OPEN TENDER

RSSB INVITATION TO TENDER FOR THE PROVISION OF: RSSB2734 - T1155 PERFORM Reviewing the risks and benefits of detonator usage

Deadline: Friday 12th October 2018

ITT Reference: RSSB2734 - T1155 PERFORM Reviewing the risks and benefits of detonator usage

# TENDER DOCUMENTS

1.1 Tenders shall be submitted in accordance with the following instructions. It is important that all the information requested is provided in the format and order specified. If the Tenderer does not provide all of the information RSSB has requested within the tender pack, RSSB may reject the tender as non-compliant.

1.2 Tenderers must obtain for themselves, at their own responsibility and expense, all information necessary for the preparation of their tender. Tenderers are solely responsible for any costs and expenses in connection with the preparation and submission of their Tender, and all other stages of the selection and evaluation process. Under no circumstances will RSSB, or its advisors, be liable for any costs or expenses Tenderers, their sub-contractors, suppliers or advisors incur in this process, including if this tendering process is terminated or amended by RSSB.

1.3 Tenderers are solely responsible for obtaining the information that they consider is necessary in order to prepare the content of their tender and to undertake any investigations they consider necessary in order to verify any information RSSB provides during the procurement process.

1.4 All pages of the tender submission must be sequentially numbered (including any forms to be completed and returned).

1.5 All specifications, plans, drawings, samples and patterns and anything else that RSSB issues in connection with this ITT, remains the property of RSSB and are to be used solely for the purpose of tendering.

1.6 At any time prior to the deadline for receipt of questions, RSSB may modify the tender documents by amendments in writing.

1.7 RSSB (at its sole discretion) may extend the deadline for receipt of Tenders.

RSSB reserves the right to modify or to discontinue the whole of, or any part of, this tendering process at any time and accepts no obligation whatsoever to award a contract.

# GENERAL, LEGAL & COMPLIANCE

2.1 RSSB will check each tender for completeness and compliance with the tender instructions. RSSB reserves the right to reject any tenders it considers substantially incomplete, or non-compliant (each tender will be assessed on its own merit, according to the level/importance of omitted or non-compliant content).

2.2The Tenderer will be excluded should any of the grounds for mandatory rejection or discretionary rejection be triggered. Mandatory requirements can be viewed within the Public Contracts Regulations 2015.

2.3 Tenderers are required to confirm in their tender response, they are able to meet all mandatory and discretionary requirements.

2.4 The Tenderer will be excluded should it be assessed that it has a high risk of:

* + Insolvency over the lifetime of the contract; e.g. the Tenderer may be excluded if its current assets to current liabilities ratio is less than 1;
	+ Insufficient financial capacity to deliver the services effectively; or
	+ Over-dependence on RSSB (e.g. the Tenderer may be excluded if its turnover is less than £ [no more than2x the contract value]

# 3.0 TENDER INSTRUCTIONS

3.1 “RSSB” means the contracting authority, seeking to invite suppliers to participate in the procurement process.

“You” or “Supplier” means the legal entity completing these questions, seeking to be invited to the next step of the procurement process Invitation to Tender (ITT)

3.2 Please ensure all questions are completed in full and in the format requested. Failure to do so may result in your submission being disqualified. If the question does not apply you need to clearly state N/A.

3.3 If it is necessary for you to provide additional information this should be provided as an appendix and clearly referenced as part of your declaration.

3.4 **RSSB REPRESENTATIVE**

Your main point of contact is: shareditt@rssb.co.uk

**RSSB OVERVIEW**

If you wish to find out more about RSSB, please visit our website at [www.rssb.co.uk](http://www.rssb.co.uk)

**Timetable**

The timetable for this procurement follows. This is intended as a guide and whilst RSSB does not intend to depart from the timetable, it reserves the right to do so at any stage.

The expected milestones are set out below:

|  |  |
| --- | --- |
|  | **Start Date** |
| I.T.T Issued |  7 SEPT 2018 |
| Supplier Q&A engagement opportunity  | 14 SEPT 2018 13:30 – 14:30 |
| Supplier clarification questions deadline  | 28 SEPT 2018; 12:00 hours |
| **Deadline for Submitting Tenders** | **12 OCT 2018; 17:00 hours** |
| Post Tender Clarification  | 15 OCT 2018 |
| Estimated notification of award decision | w/c 22 OCT 2018  |
| Target contract commencement date | w/c 29 OCT 2018 |

Note: RSSB reserves the right to amend these dates as business requirements demand and will communicate any changes to tenderers.

3.5 **QUESTIONS**

Should you have any questions relating to the project, please email these before the deadlines detailed in the project timeline above to ensure that these questions can be effectively addressed? To ensure equal and fair treatment to all potential suppliers, RSSB will circulate all questions and responses anonymously.

Questions should be emailed to: shareditt@rssb.co.uk

# 4.0 Evaluation Information

4.1 In the interests of an open, fair and transparent assessment, this document sets out how RSSB intends to evaluate tender responses. It outlines the evaluation criteria and respective weightings, as well as the evaluation methodology to be applied.

4.2 **Verification of Information Provided**

 Whilst reserving the right to request information at any time throughout the procurement process. RSSB may enable the Supplier to self- certify that there are no mandatory/ discretionary grounds for excluding their organisation. When requesting evidence that the supplier can meet the specified questions relating to Technical and Professional Ability RSSB may only obtain such evidence after the final tender evaluation decision and only from the winning Supplier only.

4.3 **Please self-certify whether you already have, or can commit to obtain, prior to the commencement of the contract, the levels of insurance cover indicated below:**

* Employer’s (Compulsory) Liability Insurance = £2M
* Public Liability Insurance = £1M
* Professional Indemnity Insurance = £1M

4.4 **Sub- contracting Arrangements**

 Where the Supplier proposes to use one or more sub- contractors to deliver some or all of the contract requirements, a separate Appendix should be used to provide details of the proposed delivery model that includes members of the supply chain and percentage of work being delivered by each sub -contractor and the key deliverables that each sub- contractor will be responsible for.

