Rail Baltica
Coordinated by RB Rail

TECHNICAL SPECIFICATION

RBGP DESIGN REVIEW AND APPROVAL PROCESS IMPROVEMENT (6-SIGMA)

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CONTENTS

ACRONYMS AND ABBREVIATIONS

A full list of acronyms and abbreviations can be found in RBR Glossary of Abbreviations. The following acronyms and abbreviations are used throughout this document:

Abbreviation	Definition
AsBo	Assessment Body as it is defined in EU Regulation 402/2013
CRS	Comment Response Sheet
CWS	Civil Works and Station
DTD	Detailed Technical Design stage
DTD contract	Detailed Technical Design (contract)
DMAIC	Define, Measure, Analyse, Improve, Control
DPS	Design Priority Section
DS	Design Section
DTD	Detailed Technical Design
IB	Implementing Bodies
MB	Management Board
MD	Master Design stage
NoBo	Notified Body as it is defined in EU Directive 2016/797
PW	ProjectWise
RBGP	Rail Baltica Global Project
RBR	RB Rail AS
SEA	System Engineering and Assurance

DEFINITIONS

The following terms are used throughout this document:

Term	Definition
Six-Sigma project / project	Project in this document refers to the improvement process scope of works, also called the Six-Sigma project. It does not relate to Rail Baltica Project. Project is written in small letter to differentiate it from Rail Baltica Project

1 Introduction

1.1 Purpose

1. The purpose of this document is to define the requirements for a consultant to assess the existing Design review and approval process and propose improvement based on the Six-Sigma process improvement methodology.

1.2 Overview

2. RB Rail AS has contracted Design Consultants to produce the design of the Rail Baltica Project.
3. RB Rail AS is in charge of reviewing the said design deliverables as well as coordinate and consolidate reviews from Third Parties (Implementing Bodies, Expertise Service Provider acting as RB Rail support team for Design review and affected parties, such as National Roads Administrations, facilities owners etc.) into dedicated Checklist (a document called the CRS, Comment Response Sheet).
4. Other parties participating in design review are AsBo, NoBo and national level Expertise. These parties are so called independent assessment bodies and provides their review results separately according separate contracts (in their own checklists according their own internal procedures) and are not included in RB Rail CRS.
5. The review by RB Rail AS, and by other Third Parties, of the design deliverables produced by the contracted Design Consultants has proved to take much longer than the time allowed by the contracts in place and has generated a large quantity of revisions of the said deliverables due to poor quality of the input and/or output deliverables.
6. This has translated into significant delays, claims from the Design Consultants and additional costs.
7. This has impacted the decision-making process to start next project phases.
8. A review of the Design review and approval process is required:
   - 8.1. to improve the turnaround of the reviews;
   - 8.2. to streamline the type of comments generated into the CRS;
   - 8.3. to optimise the overall duration of a review cycle;
   - 8.4. to clarify the decision-making process to assess the possibility to start the next project stages with a non-fully compliant design.

1.3 Scope

9. This document is intended for the tendering of the design review Six-Sigma improvement process.
10. This document highlights the Project, define the business case for this tender, gives the problem and goal statements and indicates the milestones by which the scope of works should be completed. Finally, this document details the Roles and Responsibilities of the person who will be involved in this project.

2 Rail Baltica Project

11. The Baltic countries Estonia, Latvia and Lithuania have historically been linked to the east-west railway transport axis using the 1520mm gauge system. Because of the existing historical and physical constraints, the existing rail system is incompatible with mainland European standards, thus by now there is a consensus that Estonia, Latvia and Lithuania need to be fully integrated into the wider European rail transport system. Currently there is no 1435 mm gauge system railway line from Tallinn to Warsaw, i.e. Baltic country' railway network is a missing link in Trans-European railway network. Moreover, there are no direct passenger or freight services within the railway axis as the existing infrastructure does not allow for competitive services compared to alternative modes of transport. Thus, the clear majority of the North-South freight is being transported by road transport and the overall accessibility in the region is low.

12. The purpose of the Rail Baltica project is to develop a North-South railway line linking Baltic countries and Finland with the rest of Europe. The expected core outcome of the Rail Baltica Global Project (Global Project) is a fast conventional double track 1435mm gauge electrified railway line with design speed of 249 km/h (operational speed 234km/h) for a route of more than 870 km in length that spans Tallinn-Pärnu-Riga-Panevežys-Kaunas to the Lithuanian-Polish border, including a connection from Kaunas to Vilnius, meant for both passenger and freight transport and the required additional infrastructure (such as rolling stock depot and passenger and freight terminals) to ensure full operability of the railway. It will be interoperable with the TEN-T Network in the rest of Europe and competitive in terms of quality with other modes of transport in the region.

