensity of	Annual average	tCO2e/kWh	-	-	-	-	0.45	0.21	0	0	0	0	-	

	electricity, traction	carbon emissions factor for traction electricity we supply to train operating companies (market-based)												
Network-wide	Carbon intensity of electricity, non-traction	Annual average carbon emissions factor for non-traction electricity we consume (market-based)	tCO2e/kWh				0.49	0.46	0.41	0.35	0.28	0	-	
Network-wide	Reduction in non-traction carbon emissions (tCO2e) against CP5 exit baseline		%	-	-	-	-	-	-	-	-	-0.061	-	
Network-wide	Reduction in non-traction energy use (kWh) against CP5 exit baseline		%	-	-	-	-	-	-	-	-	-0.002	-	

Table 61: Waste

			2005/06	2006/07	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2019/20 Forecast	Comment
Network-wide	Waste diverted from landfill	Re-used	-	-	-	-	-	-	666,438	710,818	967,391	564,581.14	-	
Network-wide	Waste diverted from landfill	Recycled	-	-	-	-	-	-	1,173,179	1,197,820	1,009,043	1,464,121.46	-	
Network-wide	Waste diverted from landfill	Recovered (converting waste material into energy e.g. composting)	-	-	-	-	-	-	206,661	106,556	98,547	72,619.91	-	
Network-wide	Waste sent to landfill		-	-	-	-	-	-	109,484	120,852	36,142	34,238.29	-	
Network-wide	Total waste		-	-	-	-	-	-	2,155,761	2,136,046	2,111,123	2,135,560.79	-	
Network-wide	Diverted from landfill			-	-	-	-	-	-	-		2,087,103.62	-	
Network-wide	Waste re-used or recycled (%)			-	-	-	-	-	-	94	98	95	-	
Network-wide	Non-hazardous waste diverted from landfill (%)			-	-	-	-	-	-	-	-	97.7	-	

Table 62: Environmental Incidents and close calls

			2005/06	2006/07	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2019/20 Forecast	Comment
Network-wide	Environmental Incidents	Environmental incidents caused by activity of Network Rail or its	-	-	-	-	677	666	665	788	634	711	-	We are aware that that environmental incident data is not

		infrastructure contractors												
Network-wide	Environmental Incidents	Category 1 (major impact) environmental incidents	-	-	-	-	4	3	3	7	8	7	-	accurate due to issues with the introduction of SMIS+ last year. Percentage of close calls closed out within one month of logging is no longer recorded as a metric for 2019/20.
Network-wide	Environmental Incidents	Category 2 (significant) environmental incidents	-	-	-	-	40	6	6	16	12	34	-	
Network-wide	Environmental Incidents	Category 3 (minor) environmental incidents	-	-	-	-	417	132	114	50	70	84	-	
Network-wide	Environmental Incidents	Category 4 (negligible) environmental incidents	-	-	-	-	-	-	-	-	-	563	-	
Network-wide	Environmental Incidents	Aggregated number of incidents per 100,000 hours worked	-	-	-	-	-	-	-	-	-	0.454	-	
Network-wide	Environmental Incidents	Category 1 (major impact) environmental incidents per 100,000 hours worked	-	-	-	-	-	-	-	-	-	0.004	-	
Network-wide	Environmental Incidents	Category 2 (significant) environmental incidents per 100,000 hours worked	-	-	-	-	-	-	-	-	-	0.022	-	

Network-wide	Environmental Incidents	Category 3 (minor) environmental incidents per 100,000 hours worked	-	-	-	-	-	-	-	-	-	0.054	-	
Network-wide	Environmental Incidents	Category 4 (negligible) environmental incidents per 100,000 hours worked	-	-	-		-	-	-	-	-	0.36	-	
Network-wide	Environmental Close Calls	Environmental events without environmental impact	-	-	-	3,600	2,790	6,625	7,432	6,750	7,756	7,295	-	
Network-wide	Environmental Close Calls	Percentage of Close Calls closed out within one month of logging	-	-	-	25	66	51	51	54	85	-	-	

Table 63: Sites of Special Scientific Interest

			2005/06	2006/07	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2019/20 Forecast	Comment
Network-wide	The % of sites in England in favourable or recovering condition		-	-	-	79	79	84	-	79	79	79	79	
Network-wide	The number of impactable features within SSSI		-	-	-	41	54	54	-	23	53	53	53	

	sites in Scotland that Network Rail manages												
Network-wide	The % of impactable features within SSSIs in Scotland that Network Rail manages in favourable or recovering condition	-	-	-	82	93	94.4	-	65	93	93	93	