RSSB recognises that sub- contracting arrangements may be subject to change and not finalised until a later date. However, Suppliers should be aware that where information provided to RSSB indicates that sub- contractors are to play a significant role in delivering the key requirements and any changes to those sub- contracting arrangements significantly affect the ability of the supplier to deliver key requirements the Supplier should notify RSSB immediately of any changes in the proposed supplier sub-contractor arrangements. RSSB reserves the right to deselect the Supplier prior to any award of contract based on an assessment of the updated information.

4.5 **Consortia Arrangement**

 If the Supplier completing this tender submission is doing so as part of a proposed consortium the following information must be provided:

* Names of all consortium members;
* The lead member of the consortium who will be contractually responsible for delivery of the contract (if a separate legal entity is not being created); and
* If the consortium is proposing to form a legal entity, full details of the proposal should be submitted as an Appendix with this Tender.
* RSSB may require the consortium to assume a specific legal form if awarded the contract. If it is deemed that a legal incorporation is necessary for the satisfactory performance of the contract.
* All members of the consortium will be required to provide the information required in all sections of the Tender as part of a single composite response to RSSB i.e. each member of the consortium is required to contribute to completing the response document.

4.6 **Confidentiality**

 RSSB reserves the right to contact the named customer contact and the nominated customer does not owe RSSB any duty of care or have any legal liability, except for any deceitful or maliciously false statements of fact.

 RSSB confirms that it will keep confidential and will not disclose to any third parties for any information obtained from the named customer contact, other than to the Crown Commercial Services and or contracting authorities defined by the Public Contract Regulations.

# 5.0 Evaluation Process

5.1 The process that will be used to select an appropriate Tenderer and award the contract for this procurement is available in more detail in the Evaluation Criteria.

The open procedure is a single stage process.

5.2 **Marking for Award Criteria**

An evaluation panel consisting of representatives of key stakeholders within RSSB will carry out the evaluation. The procurement team will only act as moderator during the assessment phases of the evaluation.

Each evaluation area is weighted to show the relative importance significance of the criteria specific area’s for assessment.

# 6.0 PROCESS AND PREPARATION OF RESPONSES

6.1 The Supplier shall not enter in any agreement or arrangement with any third party which would in any way cause RSSB or its members to incur any financial obligations to the Supplier or any third party.

6.2 The Supplier shall not approach any Customer employee, the Customer’s Representative or its agents to discuss any aspects of the Tender. All communication should be conducted via the Customers Representative.

6.3 The Supplier shall not canvass support for the award of the contract by approaching any employee of RSSB, its Representative or its agents.

6.4 The documents as enclosed are to be accepted in their entirety. No alteration Representative before the date stated for the receipt of tenders. If any alteration is made or these instructions to Suppliers are not fully complied with the tender may be invalidated.

6.5 The conditions of contract included in this Invitation to tender apply. The Suppliers standard terms of business or trade will not be accepted.

6.6 Any requested changes to the conditions of contract must be detailed on the Contract Issues Memo document included for consideration. If this is not completed, it is assumed that the Supplier has accepted all terms and conditions detailed and no further changes will be accepted.

6.7 The Supplier shall be deemed to have satisfied itself as to the nature, extent and the content of the goods, services or works to be provided, the extent of staff required and all other matters, which may affect the tender.

6.8 All prices quoted to be GBP (unless otherwise requested in the Invitation to Tender) exclusive Value Added Tax and firm.

 It is the Suppliers responsibility to ensure the tender is correct at the time of submission. No amendment to the tender will be allowed after the due date.

6.9 Any questions must be emailed to the main point of contact no less than five days before the return date. Note: questions/responses will be circulated anonymously to all Suppliers invited to tender. Tenders received after the closing date and time will not be considered.

6.10 The Customers Representative reserves the right to correct any omissions or inaccuracies in the Invitation to Tender and to clarify and/or amend any of the Customers’ requirements, up to seven days before the return of tenders.

6.11 All information supplied by RSSB must be treated in confidence and not disclosed to third parties except insofar as this is necessary to obtain sureties or tenders required during the preparation of the Tender. All information provided by Suppliers will be treated in confidence except in stances where references may be sought.

6.12 RSSB reserves the right to cancel this Tender at any point and any cost incurred in the preparation of this Tender is at the Bidder’s expense.

6.13 Tenders must remain open for acceptance for a period of 180 calendar days from the submission date.

6.14 The tenderer should include the following information as part of their tender response:

Legal entity name of Tenderer

|  |
| --- |
|  |

Contact person's name, email address, telephone number and postal address for enquiries relating to this procurement

|  |
| --- |
| Name: |
| Postal address: |
| Telephone number: |
| Email address: |

Tenderer’s registered address

|  |
| --- |
|  |

Tenderer’s website address (if available)

|  |
| --- |
|  |

Please tick the box for the legal form of the Tenderer

|  |
| --- |
| * Sole Trader [ ]
* Partnership [ ]
* Limited Liability Partnership [ ]
* Private Limited Company [ ]
* Public Limited Company [ ]
* Local Council [ ]
* Voluntary/ charitable/ not for profit organisation [ ]
* Other (please specify below) [ ]
 |

If ‘Other’ has been selected from the question above please provide details.

|  |
| --- |
|  |

If your business is a registered company, charity or any other registered organisation (including limited, non-limited or Industrial and Provident Society), please state your registration number. This must be the registration number of the Tenderer, providing the country and date of incorporation / registration if other than the UK.

|  |
| --- |
|  |

Name of ultimate parent company (if this applies)

|  |
| --- |
|  |

Companies House Registration number of ultimate parent company (if this applies)

|  |
| --- |
|  |

**Additional Notes**

* Fully answer the question given and consider the weighting for the section
* Explain how you will meet the criteria and provide evidence to support your response.
* Further reading on how to complete the tender is available in section 10