13. The figure below gives an overview of the Rail Baltica Project and location of the main facilities:

3 Business Case

3.1 Is the process improvement project worth the investment

14. Claims have been received from Design Consultants in relation to the Design review and approval process (in particular to CRS process) and the impact of the late reviews and large number of comments. The claims ask for several millions of euros in compensation and several years in extension of time.

15. The design is still on-going in all three states with design in some sections not yet started.

16. The process improvement project is therefore very relevant and its cost shall be offset in no time with the savings generated by the results on this project on the design packages still on-going.

3.2 Timing of the project

17. This project needs undertaking as a matter of urgency for claim avoidance, especially taking into the time for procurement of these services, the execution of the scope and the implementation of the proposed improvements.

3.3 Impact of the Six-Sigma project on current activities

18. The project will require the involvement of the following parties:

    - CTO Department especially the Civil Works team, System Engineering & Assurance team and the Deputy Chief Technical Officer;
    - Country branch team, and more specifically DTD Project Managers and Country Technical Director;
    - NoBo / AsBo representatives;
    - National Expertise representatives;
    - IBs representatives;
    - Management Board members occasionally.

19. The time that will have to be dedicated by the different parties to support the consultant should not exceed a few hours per week and so shall not impact the overall RBGP delivery objectives.

4 Problem Statement

4.1 Current Process

20. The design review process is defined in the following document:
    20.1. Design Management Plan – Ref. RBGL-RNC-PLN_DN-O-00001 (68 pages);
    20.2. Civil Works and Stations Department Management Plan – Ref. RBGL-CWS-PLN-R-00001 (50 pages with only 12 pages relevant for the definition of the process to improve);
    20.3. Presentations detailing attempt to improve the existing process (1 page).
21. These documents will be provided to the Consultant on the commencement of the mission.
22. Any additional documents that the Consultant shall request during to support the mission will be provided upon demand.
23. The current design review process have the following specificities:
    23.1. The overall RBGP design is produced per Design Sections (DS) and within each section by Design Priority Sections (DPS).
    23.2. The review of the design involve several actors in parallel:
        23.2.1. Internal reviewer:
            (a) RBR Technical team (CWS, SEA);
            (b) Design contract management team.
        23.2.2. External reviewers and affected parties:
            (a) AsBo/NoBo;
            (b) National Expertise;
            (c) Implementing Bodies.
24. The contractual constraints specify the actual design review process in two stages:
    24.1. An administrative review (quality assessment) to be done within 10 days;
    24.2. A technical review to be done within 45 days.

4.2 Quantification of the issue

25. Statistics on the issue must be collected during the Measure phase as per DMAIC methodology.

4.3 Benefits of eliminating the issue

26. The benefits of the Design Review and Approval Process Improvement are:
    26.1. **Process duration improvement**: optimise the duration of the overall design review process;

26.2. **Quality improvement**: optimise the quality check at the beginning of the process to not start the technical review based on poor technical submission of the contractor and increase the quality of the comments send to consultants to minimise the number of submission to review;

26.3. **Decision-making improvement**: revise the approval / rejection process of the design to allow the project to move to the next phase without a fully compliant design. This must be in line with local regulations for design approval;

26.4. **Claim Avoidance**: reduce significantly the number of claim to be received from the Design Consultant.

5 Goal Statement

5.1 Improvements required

27. The desired outcomes of the Six-Sigma project is to provide the following improvements:

27.1. Comments shall be returned within the contractual timeframe in 80% of the cases;

27.2. Number of design packages whose first technical review generate more than "X" critical comments shall not be more than 20% - "X" will be defined by the Consultant after the measurement phase;

27.3. Number of comments sheets produced by RBR and containing irrelevant or duplicate comments shall be less than 20%;

27.4. Number of escalation to RBR MB due to disagreement between Technical Steering Committee and DTD PM shall be less than 20%;

28. The Tenderer shall review the improvement targets defined above and may propose additional targets.

5.2 Methodology

29. The Tenderer is required to use the Define, Measure, Analyse, Improve, and Control (DMAIC) methodology for this project.