Appendix B

Statement of Works

Independent Reporter Framework
Statement of Works

1.0 COMMISSION INFORMATION	
Project Name:	Review of Environmental Sustainability Data
Bravo Sourcing Request Number:	#20507
Network Rail Contact:	Matthew Blackwell
Network Rail Department:	Planning & Regulation
SoW Number:	0008
Network Rail PO Number:	[insert NR PO# when available]
Commission Value:	[insert the SoW value after this has been agreed with the supplier]
Supplier Name:	[insert the name of the selected supplier after appointment]
Main Supplier Contact:	[name and email address of the main supplier contact]

This Statement of Work (SoW) is the contractual vehicle for defining, authorising and commissioning a piece of work to be undertaken under the Independent Reporter Framework. The SOW has six sections:

1. *Commission Information*
2. *Commission Overview*
3. *Scope of Services and Deliverables*
4. *Knowledge Transfer*
5. *Resource & Commercial Details*
6. *Invoicing*

This SoW is entered into under and in accordance with the terms of the Independent Reporter Framework dated 1 February 2020 between Network Rail, the Office of Rail and Road, and the Supplier and includes and incorporates any special Terms and Conditions and any other amendments captured in this SoW.

Any dispute surrounding this SoW will be resolved in accordance with the Terms and Conditions outlined in the Framework Agreement.

Ownership and use of any Intellectual Property Rights shall be in accordance with the Framework Agreement Terms and Conditions.

Change control procedures are to be applied as set out in the Terms and Conditions of the Framework Agreement.

2.0 COMMISSION OVERVIEW	
2.1 Background	Network Rail's vision and strategy is to develop a railway fit for the future. One of the key components of this is sustainability of the environment. It's an integral part of putting passengers first (see https://www.networkrail.co.uk/putting-passengers-first/) and ensuring the railway is resilient and efficient while minimising any negative impact on the environment. Network Rail's new Environmental Sustainability strategy[1], launched in September 2020, sets out the following four core priorities to deliver its vision of delivering a sustainable railway: • A low-emission railway • A reliable railway service that is resilient to climate change • Improved biodiversity of plants and wildlife

	• Minimal waste and sustainable use of materials Over recent years, Network Rail developed and began reporting on a series of Environmental Sustainability Key Performance Indicators (KPIs). These were implemented to measure progress against Network Rail's carbon emissions reduction target and to monitor performance against their own internal sustainable development outputs. As Network Rail now has well-established processes in, it is deemed an appropriate time to assess all of the Environmental Sustainability KPIs which are reported annually in Network Rail's Annual Return[2].
2.2 Business Objectives and Priorities	Network Rail's vision is to serve the nation with the cleanest, greenest mass transport. They have committed themselves to wider sustainable development goals and are the first railway organisation in the world to set ambitious science-based targets to cut carbon emissions and help limit global warming to 1.5°C. They are also working in partnership with their supply chain to become more environmentally sustainable and aiming for 75% of their suppliers, when measured by their emissions, have science-based targets too by 2025. Funding of these sustainable development goals is expected to be a core element of PR23 discussions. It is therefore important that ORR has assurance that Network Rail has the systems and processes in place to report data accurately and reliably.

3.0 SCOPE OF SERVICE AND DELIVERABLES	
3.1 Key requirements	The reporter should assess the system reliability and data accuracy of the following KPIs that were reported within Network Rail's Annual Return[3] and will be reported in Network Rail's scorecards. The reporter should assess each of these KPIs at the network-wide level: **Scope 1 & 2 CO2e emissions (table 59)** • For England & Wales, and Scotland **Carbon footprint reduction (table 60)** • Total carbon emissions from the electricity Network Rail procures at its manned sites • Total carbon emissions from the gas Network Rail procures at its manned sites **Carbon intensity of electricity, traction and non-traction (table 60)** • Annual average carbon emissions factor for traction electricity Network Rail supplies to train operating companies (market-based) • Annual average carbon emissions factor for non-traction electricity Network Rail consumes (market-based) • Reduction in non-traction carbon emissions (tCO2e) against CP5 exit baseline • Reduction in non-traction energy use (kWh) against CP5 exit baseline **Waste (table 61)** • Waste diverted from landfill: Re-used • Waste diverted from landfill: Recycled • Waste diverted from landfill: Recovered (converting waste material into energy e.g. composting) • Waste sent to landfill • Diverted from landfill • Waste re-used or recycled (%) Non-hazardous waste diverted from landfill (%)

Environmental Incidents (table 62)

- Environmental incidents caused by activity of Network Rail or its infrastructure contractors
- Category 1 (major impact) environmental incidents
- Category 2 (significant) environmental incidents
- Category 3 (minor) environmental incidents
- Category 4 (negligible) environmental incidents

Environmental Close Calls (table 62)