# 7.0 TENDER EVALUATION (SELECTION CRITERIA)

| **Heading** | **Specific question(s)** | **Evaluation Criteria** |
| --- | --- | --- |
| S1 Experience of the supplier in risk analysis using quantitative methods. [Max 1 page] | Could you provide a short description of two projects involving risk analysis using qualitative and quantitative methods, that you have delivered to clients over the last five years? Please provide a short explanation of why they are relevant to our needs. | Pass: The tenderer provides a short description of two projects involving risk analysis using qualitative and quantitative methods that the tenderer has delivered to clients over the last 5 years. Further the tenderers provides a short explanation as to “Why?” the examples the tenderer has given is relevant to RSSB’s needs. Finally the examples provides RSSB with a strong degree of confidence in its experience involving risk analysis using qualitative and quantitative methods. Fail: The tenderer either fails to provide evidence of example projects involving risk analysis using qualitative and quantitative methods that the tenderer has delivered to clients in the last five years or fails to provide a short explanation as to the “Why?” the examples are relevant to RSSB’s needs or fails to provide RSSB with sufficient confidence in its experience of delivering projects involving risk analysis using qualitative and quantitative methods. |
| S2 Experience of the supplier in Rail Operations and standards. [Max 1 page] | Could you provide a short description of two projects involving Rail Operations and standards, that you have delivered to clients over the last five years? Please provide a short explanation of why they are relevant to our needs. | Pass: The tenderer provides a short description of two projects involving Rail Operations and standards that the tenderer has delivered to clients over the last 5 years. Further the tenderer provides a short explanation as to “Why?” the projects listed by the tenderers are relevant to RSSB’s needs. Finally, through the response to this question the tenderer provides RSSB with a strong degree of confidence in its experience involving Rail Operations and standards. Fail: The tenderer either fails to provide evidence of two projects involving Rail Operations and standards that the tenderer has delivered to clients over the last 5 years or fails to provide a short explanation as to “Why?” these are relevant to RSSB’s needs or fails to provide RSSB with sufficient confidence in its experience of delivering projects involving Rail Operations and standards.  |
| S3 Strengths and key points of proposal[Max 1 page] | Could you provide a short description a summary of the strengths and key points of the proposal? | Pass: The tenderer provides RSSB with a 1-page summary of the strengths and key points of their proposal.Fail: The tenderer does not provide RSSB with a 1-page summary of the strengths and key points of their proposal or fails to provide RSSB with sufficient confidence in its experience. |

# 8.0 TENDER EVALUATION (AWARD CRITERIA)

8.1 **ITT Assessment**

**The Contract Award decision is solely based on the basis of Tenderer proposal and price offering.**

8.2 RSSB uses the following quality / price ratio to determine the outcome of the evaluation where quality (technical evaluation) and price are weighted and scored individually before being combined.

 Quality 80%: Price 20%

8.3 Technical criteria are weighted and scored as a percentage of the maximum score available with a minimum quality threshold set.

 **Technical Evaluation**

8.4 Tenders are assessed on how well they satisfy the technical evaluation criteria.

 The relative importance of each criterion is established by giving it a percentage weighting so that all the weightings equal 100%. The Evaluation Matrix provides details of the weightings that RSSB will use in assessing Tenderer proposals.

 The Technical Evaluation will be carried out using Tenderer responses to the tender specification using the scoring scheme (identified in Table below).

8.5 The scored responses are generally assessed out of a maximum of five (5). The Evaluation Panel will not be allowed to give partial scores (for example 3.5); however, once all scores are aggregated, the technical scores will be rounded to two decimal places prior to consolidating with the price evaluation.

8.6 The following shall constitute a failure to evidence satisfactory delivery of the requirement(s) of the procurement and will automatically disqualify the Tenderer:

1. A grade of zero (0) in any of the evaluated technical/quality questions in Section D of Schedule One (a) of Part B of the ITT before the weightings are applied; or
2. a grade of one (1) in more than one of the evaluated technical/quality questions in Section D of Schedule One (a) of Part B of the ITT before the weightings are applied

8.7 Those Tender Responses which fail to demonstrate satisfactory delivery of the requirement(s) of the procurement by reason of failing to achieve these minimum thresholds will be set aside and not considered further.

|  |  |
| --- | --- |
| **Grade** | **Definition of grade** |
| 5 | A wholly excellent Tender Response that (where applicable):* Addresses all aspects of the question in an informed and comprehensive manner;
* Demonstrates a thorough understanding of what is being asked for;
* Provides evidence of how that understanding can be applied in practice;
* Offers full confidence that the Tenderer will deliver the service in full;
* Addresses the majority of areas of doubt and uncertainty; and
* Provides certain, unambiguous commitments or statements of intent that permit reliance through translation into contractual terms
 |
| 4 | * A good Tender Response that (where applicable):
* Addresses all aspects of the question and is generally of a good standard;
* Demonstrates a good understanding of what is being asked for;
* Provides a worked-up methodical approach;
* Offers confidence that the Tenderer will deliver the service in full with limited areas of doubt or uncertainty;
* Addresses key areas of doubt and uncertainty; and
* Provides commitments that can be translated well into contractual terms
 |
| 3 | A satisfactory Tender Response that (where applicable):* Addresses the majority of the question and is generally of a good standard but lacks substance or detail in some areas;
* Demonstrates an understanding of what is being asked for;
* Provides a satisfactory approach;
* Offers a general level of confidence that the Tenderer will deliver the service (but with room for doubt in some areas);
* Address some areas of doubt and uncertainty; and
* Provides some commitments that can be translated well into contractual terms.
 |
| 2 | A poor Tender Response that (where applicable):* Addresses some of the question but *either* lacks relevant information and detail *or* lacks substance in a manner that would suggest the response is a “model answer”;
* Demonstrates some understanding but with a lack of clarity in key areas;
* Provides an approach which is not wholly appropriate or viable orlacks evidence;
* Shows that the level of confidence that the supplier can deliver does not outweigh the doubt;
* Does not address many areas of doubt and uncertainty; and
* Does not offer sufficient commitment (with doubt as to the extent to which would translate into contractual terms)
 |
| 1 | A generally unsatisfactory Tenderer response that (where applicable):* Does not address the question or has omissions;
* Lacks understanding in significant areas:
* Provides an approach which has gaps or creates concerns;
* Shows that the level of confidence that the supplier can deliver is low;
* Creates uncertainty; and
* Displays significant lack of commitment (with doubt as to the extent to which would translate into contractual terms)
 |
| 0 | A wholly unsatisfactory Tenderer response that (where applicable):* Provides no response or omissions/oversights that prevent scoring;
* Refuses to deliver the requirement; and
* Creates concerns so significant that the response would be detrimental to the interests of RSSB
 |

