

Variation to the terms of the Ferrovial Construction (Australia) Pty Ltd (Ferrovial) Enforceable Undertaking (EU) accepted on 29 November 2021

Variations to the following terms of the Ferrovial EU are proposed:

- **Under Term 3.3.1 – Research Grant to Griffith University:**

- Replace the entire activity, cost breakdown and extend the timeframe as follows:

Term 3.3.1 - Research Grant to Griffith University

Griffith University will undertake the following research project. The overall goal of the project is to improve the effectiveness of safety management for heavy vehicle movements and lifting operations on construction sites.

The research questions are as follows:

Q1: What is the current state of knowledge about managing safety of high-risk mobile plant in industries other than construction?

Q2: How and to what extent does this knowledge translate to the use of high-risk mobile plant in construction?

Q3: What specific controls are desirable for implementation for high-risk mobile plant in construction?

Q1 will be addressed primarily through a state-of-the-art review. Q2 will be addressed through qualitative research using case studies of incidents, and interviews in construction organisations. Q3 will be addressed through a limited field trial.

The intended outcomes for the research are:

- for broader industry: an increased understanding of the available technological solutions for high-risk mobile plant hazards, the readiness of these solutions for application, and the current evidence of efficacy of these solutions;
- for Ferrovial Construction: an understanding of how these solutions might apply in the construction domain, and a detailed understanding of the suitability of one or more specific solutions;
- for the community: improved safety of the public, as well as advances in safety research methods and capability.

State-of-the-art review (Deliverable 1 – Phase 1 Technical Report)

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The primary goal of the review will be to establish a comprehensive taxonomy of safety interventions for high-risk mobile plant. The scope and nature of this review will be shaped by the following considerations:

1. The review will not be limited to engineering controls, since most interventions involved a combination of changes to policy, equipment, and desired behaviours. However, the review will focus on interventions that involve some application of novel technology.
2. To the extent that novel technology is covered by scientific literature, it is more likely to appear in industry-specific venues rather than generic safety venues, and more likely to appear in conferences than journals. The review will aim to achieve broad coverage, including grey literature and marketing material where appropriate, rather than applying strict inclusion criteria.
3. Given the risk of controls that have been adopted by industry, but not covered by scientific literature, the review will not be limited to published literature, but will include review, but will ensure a much more practically-focussed deliverable.

The review will answer the following questions

SQ1.1 What controls are available for managing the hazards of high-risk mobile plant?

SQ1.2 What is the Technology Readiness of these controls? I.e., how much uncertainty or further work is there to make them available as practical controls?

SQ1.3 How is the efficacy for the controls measured? SQ1.4 What is the evidence for efficacy of the controls?

SQ1.5 What is the relationship between the answers to SQ1.1 – SQ1.4 provided by different sources of information?

Questions SQ1.1 – SQ1.4 speak directly the practical purpose of this research. SQ1.5 will provide useful insight for future similar research.

The answers to these questions will be published as a freely available technical report, and will be presented at a practitioner-focussed conference such as the annual AIHS Queensland “Visions” conference.

Costing for the State-of-the-art review is based on 320 hours of work by a Research Fellow Level 2.1 and 20 hours of work by a Senior Lecturer. The breakdown is:

- Initial search and synthesis (100 hours).
- Ethics approval for stakeholder consultation (10 hours).
- Stakeholder consultation, including recruitment, travel and administration (60 hours).
- Extension and revision based on stakeholder feedback (40 hours).
- Analysis and writeup (80 hours).
- Review and editing (20 hours).
- Dissemination, including travel (30 hours).

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Translation to construction (Deliverable 2 – Phase 2 Technical Report)

The state-of-the-art review will cover existing controls used within the construction industry, as well as controls that are used in other industries. There are a number of reasons why controls that are applicable in other industries cannot be directly applied on construction projects. These include, but are not limited to:

1. The nature of contracting and subcontracting arrangements on construction projects. These arrangements frequently mean that there are workers who are only on each site for a short amount of time.
2. The balance of planned and unplanned work on construction projects.
3. The changing mix of people, plant, and even organisations at different stages of the construction life-cycle.
4. The frequent use of hired plant, or of subcontractors who use their own specialised tools and plant.

The primary goal of this phase of the project will be to understand the relationship between construction project constraints and conditions, the hazard presented by high-risk mobile plant, and the suitability of controls documented in the state-of-the-art review.

The translation phase will adopt a mix of qualitative approaches.

The first approach will be to examine case studies of previous mobile plant incidents and injuries. Within the limits of subjectivity and hindsight bias, the research will assess the extent to which different controls could have influenced the events in question.

The second approach will look forward, directly asking workers, supervisors and safety practitioners about the desirability of controls and control strategies. As well as directly informing control selection, this work will attempt to uncover the underlying factors that influence participants' opinions of the controls.

The results of both phases will be integrated and published as a single, freely available technical report, and will be presented at a practitioner-focussed conference such as the annual AIHS Queensland "Visions" conference. It will also be submitted for publication in a peer-reviewed journal.

Costing for the "translation to construction" phase is based on 400 hours of work by a Research Fellow Level 2.1 and 40 hours of work by a Senior Lecturer. The breakdown is:

- Ethics approval for case studies and interviews (20 hours).
- Stakeholder management for access to accident and incident case studies (40 hours).
- Analysis of case studies (120 hours).
- Interview management and travel (40 hours).
- Interviews (20 hours).

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- Interview analysis (120 hours).
- Writeup, review and editing (50 hours).
- Dissemination, including travel (30 hours.)

Field trial (Deliverable 3 – Phase 3 Technical Report)

Technology selection for the field trial will be informed by the first two phases of this project. The equipment described in this phase is for measurement and evaluation of the efficacy of the control, and is not the control itself.