- Environmental events without environmental impact
- Percentage of Close Calls closed out within one month of logging

Sites of Special Scientific Interest (table 63)

- The % of sites in England in favourable or recovering condition
- The number of impactable features within SSSI sites in Scotland that Network Rail manages
- The % of impactable features within SSSIs in Scotland that Network Rail manages in favourable or recovering condition

Scorecard measure

- Environmental Sustainability Index (ESI)

For each of these KPIs the reporter should:

- Review and comment on the processes and procedures by which Network Rail captures data and targets workplace intervention;
- Review all relevant documentation and systems and comment on their fitness for purpose;
- Review and comment on the calculations used to derive the measures, including assessing the validity of any assumptions, the appropriateness of any conversion factors and the completeness of input data, to ensure their fitness for purpose;
- Review and comment on the reliability, quality, consistency, completeness and accuracy of reported data;
- For **Environmental Incidents,** review and comment on the guidance in place within Network Rail for reporting these incidents to RSSB via the Safety Management Information System (SMIS）;
- For **Sites of Special Scientific Interest** review and comment on the**:**
  - consistency between Network Rail's 2013 SSSI Register and the records of the relevant national bodies condition assessments, identifying any sites that do not appear in both lists and/or do not have a relevant condition assessment;
  - new assessment methodology and make any recommendations for improving upon it; and
- Present a confidence grading for both the system reliability and data accuracy for each KPI (bold heading above and where relevant Table specified) under review due to be reported in Network Rail's 2021 Annual Return; and make recommendations if appropriate.

<u>Interactions and cross functional working:</u>

We expect the reporter to engage with the Network Rail's Central Reporting team, the Environmental and Sustainability team in Technical Authority and at least two Regional reporting teams.

3.2 Key deliverables

The required deliverables are:

- a confidence grading on both the system reliability and data accuracy for each of the metrics in line with the grading system below
- a presentation of draft findings to be discussed at a meeting with Network Rail and ORR
- a draft report (for comment by ORR and Network Rail) by covering the issues set out in the scope section above by 7 May; and
- a final report that addresses comments provided by ORR and Network Rail on the draft report by 21 May.

System reliability grading system

Band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

- System reliability is a measure of the overall reliability, quality, robustness and integrity of the system that produces the data.
- Some examples of the potential shortcomings include old assessment, missing documentation, insufficient internal verification and undocumented reliance on third-party data.

Accuracy grading system

Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

- Accuracy is a measure of the closeness of the data used in the system to the true values.
- Accuracy is defined at the 95% confidence level - i.e. the true value of 95% of the data points will be in the accuracy bands defined above.

3.3 Proposed approach

[Demonstrate and detail the proposed approach for the project, covering all areas of the projects scope and clearly state the requirement(s)]

3.4 Schedule & timings	Contract Start Date: 05/04/2021* Contract End Date: 04/06/2021* *These are indicative dates and will be agreed once the contract has been awarded and the PO has been approved. [Insert details pertaining to the commission's intended start and end date, as well as a commission schedule e.g., a Gantt chart with tasks and attributive start/end dates]
3.5 Relationship applicable for performing the duties under this statement of works contract	Data Controller and Data Processor. The only processing that the Supplier is authorised to do is listed as in Appendix 1 and may not be determined by the Supplier

4.0 KNOWLEDGE TRANSFER	
4.1 Knowledge Transfer	[Explain and detail how knowledge transfer is to be enabled throughout the commission and how the final output will be delivered and presented to Network Rail and ORR.] *[Insert at contract award stage]*

5.0 RESOURCE & COMMERCIAL DETAILS	
5.1 Supplier Resource	[Key personnel which will be engaged in the commission, along with their responsibilities. Details should include sub-contractors, if sub-contractors are being utilised for the delivery of this contract commission] *[Insert at contract award stage]* In the event of "key personnel" becoming unavailable the supplier agrees to provide a replacement of equal standard and status within 48 hours of notice.
5.2 Pricing Schedule	**This contract is based on a FIXED PRICE contract commission, payable on completion** *[Insert price schedule and cost breakdown at contract award stage]* All prices detailed are exclusive of VAT which will be charged at the prevailing rate.