#  9.0 ITT Evaluation Matrix (Award Criteria)

|  |  |  |  |
| --- | --- | --- | --- |
| **Heading** | **Specific question(s)** | **Evaluation Criteria** | **Weight**  |
| A1 Robust methodology and ability to apply it to client’s needs. [Max 5 pages]  | The tenderer provides a method statement of how it is intended to deliver against all aspects of the work package objectives of this work. This should include identifying the cases the options to replace or remove detonators reduces / removes the risks associated with detonator use while also controlling the identified hazards for each case. * How will the supplier identify and assess the first principles for each hazard within each case?
* How will the supplier assess each risk control per each case, to identify where detonators can be removed / replaced?
* How will the supplier identify possible mitigation strategies for cases where detonators cannot be removed?
* How will the supplier elicit information and validate outputs with industry members in an efficient and effective way?
 | The Tenderer’s response:* Demonstrates their understanding of the objectives and provide a coherent and systematic approach to meeting all the objectives.
* Proposes a sound, impartial and credible methodology to identify and risk assess the hazards detonators are used to control, and the potential safety benefits that can be gained through the removal / replacement of detonators
* Proposes how alternative options to replace detonators will be identified
* Demonstrates an efficient and effective methodology to elicit information and validate outputs with industry members.
 | 30% |
| A2 Independence, Knowledge and expertise in subject area [Max 3 pages] | Detail the knowledge and expertise of the team who will be undertaking this work, relevant to reviewing the risks and benefits of detonator use and their removal. How will the tenderer apply their knowledge, expertise and skills to meet the objectives of this work?What experience does the supplier have on understanding human performance and the impact will have on the risk assessment? How will the team ensure fair, independent, and impartial outputs are delivered? | The Tenderer’s response includes:* Evidence of their knowledge and expertise in the subject area.
* Evidence of their technical competence in risk assessment using qualitative and quantitative methods, and rail operations and standards.
* Describes how they will apply their knowledge, expertise, and technical competence to deliver the objectives of this research.
* Evidence of relevant human factors experience
* Evidence of team independence and impartiality.
 | 20% |
| A3 Competence in communication, and engaging and managing of stakeholders.[Max 2 pages] | How will the tenderer manage and engage multiple stakeholders, including representatives from Network Rail, Train Operators, Freight Operators, and union members? How will the tenderer manage and negotiate multiple stakeholder views to ensure the outputs provide a balanced, fair and unbiased representation of industry expertise in the outputs?How will effective communication be achieved with key stakeholders?How will the tenderer engage and support stakeholders with the implementation strategy?  | The tenderer’s response demonstrates:* Experience of effectively engaging and managing multiple stakeholders.
* Provides a well thought out and appropriate communication plan for communication between the tenderer and key stakeholders, to ensure the quality and content of the work is fit for purpose.
* The tenderer has detailed potential approaches for managing and negotiating multiple stakeholder views to ensure the outputs provides a balanced, fair and impartial evidence-base of industry expertise.
* The tenderer details how they will support stakeholders identify the opportunities for successful implementation and overcome potential challenges this
 | 10% |
| A4 Project Delivery and resources[Max 2 pages] | Please identify the key roles and responsibilities that are essential to deliver the requirements of this work. How will adequate allocation of appropriate resources be made against each deliverable?How will the team ensure the quality and the content of the deliverables are fit for purpose?What is the schedule that each task will be delivered against? | The tenderer’s response:* Identifies relevant individuals to deliver the work and demonstrates that the mix of skills covered are appropriate to deliver the project.
* Provides a credible plan for delivering successful outcomes to time, quality and cost, including details of allocated effort to activities.
 | 10% |
| A5 Risks and opportunities[Max 2 pages]  | Tenderers should detail what risks and opportunities are foreseen in the delivery of the project. The tenderer should detail mitigating actions in relation to these risks, and how opportunities can be maximised.What are the potential risks to this project? How will these risks be managed?What are the potential opportunities that could be maximised during the delivery of this work? | The tenderer’s response:* Identifies appropriate risks and opportunities through the use of a risk register.
* Identifies what mitigation actions will be taken with specific regard to each risk or challenge identified.
* Identifies approaches to maximising any opportunities through effective management.
 | 10% |
| A6 Cost of project | Provide a fixed cost for the project and the associated cost break down. Describe how and why this represents value for money. | * The tender with the lowest total cost will receive 100% of the available weighted score (20%).

Other Tenderer’s tenders will receive a pro-rated relative to the lowest cost according to the following formula:Score of other tender = lowest tender total cost / other tender total cost x 100%. | 20% |

# 10.0 PRICE EVALUATION

10.1 All prices quoted shall be in sterling (unless otherwise requested in the Tender Documents), exclusive of Value Added Tax and shall be firm.

10.2 A full and comprehensive breakdown of all costs and expenses to provide the goods, services or works requested in this invitation to tender must be provided and all assumptions must be clearly stated.

10.3 Failure to provide adequate detail may cause your tender to be judged non-compliant.

10.4 The construction of the price must be clear and easy to understand. Where appropriate the use of tables to show pricing is preferred. We require the following information:

* + - A breakdown by grade and named individual, indicating the number of days to be worked on each task and the daily rate to be charged.
		- A list of sub-contracts with prices and copies of quotations where available (a similar breakdown by grade, named individuals and rates, as above, is required where the sub-contract is for manpower).
		- Details of any other costs, such as hire charges for equipment.
		- Details of travel and subsistence and all expenses to be incurred. Mileage reclaim will be linked to maximum levels set by HMRC.
		- The above breakdowns should be further broken down into individual work packages.

# 11.0 TENDER EVALUATION CRITERIA AND MINIMUM REQUIREMENTS

11.1 In evaluating tenders, the most economically advantageous tender(s) will be sought. This will be using the evaluation criteria and weightings detailed in **ITT Evaluation Matrix** **Award Criteria**.

11.2 The evaluation criteria detail the minimum requirements. Therefore, any tender which cannot demonstrate that it meets any of the minimum requirements will not be marked and will automatically score zero.