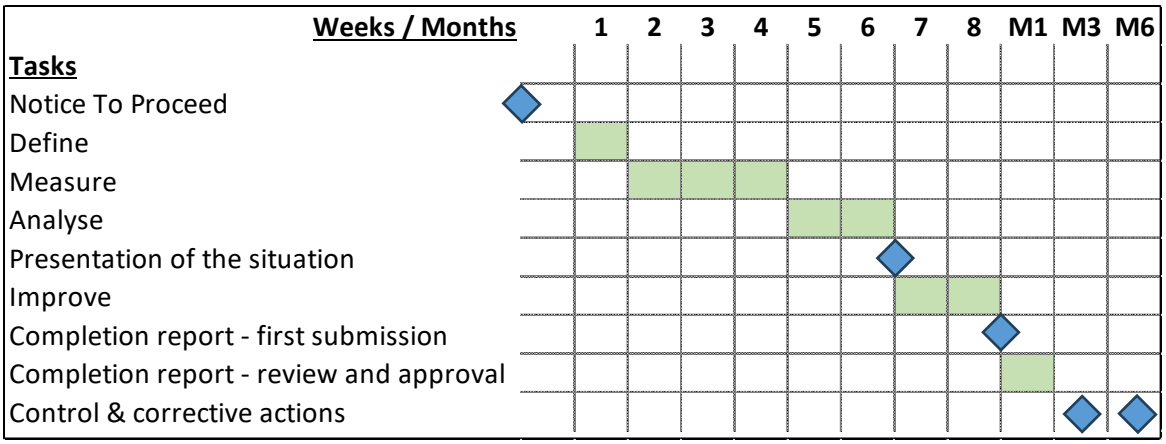
30. The Tenderer shall submit a report detailing the methodology required to be followed in order to ensure the continuity of the implementation over time of the improved process.

31. The report shall also include in the report the methodology and tool to measure the success of the recommendations.

6 Milestones

6.1 Project milestones

32. The following gives an overview of the desired timescale to implement the project.



33. The Tenderer is required to provide its own schedule in the tender package and propose a shorter timescale if possible.

34. The Tenderer shall have to plan in its proposal a review of the successful implementation of the Six-Sigma project 3 months and 6 months after the completion of the project.

7 Tender Submission Requirements

35. The Tenderer is required to submit the following with its proposal:

7.1 Scope of Work

36. The selected Six Sigma consultancy firm is expected to perform the following tasks for each phase.

37. The list of tasks is given for indication only to give an understanding of the type of activities that are conducted for each phase.

7.1.1 Define

38. During the "Define" phase, the Consultant:

38.1. Conduct a comprehensive assessment of our current design review process, including a review of existing documentation, workflows, and stakeholder roles.

38.2. Create a detailed process map for the design review process, highlighting critical steps and decision points.

38.3. Identify key stakeholders involved in the design review process.

38.4. Assess their roles, responsibilities, and communication channels within the process.

7.1.2 Measure

39. During the "Measure" phase, the Consultant:

39.1. Collect relevant data and metrics related to the design review process.

39.2. Interview process stakeholders to analyse how they apply the existing process and collect their feedback.

7.1.3 Analyse

40. During the "Analyse" phase, the Consultant:

40.1. Identify process bottlenecks, inefficiencies, and areas for potential improvement.

40.2. Identify opportunities for streamlining and optimization.

40.3. Analyse data to identify trends, deviations, and potential causes of delays or errors.

7.1.4 Improve

41. During the "Improve" phase, the Consultant:

41.1. Utilise Six Sigma methodologies (e.g., Fishbone diagrams, 5 Whys) to identify root causes of issues within the design review process.

41.2. Develop a comprehensive set of improvement recommendations based on the assessment and analysis findings.

41.3. Prioritize recommendations based on their potential impact on process efficiency and quality.

41.4. Assist RBR in implementing the approved improvement recommendations.

41.5. Provide guidance and support during the transition to the improved design review process.

41.6. Develop a system for ongoing performance monitoring to ensure sustained process improvement.

41.7. Establish key performance indicators (KPIs) and reporting mechanisms.

7.1.5 Control

42. During the "Control" phase, RBR is measuring the efficiency of the improvements proposed by the Consultant and based on the control tools that will be defined by the Consultant.

43. The Consultant will visit RBR 3 months after the completion report to review the metrics collected by RBR and propose a first set of corrective actions.

44. The Consultant will visit RBR 6 months after the completion report to review the metrics collected by RBR and propose final set of corrective actions.