5.3 Payment Milestones	n/a This contract is being let on a fixed price contract, payable on completion.
5.4 Place of work	Due to the current COVID-19 situation most of Reporter's work will be conducted from their own office or remotely.
5.5 Expenses	For the purpose of this contract, business travel expenses to any of Network Rail's offices [if this becomes necessary] may be claimed in accordance with Network Rail's Business Travel and Expenses policy.
5.6 Contract Variations	Variations to this Statement of Work contract may be permitted in accordance with Clause 88 of the Utilities Contract Regulations (modification of contracts during their term). All variations to this Statement of Work contract must be agreed in writing under a restated statement of works document, duly signed by all parties

Location	Link
1.1 (Putting Passengers First)	https://www.networkrail.co.uk/putting-passengers-first/
1.1 (Environmental Sustainability Strategy)	https://www.networkrail.co.uk/wp-content/uploads/2020/09/NR-Environmental-Strategy-FINAL-web.pdf
1.1 (Annual Return)	https://www.networkrail.co.uk/wp-content/uploads/2020/07/Network-Rail-Infrastructure-Limited-Annual-Return-2020-data-tables-1.xlsx
1.2	https://sciencebasedtargets.org/

6.0 INVOICING	
6.1 Invoice Details	Network Rail operates a strict "NO PO – NO PAYMENT" policy. Invoices are to be raised on completion of the contract or in accordance with the milestone payments [where applicable] set out in this SOW. Invoices should contain the following information as a minimum: • Purchase Order number • SOW number as detailed in Section 1.0 • Project Title and description Business expenses should be invoiced as a separate line and supported with receipts, as described in terms and conditions of the framework agreement and the Network Rail Business Expenses Policy. Please be aware that failure to provide the information above may potentially cause a delay in processing the invoice.

	Our preference wherever possible, is for invoices to be submitted via EDI. Alternatively, invoices may be submitted By email - invoices@networkrail.co.uk By post – Network Rail Accounts Payable, PO Box 4145, Manchester M60 7WZ

This Statement of Work will be executed as per the Terms and Conditions agreed in the Independent Reporter Services Framework Agreement.

[supplier name to be completed at contract award]

Signed:……..

Name (CAPS):……..

Position:……..

Date:……

NETWORK RAIL

Signed:……..

Name (CAPS):……..

Position:……..

Date:……

[This SOW does not require further contract signatures from the ORR]

ANNEX 1 – Protection of Personal Data

Where Data Controller and Data Processor applies

The Supplier shall only process personal data as detailed below:

Description	Details
Data Protection Officers	**Network Rail**: Fiona McConachie, The Quadrant, Elder Gate, Milton Keynes, Buckinghamshire, MK9 1EN **Supplier:**
Subject matter of the processing	The processing is needed to ensure that the Processor can effectively deliver the services under the management Consultancy framework contract.
Duration of the processing	The duration of processing refers to the duration of the contract, as specified in the call-off contract
Nature and purposes of the processing	The nature of the processing means any operation such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction of data (whether or not by automated means). The purpose might include (but not limited to): statutory obligation, arranging Stakeholder meetings, data research and analysis and compliance with Network Rail's Business Travel and Expenses policy.
Type of Personal Data being Processed	This may include (but is not limited to): name, address, job title, location, email address, telephone number, images, cost centre number biometric data.
Categories of Data Subject	Examples include (but is not limited to): staff (including sub-contractors, volunteers, agents), customers/ clients, suppliers, students, apprentices, members of the public, users of a particular website.
Plan for return and destruction of the data once the processing is complete UNLESS requirement under union or member state law to preserve that type of data	On completion of the processing (interpreted as being contract expiry) the supplier shall cease to use the personal data and shall arrange for it's prompt and safe return to Network Rail, or destruction if instructed by Network Rail, of all Personal Data.

Appendix C

Confidence grading system

C1 – System reliability grading system

System reliability band	Description
A	Sound textual records, procedures, investigations or analysis properly documented and recognised as the best method of assessment.
B	As A but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation.
C	Extrapolation from limited sample for which Grade A or B data is available.
D	Unconfirmed verbal reports, cursory inspections or analysis.

Notes:

1. System reliability is a measure of the overall reliability, quality, robustness and integrity of the system that produces the data.

2. Some examples of the potential shortcomings include old assessment, missing documentation, insufficient internal verification and undocumented reliance on third-party data.

C2 – Accuracy Grading System

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

Notes:

1. Accuracy is a measure of the closeness of the data used in the system to the true values.

2. Accuracy is defined at the 95% confidence level - i.e. the true value of 95% of the data points will be in the accuracy bands defined above.