Tenderers are advised to carefully consider the attached specifications, ask clarification questions to ensure these are understood.

# 12.0 CONDITIONS OF CONTRACT

The terms and conditions of the contract are contained with a separate document.

**Qualification of the Contract**

Where Tenderers have any queries or concerns with any specific condition of the terms and conditions of the contract, these should be submitted in writing to **shareditt@rssb.co.uk** as soon as possible, and in any case no later than 10 days prior to the deadline for submission of tenders.  Please ensure the specific condition(s) and proposed amendment(s) are provided.  These will be reviewed by RSSB on a case by case basis, and, if accepted, revised terms and conditions will be issued to all Tenderers.  Failure to accept the terms and conditions of the contract or to qualify the tender in any way, may result in the tender being rejected by RSSB.

## 13.0 RSSB Company Information

 ***Insert Work Package Title*Introduction**

RSSB was established in April 2003. The Company’s primary objective is to facilitate the railway industry’s work to achieve continuous improvement in the health and safety performance of the railways in Great Britain, and thus to facilitate the reduction of risk to passengers, employees and the affected public. The railway is a complex system with multiple interfaces delivered by many different organisations. At RSSB we bring these different organisations together to make collective decisions. We help the rail industry carry out research, understand risk, set standards and improve performance. We provide a constant point of reference in a changing environment.

We support rail in the areas of safety standards, knowledge and innovation and a wide range of cross- industry schemes requiring our knowledge and independence. Our work involves close collaboration, but as technical experts we also appoint suppliers in the wider market to provide an informed view.

**Key elements of the company’s remit are to:**

* Manage Railway Group Standards on behalf of the industry
* Lead the development of long-term safety strategy for the industry, including the publication of annual Railway Strategic Safety Plans
* Propose change through facilitation of the research and development programme, education and awareness
* Measure, report and inform on health and safety performance, safety intelligence, trends, data and risk
* Support cross-industry groups in national programmes which address major areas of safety concern
* Facilitate the effective representation of the UK rail industry in the development of European legislation and standards that impact on the rail system

RSSB is a not-for-profit company owned by major industry stakeholders. The company is limited by guarantee and is governed by its members, a board and an advisory committee. It is independent of any single railway company and of their commercial interests.

# Background

## RSSB Overview

*RSSB* is a membership organisation in the railway that helps industry by understanding risk, guiding standards and managing research. The rail industry in Britain is made up of many different organisations, but they all form a system and share a common purpose, to move people and freight safely and efficiently by rail. *RSSB* brings all parts of this system together to make collective decisions, products and services, to help industry drive out unnecessary cost, improve business performance and develop long-term strategies.

*RSSB’s* activities include:

* **Understanding risk –** Using safety intelligence from across the rail industry and elsewhere with the latest risk modelling to inform members and support safe decision making.
* **Guiding standards** – Creating, reviewing and simplifying GB standards to align with European requirements; managing the *Rule Book* and making it easier for the railway to deliver efficiently and safely.
* **Managing research, development and innovation** – Undertaking, commissioning and managing research and innovation programmes to address current needs, provide knowledge for decision making now and for the future, and promoting step changes to deliver the *Rail Technical Strategy*.
* **Collaborating to improve** – As an independent cross-industry body with a critical mass of technical expertise, supporting activities which require collaboration. These range from supplier assurance schemes (*RISQS, RISAS*) to confidential reporting (*CIRAS*), from health and wellbeing strategies to sustainability principles.

**Specification for research project**

**T1155 PERFORM: Reviewing the risks and benefits of detonator usage**

# Background

Detonators are small metal devices that contain a small quantity of explosives, that are placed on the railhead to cause a loud sound, activated by the wheel-rail interface of a passing train to alert the driver they are approaching a hazard on the line ahead (RSSB GE/GN8532, 2015). They were first invented by Edward Alfred Cowper in 1837, to be used as warning or caution devices during fog conditions when signals were difficult to see. The use of detonators has largely remained unchanged since its introduction, over 180 years ago. Detonators are classified as explosives under the 1875 Explosives Act, and the storage of large quantities of more than 5 kgs (approx. 600 detonators) require a licence under the Manufacture and Storage of Explosives Regulations (2004).

The use and placement of railway detonators as a warning and protection method for railway planned and emergency working, has not evolved since they were first introduced. Detonators have a variety of uses, in which the rule book has around 113 references to ‘detonator’. Typical uses of detonators include an added layer of protection during the assistance to failed trains, emergency protection arrangements, engineering possessions, protection of isolated sections and during degraded operations. As such, driving cabs are required to have acoustic characteristics that ensure the exploding of detonators is audible to the driver (GM/RT2160), which may inhibit innovative designs and materials.

The placement, handling, storage and transportation of detonators require specific processes, training and competence management. The placement and handling of detonators requires personnel to access the track to place and remove detonators in a systematic and careful manner, adding time to the management and control of a possession. This also exposes staff to risks of trackside working, such as from train movements, electrification hazards, hazardous materials, and slips, trips and falls. As noted in research by RSSB (2007)[[1]](#footnote-1), although the placement/removal of detonators presents a low risk, the placement/removal of detonators in the wrong place is a medium/high risk, with 36% of the events involving handsignalling identified as high risk.

There have been reports of possession support staff placing detonators on the wrong lines or in the wrong places, exacerbating risks to the placer, working group or activity that require protection. Consequently, safety incidents involving the use of detonators have been reported. In 2008, following a T3 possession, a track worker was stuck by a train and killed when removing detonators and possession limit boards from the line[[2]](#footnote-2). Although a number of casual and contributor factors were reported, one underlying factor was the requirement for staff the access the track to place and remove protection, including detonators. A recent RAIB report (2017)[[3]](#footnote-3) also noted a near miss when an engineering train was wrongly signalled and entered a possession where support staff were preparing to remove the limit boards and detonators. Subsequently, RAIB has recommended the need to reduce exposure to track worker risks, including being on the track to place/remove possession limit boards and detonators.