Appendix D

List of files supplied to the Reporter Team

List of files supplied to the Reporter Team

Table 31: Files supplied

File Name	Type
Network Rail Infrastructure Limited Annual Return 2020 data tables	xlsx
SSSI data with forecast column – Annual Return	xlsx
NR Owned SSSI Condition England 2021	xlsx
Data description (SSSI)	docx
Environmental Incidents 2020-2021	xlsx
Environmental Incident Impact Classification Guidance v 1.0 (2014)	pdf
Environmental Incident & Close Call Guidance Note – Draft 2.0_0421 (003) (2021)	docx
SMIS Screen Grabs	docx
SHEP Reporting Process	vsdx
TA Reporting Summary – Environmental Incidents & Waste	xlsx
ORR Historic Data 2020-2021 Environmental Incidents and Waste	xlsx
Environmental Waste 2020-2021	xlsx
Environmental Waste File - Guidance E&SD addition - v3.1	docx
ESI Briefing Pack for ORR 220321	pptx
Detailed Commentary for ESI Waste	docx
Environmental Sustainability Index 2019-20 P13	xlsx
P12 ESI Data and Index Calculation 2020 2021 - Waste Carbon Energy	xlsx
P13 ESI Data and Index Calculation 2020 2021 - Waste Carbon Energy	xlsx
HSE KPI Reporting Queries TEMPLATE	xlsx
ORR IR_Historic Data 2019-2020_2020-2021 EnvInc + Waste	xlsx
TA E&SD Reporting Paths and Contacts V1	vsdx
2019 20 Summary – Energy & Carbon	xlsx
NR Emissions Reporting Tool V4.0	xlsx
P10 Fuel Data Expenses	xlsx
P10 Fuel Data PCard	xlsx
P11 Expenses data	xlsx
P11 Fuel Data PCard	xlsx
Fuel Master Report	xlsx
NR EmissionsReportingTool V4.0 @ 02-06-20	xlsx
NR EmissionsReportingTool V4.5	xlsx
Energy & Carbon Reporting - Guidance E&SD v1	docx
Gas Oil - Propane Invoices 2020-21	xlsx
HSE KPI Reporting Queries Eastern P11 2020-2021	xlsx
HSE KPI Reporting Queries Wales and Western P11 2020-2021	xlsx
2020-21 11 Capital Delivery	xlsx
2020-21 11 Property Mitie	xlsx
2020-21 11 Route Business Interserve	xlsx

2020-21 11 Route Business Mitie	xlsx
2020-21 11 Route Business NRHS Veolia	xlsx
2020-21 11 Route Business UKWaste	xlsx
2020-21 11 Route Services	xlsx
2020-21 12 Capital Delivery	xlsx
2020-21 12 Route Business Interserve	xlsx
2020-21 12 Route Business MITIE	xlsx
2020-21 12 Route Business NRHS Veolia	xlsx
2020-21 12 Route Business UK Waste	xlsx
2020-21 12 Route Services	xlsx
2020 21 Eastern	xlsx
2020 21 London North Western	xlsx
2020 21 Others	xlsx
2020 21 Scotland	xlsx
2020 21 Southern	xlsx
2020 21 Summary	xlsx
NTfT Daily Totals 2019-20	xlsm

Appendix E

Detailed assessments for system reliability

E1 – Detailed assessment for Energy and Emissions KPIs reporting system reliability

Element of Process	Criteria to be met	Score	Rationale
Objectives of metric	Clear and unambiguous description of the purpose and objectives of producing the metric	A	Metrics used serve to assess performance against strategic objective – metric are best practice
Requirements	Clear and unambiguous description of the standards required for the data and its collation, in order to meet the objectives	B	Description not formalised within a procedure / process for collation and calculation
RACI	Clear identification of those **R**esponsible for, **A**ccountable for, **C**onsulted about and **I**nformed about the metric	B	Clear identification and maturity of roles and responsibilities but not formalised within documentation and procedures which poses a risk for business continuity
Source(s)	Description of who or what (system) provides the data	B	This is understood and supports sound reporting but is not formally documented and readily available
Means and frequency of data provision	Description of how the data is provided (e.g. by e-mail, upload, shared data directory), how often, and when	B	Frequency and method of data sharing has been provided, though it is not formally documented
Data format(s) and expected values	Definition and description of the format(s) in which the data are to be supplied, and the expected range (if any) of values	B	This is understood and supports sound reporting but is not formally documented and readily available
Data quality	Definition and description of the required data quality and accuracy	B	This is understood and supports sound reporting but is not formally documented and readily available
Data processing	Documentation and description of processes, sufficiently clear for new users	C	Methodologies and procedures are not formally documented or readily available but there is maturity of reporting within the organisation

Element of Process	Criteria to be met	Score	Rationale
Staff Training	Sufficient availability of trained staff to maintain data and process quality and continuity in the event of unavailability through e.g. illness, retirement or resignation	C	The lack of formal documentation is reflected in the lack of training material, although knowledge acquisition is possible through mature reporting tools
Checking: identification and handling of noncompliant data	Description of criteria for identifying data that may contain errors or fails to meet the system requirements, and procedures for dealing with non-compliances, including error checking built in to processes and tools, and procedure(s) for referring queries back to data source and timescales to be allowed for response. Description of measures in place for trend analysis	B	Complete, formal and readily available descriptions and procedures are not available, including for non compliances cases. However, the effective reporting processes includes adequate checks and verification that support reliability of the system.
Data collation and presentation for subsequent evaluation	Description of required data formats, methods and frequencies and/or dates of provision (who should get what, and when)	B	Complete, formal and readily available descriptions and procedures are not available. Data requirements, frequencies and dates were provided but not regarding formats and methods.
Process for dealing with data-related queries	Description of procedures and timescales to be followed in response to queries, including requirements for referral back to data source(s); records of numbers of queries and outcomes, analysis of trends	C	Lack of review procedures and guidance including for the review and checks of data. There is however interaction with the regions within the organisation. In the context of external review, the relevant people are easily identified and knowledge and capability is good although some issues cannot be readily resolved.
Internal review and audit procedures	Description of internal review and audit requirements, processes and frequencies; evidence that these are being met	B	Processes are adequately checked – we noted that there is a lack of streamlined guidance for the Regions in their review processes

Element of Process	Criteria to be met	Score	Rationale
Process for dealing with data and reporting related queries from ORR and other stakeholders	Description of procedures and timescales to be followed in response to queries from ORR; records of numbers of queries and outcomes, analysis of trends	C	Lack of review procedures and guidance including for the review and checks of data. There is however interaction with the regions within the organisation. In the context of external review, the relevant people are easily identified and knowledge and capability is good although some issues cannot be readily resolved.

E2 – Detailed assessment for Waste KPIs reporting system reliability

Element of Process	Criteria to be met	Score	Justification
Objectives of metric	Clear and unambiguous description of the purpose and objectives of producing the metric	A	Metrics used serve to assess performance against strategic objective – metric are best practice.
Requirements	Clear and unambiguous description of the standards required for the data and its collation, in order to meet the objectives	C	Procedures for all the reporting steps are not formally documented and readily available. There could be further reliance on external guidance to improve the reporting (reliance on estimate) and follow the waste hierarchy.
RACI	Clear identification of those **R**esponsible for, **A**ccountable for, **C**onsulted about and **I**nformed about the metric	B	Roles and responsibilities are well defined and understood although there is no formal documentation and procedures readily available.
Source(s)	Description of who or what (system) provides the data	B	The process and clear and source data is taken from external providers – this is fine but limits the degree of control of ability to verify the data and potentially improve or update the reporting.
Means and frequency of data provision	Description of how the data is provided (e.g. by e-mail, upload, shared data directory), how often, and when	B	This is well established and embedded in business practice – definition of frequency and checks within extraction steps would be beneficial.
Data format(s) and expected values	Definition and description of the format(s) in which the data are to be supplied, and the expected range (if any) of values	C	Expected range is not provided but checks and analysis support reviews and the identification of e.g. outliers and trends although this could benefit from formal procedures.
Data quality	Definition and description of the required data quality and accuracy	C	Procedures for all the reporting steps are not formally documented and readily available – this is no requirements for data quality and accuracy although the team's capability provides some assurance.

Data processing	Documentation and description of processes, sufficiently clear for new users	B	Procedures for all the reporting steps are not formally documented and readily available.
Staff Training	Sufficient availability of trained staff to maintain data and process quality and continuity in the event of unavailability through e.g. illness, retirement, or resignation	B	There is no formal training although this relies on knowledge of current staff.
Checking: identification and handling of noncompliant data	Description of criteria for identifying data that may contain errors or fails to meet the system requirements, and procedures for dealing with non-compliances, including error checking built in to processes and tools, and procedure(s) for referring queries back to data source and timescales to be allowed for response. Description of measures in place for trend analysis	C	Verbal confirmation data checking takes place in Regions – indirect evidence that this is the case. There is also no requirements around review steps internally. Data contributing to below target performance investigated and reported upon at national level.
Data collation and presentation for subsequent evaluation	Description of required data formats, methods, and frequencies and/or dates of provision (who should get what, and when)	C	Procedures for all the reporting steps are not formally documented and readily available.
Process for dealing with data-related queries	Description of procedures and timescales to be followed in response to queries, including requirements for referral back to data source(s); records of numbers of queries and outcomes, analysis of trends	B	Procedures for all the reporting steps are not formally documented and readily available. In practice this is conducted and effectively implement in reasonable times.
Internal review and audit procedures	Description of internal review and audit requirements, processes, and frequencies; evidence that these are being met	C	Procedures for all the reporting steps are not formally documented and readily available.

Process for dealing with data and reporting related queries from ORR and other stakeholders	Description of procedures and timescales to be followed in response to queries from ORR; records of numbers of queries and outcomes, analysis of trends	C	Procedures for all the reporting steps are not formally documented and readily available.