The transportation and storage of detonators presents further risks to staff and members of the public. Detonators can be subject to misuse and vandalism, including the risk of theft from driving cabs, storage, and transportation locations. For example, in August 2012, an adolescent lost an eye when stolen detonators were placed in a fire during bonfire night[[4]](#footnote-4).

Some countries have abolished the use of detonators due to being potentially dangerous to the user, impact on noise pollution, and the superseding of modern protection methods[[5]](#footnote-5). Previous research by RSSB published in 2006 (T507) reviewed the continued use of detonators[[6]](#footnote-6), and concluded that detonators should not be removed due to limitations in available technology and the absence of a suitable alternative method.

Over the past 10 years, a decreasing trend in the overall risk of harm across the rail industry (RSSB, 2018[[7]](#footnote-7)) and improvements in safety performance during trackside working has been demonstrated. Advances in technology will have contributed to improving rail safety performance, such as improved rolling stock, signalling and train protection systems (i.e. AWS and TPWS). GSM-R with REC functionality has been rolled out nationally, and other warning / alerting systems are available including wearable and handheld devices[[8]](#footnote-8). Thus, the risks of detonator protection may now be disproportionate to the value of their continued use. As such, in some situations detonators may no longer be the right solution to control and reduce the risks for particular hazards.

# Work package objectives

This research investigates the current use of detonators on a case-by-case basis, to assess the hazards detonators control, and the associated risks and benefits of their use. The research should determine the suitability of the continued use of detonators to control hazards in each scenario they are used and identify the cases where a safety benefit can be gained through the removal or replacement of detonators, or where the continued use of detonators can be no longer considered reasonably practicable. Each case should be assessed to consider safety as the primary benefit factor. The objectives of this work include:

* For each scenario where detonators are used, identify the hazards for which detonators are providing a risk control or mitigation
* Identify how each hazard for each case is currently controlled
* Identify alternative approaches for controlling the hazards (e.g. alternative technologies and processes)
* Compare quantitatively the risks and benefits of removing the use of detonator as a risk control, using the Taking Safe Decision approach
* Validate the risk assessment with industry stakeholders
* Clearly identify the scenarios in which the removal of detonator is recommended by the quantified risk assessment
* Summarise the options to replace detonators for those scenarios in which removal is not recommendable from a quantified risk passement point of view and indicate what mitigation/reduction strategy may be used across the cases.

The case-by-case scenarios are presented below, each as individual cases. These are accompanied by a brief description of how detonators are used in each scenario. Suppliers should specify the sequential order in which they intend to deliver each case and provide a rationale for this. For example, prioritising cases where a higher frequency of events detonators are used. For cases C1 assistance to failed train and C2 emergency protection, RSSB and OPG have undertaken some work in this area, which will be provided to the supplier to build on where required.

|  |  |  |
| --- | --- | --- |
| **Case no.** | **Case** | **Brief description of detonator requirement**  |
| C 1 | **Assistance to failed train** | The standard arrangement is to place three detonators 20 metres apart on the line on which the failed train is standing, 300 metres from the train in the direction from which the assistance will approach.  If the signaller cannot be contacted immediately or the train has failed within a temporary block working section, additional detonator protection requires the standard arrangement and full protection at the distance of 1 ¼ miles. There are additional instructions if a train approaches or a telephone, signal box, tunnel or junction is encountered before the full protection distance is reached. See RSSB rule book Module M2. |
| C 2 | **Emergency protection** | If circumstances require emergency protection to be provided, three detonators to be placed 20 metres apart on each affected line 1 ¼ miles on the approach to the obstruction. There are additional instructions if a train approaches or a telephone, signal box, tunnel or junction is encountered before the full protection distance is reached. The line on which a train is standing also needs to be protected if emergency special working or temporary block working is in operation.A slight variation is contained in TW1 section 43.1 where an obstruction on one line is noticed by the driver on another line travelling in the opposite direction. It is envisaged that the train continues 1 ¼ miles before stopping and the driver placing three detonators 20 meters apart on the affected line. See RSSB Rule Book Modules M1 (3), M2 (2), TW1 (43.1), HB2 (4).  |
| C 3 | **T3 protection** | Three detonators to be placed at the beginning and end of each section of line to be taken under possession. Protection is also required at the lines or sidings leading into the possession.See RSSB Rule Book Modules T3, HB11 |
| C 4 | **Line blockage protection** | Three detonators to be placed at the entrance to the line blockage together with a Possession Limit Boards (PLB). On single and bi-directional lines they have to be provided at both ends. This is only one of a number of possible protection measures but at some locations this would be the only one available. See RSSB Rule Book Modules TS1 (13.2.4), HB8 (2.6) |
| C 5 | **Single Line Working** | Detonators may already have been placed on the obstructed line as part of a possession or line blockage. If detonators have not already been provided or are not at appropriate locations it may be necessary to provide PLBs (but not detonators) at the exit on the obstructed line and on the approach to the obstruction. If a handsignaller is required to control wrong direction movements on the single line they are required to place one detonator on the line at their location. If trains are working to and from a point of obstruction the limiting point may need to be protected by emergency protection or T3 protection. See RSSB Rule Book Modules P1, HB5 (6.2) |
| C 6 | **Working of single and bi-directional lines by pilotman: Working to the point of obstruction** | The limiting point may need to be protected by emergency protection or T3 protection. See RSSB Rule Book Modules P1 (4), HB5 (6.2) |
| C 7 | **Temporary Block Working** | Handsignallers are required to place one detonator on the line at the signal they are positioned at. See RSSB Rule Book Modules S5 (6), HB5 (5.2, 5.3) |
| C 8 | **Movements towards an isolated section** | If movements of electric trains have to be made towards the limit of an isolated section the limit of the movement is to be marked by a PLB and three detonators 20 metres apart. See RSSB Rule Book Modules AC (11.1), DC (12.1) |
| C 9 | **Divided train** | If a portion of a divided train is to be left behind three detonators are to be provided 20 metres apart 300 metres on approach to both ends of the portion left behind. See RSSB Rule Book Modules M1 (5.4) |