E3 – Detailed assessment for Environmental incidents and Close Calls KPIs reporting system reliability

Element of Process	Criteria to be met	Score	Justification
Objectives of metric	Clear and unambiguous description of the purpose and objectives of producing the metric	A	Metrics used serve to assess performance against strategic objective – metric are best practice.
Requirements	Clear and unambiguous description of the standards required for the data and its collation, in order to meet the objectives	C	Procedures for all the reporting steps are not formally documented and readily available although we note that new guidance has been developed, though not applying to the year in scope of the assessment. The existing categorisation matrix for incidents further lacks clarity which challenges implementation.
RACI	Clear identification of those **R**esponsible for, **A**ccountable for, **C**onsulted about and **I**nformed about the metric	B	Roles and responsibilities are overall well defined and understood although there is no formal documentation and procedures readily available.
Source(s)	Description of who or what (system) provides the data	C	Procedures for all the reporting steps are not formally documented and readily available although we note that new guidance has been developed, though not applying to the year in scope of the assessment.
Means and frequency of data provision	Description of how the data is provided (e.g. by e-mail, upload, shared data directory), how often, and when	B	This is well established and embedded in business practice – definition of frequency and checks within extraction steps would be beneficial.
Data format(s) and expected values	Definition and description of the format(s) in which the data are to be supplied, and the expected range (if any) of values	C	Lack of formal documentation. Checks and analysis support reviews and the identification of e.g. outliers and trends although this could benefit from formal procedures.

Data quality	Definition and description of the required data quality and accuracy	C	Description of the standards is provided although it is found the lack of guidance or written procedures does not fully resolve the sometimes ambiguous nature of incident categorisations
Data processing	Documentation and description of processes, sufficiently clear for new users	B	Methodologies and procedures are not formally documented or readily available but maturity of reporting within the organisation
Staff Training	Sufficient availability of trained staff to maintain data and process quality and continuity in the event of unavailability through e.g. illness, retirement, or resignation	B	The lack of formal documentation is reflected in the lack of training material, although knowledge acquisition is possible through mature reporting tools
Checking: identification and handling of noncompliant data	Description of criteria for identifying data that may contain errors or fails to meet the system requirements, and procedures for dealing with non-compliances, including error checking built in to processes and tools, and procedure(s) for referring queries back to data source and timescales to be allowed for response. Description of measures in place for trend analysis	C	Complete and formal descriptions and procedures are not readily available. However the effective reporting processes includes adequate checks and verification that support reliability of the system. It is observed that despite that some issues persist however.
Data collation and presentation for subsequent evaluation	Description of required data formats, methods, and frequencies and/or dates of provision (who should get what, and when)	B	Complete, formal and readily available descriptions and procedures are not available. However data requirements are clear and well embedded into practice
Process for dealing with data-related queries	Description of procedures and timescales to be followed in response to queries, including requirements for referral back to data source(s); records of numbers of queries and outcomes, analysis of trends	B	Procedures for all the reporting steps are not formally documented and readily available. In practice this is conducted and effectively implement in reasonable times.

Internal review and audit procedures	Description of internal review and audit requirements, processes, and frequencies; evidence that these are being met	C	Complete, formal and readily available descriptions and procedures are not available. However relevant requirements, such as investigations are clear and well embedded into practice although this could be improved – the new guidance document will likely support this.
Process for dealing with data and reporting related queries from ORR and other stakeholders	Description of procedures and timescales to be followed in response to queries from ORR; records of numbers of queries and outcomes, analysis of trends	C	Procedures for all the reporting steps are not formally documented and readily available.

E4 – Detailed assessment for SSSI KPIs reporting system reliability

Element of Process	Criteria to be met	Score	Justification
Objectives of metric	Clear and unambiguous description of the purpose and objectives of producing the metric	A	Metrics used serve to assess performance against strategic objective – metric are best practice
Requirements	Clear and unambiguous description of the standards required for the data and its collation, in order to meet the objectives	B	Description not formalised within a procedure / process for collation and calculation
RACI	Clear identification of those **R**esponsible for, **A**ccountable for, **C**onsulted about and **I**nformed about the metric	B	Clear identification and maturity of roles and responsibilities but not formalised within documentation and procedures which poses a risk for business continuity
Source(s)	Description of who or what (system) provides the data	A	This is clear, straightforward and well-established
Means and frequency of data provision	Description of how the data is provided (e.g. by e-mail, upload, shared data directory), how often, and when	A	This is clear, straightforward and well-established
Data format(s) and expected values	Definition and description of the format(s) in which the data are to be supplied, and the expected range (if any) of values	A	This is clear, straightforward and well-established
Data quality	Definition and description of the required data quality and accuracy	B	This is understood and supports sound reporting but is not formally documented and readily available
Data processing	Documentation and description of processes, sufficiently clear for new users	B	Methodologies and procedures are not formally documented or readily available but maturity of reporting within the organisation

Staff Training	Sufficient availability of trained staff to maintain data and process quality and continuity in the event of unavailability through e.g. illness, retirement, or resignation	B	The lack of formal documentation is reflected in the lack of training material, although knowledge acquisition is possible through mature reporting tools
Checking: identification and handling of noncompliant data	Description of criteria for identifying data that may contain errors or fails to meet the system requirements, and procedures for dealing with non-compliances, including error checking built in to processes and tools, and procedure(s) for referring queries back to data source and timescales to be allowed for response. Description of measures in place for trend analysis	N/A	N/A data source is an external source.
Data collation and presentation for subsequent evaluation	Description of required data formats, methods, and frequencies and/or dates of provision (who should get what, and when)	B	Complete, formal and readily available descriptions and procedures are not available although the process mature and straightforward.
Process for dealing with data-related queries	Description of procedures and timescales to be followed in response to queries, including requirements for referral back to data source(s); records of numbers of queries and outcomes, analysis of trends	B	Description not formalised within a procedure
Internal review and audit procedures	Description of internal review and audit requirements, processes, and frequencies; evidence that these are being met	B	Processes are adequately checked – we noted that there is a lack of streamlined guidance for the Regions in their review processes although the process mature and straightforward.
Process for dealing with data and reporting related queries from ORR and other stakeholders	Description of procedures and timescales to be followed in response to queries from ORR; records of numbers of queries and outcomes, analysis of trends	B	Description not formalised within a procedure

E5 – Detailed assessment for the scorecard measure – ESI reporting system reliability

Element of Process	Criteria to be met	Score	Justification
Objectives of metric	Clear and unambiguous description of the purpose and objectives of producing the metric	B	Metrics used serve to assess performance against strategic objective – lack of clarity around description of assumption taken to determine weightings
Requirements	Clear and unambiguous description of the standards required for the data and its collation, in order to meet the objectives	C	Procedures for all the reporting steps are not formally documented and readily available. No reliance on specific standard requirement.
RACI	Clear identification of those **R**esponsible for, **A**ccountable for, **C**onsulted about and **I**nformed about the metric	B	Roles and responsibilities are well defined and understood although there is no formal documentation and procedures readily available.
Source(s)	Description of who or what (system) provides the data	B	The process and clear and source data is taken from other well documented data source although this is not formally documented.
Means and frequency of data provision	Description of how the data is provided (e.g. by e-mail, upload, shared data directory), how often, and when	B	The process and clear and source data is taken from other well documented data source although this is not formally documented.
Data format(s) and expected values	Definition and description of the format(s) in which the data are to be supplied, and the expected range (if any) of values	B	The process and clear and source data is taken from other well documented data source although this is not formally documented.
Data quality	Definition and description of the required data quality and accuracy	C	The process and clear and source data is taken from other well documented data source although this is not formally

			documented – this is no requirements for data quality and accuracy although the team's capability provides some assurance.
Data processing	Documentation and description of processes, sufficiently clear for new users	B	Procedures for all the reporting steps are not formally documented and readily available.
Staff Training	Sufficient availability of trained staff to maintain data and process quality and continuity in the event of unavailability through e.g. illness, retirement, or resignation	B	There is no formal training although this relies on knowledge of current staff.
Checking: identification and handling of noncompliant data	Description of criteria for identifying data that may contain errors or fails to meet the system requirements, and procedures for dealing with non-compliances, including error checking built in to processes and tools, and procedure(s) for referring queries back to data source and timescales to be allowed for response. Description of measures in place for trend analysis	C	The process and clear and source data is taken from other well documented data source although this is not formally documented – this is no requirements for data quality and accuracy although the team's capability provides some assurance.
Data collation and presentation for subsequent evaluation	Description of required data formats, methods, and frequencies and/or dates of provision (who should get what, and when)	C	Procedures for all the reporting steps are not formally documented and readily available.
Process for dealing with data-related queries	Description of procedures and timescales to be followed in response to queries, including requirements for referral back to data source(s); records of numbers of queries and outcomes, analysis of trends	B	Procedures for all the reporting steps are not formally documented and readily available. In practice this is conducted and effectively implement in reasonable times.
Internal review and audit procedures	Description of internal review and audit requirements, processes, and frequencies; evidence that these are being met	C	Procedures for all the reporting steps are not formally documented and readily available.

Process for dealing with data and reporting related queries from ORR and other stakeholders	Description of procedures and timescales to be followed in response to queries from ORR; records of numbers of queries and outcomes, analysis of trends	C	Procedures for all the reporting steps are not formally documented and readily available.