# Scope

|  |  |
| --- | --- |
| **In Scope** | **Out of Scope** |
| * Case by case first principles risk assessment of the hazards that detonators control, using quantitative and/or qualitative methods, for the following cases:
	1. Assistance to failed train
	2. Emergency protection
	3. T3 protection
	4. Line blockage protection
	5. Single Line Working
	6. Working of single and bi-directional lines by pilotman: Working to the point of obstruction
	7. Temporary Block Working
	8. Movements towards an isolated section
	9. Divided train
* Build on existing work for cases C1 assistance to failed train and C2 emergency protection
* Desk-based review of good practice, and safety protection devices, methods, and technologies for each of the above cases, and with consideration of:
	+ Devices used on other international railways and metro systems
	+ Compatible technologies, or can be easily interfaced with current railway digital systems
	+ Effectiveness across the infrastructures (e.g. track working, stations, bridges, tunnels)
	+ Recommended procedure / process changes
* Human performance and the impact this has on detonator removal / replacement, supported by the risk assessment
* International practices, building on the previous work and covering any lessons / benefits from the withdrawal of detonators
* Protection methods for other scenarios that require workforce track access, but detonators are not used, including the risks imported by the method, as well as the risk controlled
* Identify the proportion of risk to the level of protection required for each scenario vs the risk and benefit provided by the current protection method
* Identify the level(s) of protection required for work undertaken that would normally result in a T3
* Identify the options to replace or remove detonators for each case, supported by the risk assessment
* Implementation strategy for industry to replace / remove detonators
 | * Technologies not currently available or that might be incompatible interfacing with existing rail systems
* Automated detonator layer devices
* Alternative options that use explosives
 |

# Methodology

Suppliers will be expected to define the methodology that they are intending to use to successfully meet the project objectives and cover the scope. For each case, this may include:

* Desk-based review of current good practice, hazards, risk controls including alternative technologies
* Quantitative risk and benefits assessment
* Validate assessment with industry members (e.g. workshops / staff interviews)[[9]](#footnote-9)

# Deliverables

|  |  |
| --- | --- |
| **Deliverable Name** | **Type** |
| **Risk assessment for:****Assistance to failed train (C1)** **Emergency Protection (C2)****T3 Protection (C3)****Line Blockage Protection (C4)** **Single Line Working (C5)****Working of single and bi-directional lines by pilotman: Working to the point of obstruction (C6)****Temporary Block Working (C7)****Movements Towards an Isolated Section (C8)****Divided Train (C9)** | 9 Reports |
| These reports detail all work undertaken to provide evidence for the removal or replacement of detonators which reduces / removes the risks associated with detonator use while also controlling the identified hazards for the specific case. Reports for C1 and C2 should build on existing work for assistance to failed train and emergency protection.These deliverables should be accepted by the project steering group and the Operations Principles Group. The report will be produced in the RSSB template and will be made available on SPARK to RSSB members.These 9 individual deliverables should be delivered as the project progresses at the completion of analysis of each case. |

|  |  |
| --- | --- |
| **Deliverable Name** | **Type** |
| **Alternative options to detonators** | Report |
| This report provides an understanding of industry good practice, safety protection devices, methods, and technologies, including International practices and metro systems. The report should build on previous work including lessons / benefits from the withdrawal of detonators, and include an understanding of protection methods for other scenarios that require workforce track access, but detonators are not used. The report should identify the potential options to replace detonators, and the wider benefits these may bring to inform decision making on the level(s) of protection required for work undertaken that would normally result in a T3.This deliverable should be accepted by the project steering group and the Operations Principles Group. The report will be produced in the RSSB template and will be made available on SPARK to RSSB members. |

|  |  |
| --- | --- |
| **Deliverable Name** | **Type** |
| **Summary and Implementation strategy** | Report |
| This report details summarise results and provides guidance for each case on the approach to remove or replacement of detonators. The summary presents the benefits from alternative options to detonators, in a matrix to illustrate the current options across all cases, including the level of benefit each option may bring.This deliverable should be accepted by the project steering group and the Operations Principles Group. The report will be produced in the RSSB template and will be made available on SPARK to RSSB members. |

|  |  |
| --- | --- |
| **Deliverable Name** | **Type** |
| **Executive Summary Presentation of Key Findings** | Presentation |
| The presentation will be provided by the supplier to the project steering group and the Operations Principles Group. The executive summary presentation will be made available on SPARK to RSSB members.  |

|  |  |
| --- | --- |
| **Deliverable Name** | **Type** |
| **Research in Brief** | Report |
| The research in brief should be created by the supplier, in partnership with RSSB, to summarise the findings of this work, in no more than 4 pages. The research in brief will summarise the aim, findings, impacts and benefits, background, and summary method of this work package. The document should also identify where to find out more information, identify recommendations and next steps for industry and further research and development.The draft research in brief will be produced in a RSSB template, and an example can be provided. The research in brief will be made available on the SPARK and RSSB websites.  |

# Stakeholders roles and responsibilities

|  |  |  |
| --- | --- | --- |
|  | **General role in project** | **Specific role in acceptance of deliverables** |
| **Project Manager** | The Project Manager is responsible for the detailed project management including project schedules, cost reporting and other relevant project management tasks. The Project Manager leads the project in organising meetings, etc. and ensures timely and effective delivery towards project objectives. | Facilitates technical review and acceptance processes, identifies, and monitors corrective actions where needed, including facilitating decision making |
| **Technical expert** | Throughout the project, the technical expert ensures that the research accurately reflects technical aspects. Technical aspects can refer to specific issues around Rail Operations, Performance, Recovery Planning, Stock and Crew Management, or any other specialist field.  | Reviews emerging outputs from technical perspective |
| **Industry and RSSB sponsor** | The Industry and RSSB sponsors act as a figurehead for the research, championing its importance and its outputs. Their key role is to provide steer to the research as it progresses and exert pressure on the industry to make use of its findings. | Formally accepts deliverables  |
| **Project supporters** | The project supporters represent parts of industry complementary to the champion’s organisation. They offer expertise for effective project delivery and support the implementation of findings led by the champion through networking, advice and other support. | Formally accepts deliverables  |
| **Project steering group** | The project steering group ensures the project delivers to industry needs. As such, it helps formulate specifications, assesses tenders, reviews draft and final outputs and other relevant tasks. | Formally accepts deliverables  |

# Budget, timescales and dependencies

This project is expected to commence October 2018 and should be completed by October 2019. Outputs from cases 1-9 should be delivered sequentially following completion of the work undertaken for each case. The first case that is expected to be delivered is C1 assistance to failed train. For the remaining cases, the supplier should indicate in their bids the order in which they intend to deliver each case and provide a rationale for this.

These are indicative dates and RSSB is prepared to consider bids that cannot meet these expectations if they have a robust and realistic project plan, and an explanation of why the expected start and end date cannot be met.

The budget for this work is up to £210,000*.*

Any bid above this value will need to provide detailed explanation on why the supplier doesn’t feel that the budget is adequate and in such case we strongly encourage suppliers to provide costed options for RSSB to consider.

#  Critical success factors and risk management

* Gaining support from industry including unions for work and the methodology to conduct it will be essential. To support this a steering group comprising industry members, and a stakeholder engagement plan has been drafted, which will be provided to the supplier to use and update during the project.
* Robust methodology demonstrating that removal / replacement of detonators will not worsen safety. Suppliers should propose a credible methodology and validate the assessment outputs with industry members.
* Supplier expertise in risk assessment, including qualitative and quantitative methods, and rail experience so to understand the whole process of detonator use and the potential consequential impact of their removal.
* Access to industry data, information and guidance per risk assessment case. This will be supported by the project steering group.

**Appendix X Form of Tender**

This section outlines how the offer from the Tenderer is to be constructed. Please return this Tender Declaration along with your Tender and retain a copy for your records.

Having examined the ITT email, the Instructions to Tenderers, the Information Required From Tenderers, the Conditions of Contract, the Specification and this Form of Tender (the “Tender Documents”), we offer to supply all/part of (delete as applicable) the goods, services or works specified in these Tender Documents.

We undertake if selected, to perform the contract in accordance with the Tender Documents, including the Conditions of Contract contained herein.

We agree that this tender shall remain open for acceptance by the Customer for 180 days from the date stipulated for the return of tenders.

We understand that you are not bound to accept the lowest, or any tender you may receive.

We certify that this is a bona fide tender, and that we have not fixed or adjusted the amount of the tender by or under or in accordance with any agreement or arrangement with any other person. We also certify that we have not done and we undertake that we will not do, at any time before the hour and date specified for the return of this tender, any of the following acts:

1. Communicate to a person, other than the person calling for the tenders, the amount or approximate amount of the proposed tender. Except where the disclosure, in confidence, of the approximate amount of the tender was necessary to obtain insurance premium quotations required for the preparation of the tender.
2. Enter into an agreement or arrangement with any other person that he shall refrain from tendering or as to the amount of any tender to be submitted.
3. Offer or pay or give or agree to pay or give, any sum of money or valuable consideration directly or indirectly to any person, for doing or having done or causing or having caused to be done, in relation to any other tender or proposed tender for the said goods, services or works, any act or thing of the sort described herein.

We recognise that the Customer reserves the right to clarify details of our offer prior to the award of any contract.

We hereby undertake that the period during which this tender remains open for acceptance not to divulge to any persons, other than the persons to whom the tender is to be submitted, any information relating to the submission of this tender or the details contained therein except where such is necessary for the purpose of submission of this tender.

**Appendix X Subcontractors**

All suppliers to RSSB are asked to provide details of all sub-contractors that will be used to perform the contract.

|  |  |  |  |
| --- | --- | --- | --- |
| Name & Address of Sub-Contractor | Service performed for Contractor | Provide details of staff numbers[[10]](#footnote-10) | Provide latest year’s turnover |
| Name:  |  |  |  |  |
| Address: |  |
| Name:  |  |  |  |  |
| Address: |  |
| Name:  |  |  |  |  |
| Address: |  |

**Appendix X Conflicts** **of** **Interest**

**Tenderers have a continuing duty to disclose actual or potential conflicts of interest in respect of itself, its named sub-contractors and / or consortia members.**

**Please describe any (potential) conflicts of interest that the Tenderer has identified and how these will be managed\*:**

If you **DO** **NOT** have any conflicts to declare, please tick this box: **[ ]**

Tenderers are reminded that failure to identify material conflicts of interest may lead to rejection of its tender response.

Guidance to Tenderers:

Tenderers should describe in the detail the perceived conflict (how it could be perceived in the context of this procurement) and the measures it will take to mitigate the conflict through the procurement life-cycle and service delivery

1. T534 - Review of handsignalling operations, communications and job aids [↑](#footnote-ref-1)
2. <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/411794/081028_R212008_Reading.pdf> [↑](#footnote-ref-2)
3. <https://assets.publishing.service.gov.uk/media/5a182f69ed915d6665a561d7/R162017_171127_Camden_Junction_South.pdf> [↑](#footnote-ref-3)
4. <http://www.dailymail.co.uk/news/article-2187606/Boy-15-loses-eye-railway-line-detonator-blows-face-threw-bonfire.html> [↑](#footnote-ref-4)
5. Review of the continued use of detonators Appendix 2: Review of protection for engineering possessions in Austria, Spain and Australia (T507 Report) <https://www.sparkrail.org/Lists/Records/DispForm.aspx?ID=9599> [↑](#footnote-ref-5)
6. Review of the continued use of detonators (T507 Report)

 <https://www.sparkrail.org/Lists/Records/DispForm.aspx?ID=9597> [↑](#footnote-ref-6)
7. <https://www.rssb.co.uk/Pages/risk-analysis-and-safety-reporting/Safety-performance-reports.aspx> [↑](#footnote-ref-7)
8. For example, WPP (Warning Presence of People) are devices fitted on the cab of operational machines, and use light and sounding alerts when a person walks in the machine’s radius of action. Health & Safety on Hand enables the worksite supervisor to verify workforce training and qualifications on site using a smartphone. [↑](#footnote-ref-8)
9. The supplier will be supported by the project steering group to access industry staff to participate in the workshops. The workshops will be led by the supplier, and where possible, RSSB may provide a venue at the RSSB Offices. [↑](#footnote-ref-9)
10. This is the average annual numbers of both staff and managerial staff employed over the last trading year [↑](#footnote-ref-10)