The purpose of this phase is to independently verify that one or more selected controls are having the intended effect. If phase one is “What is available?”; and phase two is “What is expected to work?”; phase three is “What actually works?”

The budget available does not allow for a full condition-controlled trial. Such a trial would require multiple sites, some with the control, some without, and constant measurement of all sites. Instead, a limited “before/after” trial will be used. This establishes a baseline of measurement before the control is implemented, and seeks to detect variation or improvement after the control is in place.

The precise design of this trial depends on the selection of control, but a preliminary design is provided here for budgeting purposes. The dependent variable is the movement of pedestrians and plant. This will be measured using GPS & Bluetooth beacons on the plant, and wearable devices on the pedestrians. Together, these allow measurement of:

- Where the plant is across time
- Where the people are across time
- When and where the people are in close proximity to the plant

Note that these measures are useful for hazards associated with plant location, plant/plant interaction and pedestrian/plant interaction, but cannot assess controls associated with other hazards.

The trial will collect two weeks of data immediately before the implementation of the control, and for two weeks immediately after. If practicable, the design will be interleaved A-B-A-B so that measurement occurs without the control, then with the control, then without the control, then with the control.

Due to the uncertainty associated with this part of the research, site-work is costed based on level of effort. That is, once precise cost and time associated with measurement have been determined, the remaining budgeted time will be spent by the researcher collecting qualitative data about the control effectiveness through observations and interviews.

Summary and Dissemination (Deliverable 4 – Dissemination Report)

Each of the three phases includes a dedicated time allocation for “dissemination”. Timelines and acceptance for academic publications have a high degree of uncertainty, and so are not suitable for

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commitments in an enforceable undertaking. However, the researchers will, at a minimum:

- Produce a publicly available, written report for each phase. This will be in language and format suitable for industry readers.
- Present the work of each phase at conferences with industry attendees. The AIHS “Visions” conference is offered as a likely venue, but the goal will be to present the work at three different conferences to reach as wide an audience as possible.
- Submit at least one academic paper for peer-reviewed publication from the work.
- Discuss the work in other industry-accessible forums such as the “Safety of Work” podcast and the WHS industry forums.

It is suggested that the formal deliverables for the research should be:

- The reports from each of the three phases
- A dissemination report detailing the activities undertaken to share the work, and the response to the work from these activities

The Phase 1 Technical Report will discuss technological solutions and safety management guidelines from other industries for mobile plant hazards that may be suitable for adaption for the building and construction industry.

The Phase 2 Technical Report will provide guidance on the safety of high-risk mobile plant for large infrastructure construction projects, including:

- planning;
- selection of technology (engineering controls);
- set up;
- operations;
- variation and unplanned work; and
- tracking and performance measurement of safety.

The Phase 3 Technical Report will provide details about the efficacy of one or more specific technological controls for high-risk plant on construction projects.

The dissemination report will describe:

- the activities that have been undertaken to share the research across all three phases;
- feedback that has been received in response to these activities;
- how the feedback has been incorporated into the conduct of the research and the deliverables.

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Phase	Total cost (ex GST)	Time (cumulative)**
1: State-of-the-art review	\$53,500	Between month 0 to month 8
2: Translation to construction	\$71,500	Between month 6 to month 12
3: Field trial	\$50,000	Between month 12 to month 24
4: Dissemination	\$25,000	Between month 12 to month 24

** All services to be completed no later than 5 May 2025.

Intellectual Property License: With regards to any deliverables developed by Griffith University, the OIR will be granted a permanent, irrevocable, royalty-free, world-wide, non-exclusive licence to use, reproduce, publish, distribute, electronically transmit, electronically distribute the Deliverables for non-commercial purposes.

In good faith, Griffith University will interface and work collaboratively with Safekon Consulting to successfully deliver Griffith's obligations under this agreement.

Griffith University will keep Ferrovia Construction regularly updated in terms of progress of their deliverables as well as the interface between Safekon Consulting and Griffith University.

Timeframe

Extend timeframe from 24 months from acceptance (30 November 2023) of the EU to 5 May 2025 (42 months from acceptance).

- **Under - Term 3.3.2 – Safety Management System for Mobile Plant:**

- Extend the timeframe as follows:
 - From – 17.5 months from the date of acceptance of this undertaking (15 May 2023).
 - To – 26.5 months from the date of acceptance of this undertaking (17 February 2024).

- **Under Term 3.4.1 – Funding to Landcare Australia for the development of online WHS training resources:**

- Replace the entire activity, cost breakdown and extend the timeframe as follows:

Term 3.4.1 - Funding to Landcare Australia for the provision of safe work training activities and the provision and safety equipment

The Company will provide funding to Landcare Australia for the provision of a devolved grants program to community landcare organisations. Devolved grants will be in support of safe work training activities by an accredited Registered Training Organisation (RTO) to support community landcare to facilitate WHS training for local staff and volunteers, as well as for the provision of Personal Protective Equipment (PPE) or other directly-related WHS tools and supplies.

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Given that there is a strong need in the Landcare community for safety training and directly-related PPE and safety tools and supplies, and through a devolved grants program, support will be provided where it is most needed. Landcare Australia is a national not-for-profit organisation that engages communities in sustainable land management and conservation activities, with decades of experience delivering grants programs to community environmental groups across Australia.

The Company will work with Landcare Australia to deliver a devolved grants for community landcare to undertake training with RTOs, and purchase PPE and directly-related safety equipment will involve improving the current skills and awareness for staff and volunteers, as well as ensure much needed PPE and safety equipment is readily accessible for the community. Specifically, Landcare Australia have identified the below common Workplace Health and Safety (WHS) training requirements where there is a strong need for such in the Landcare Australia community for safety training:

- Provision of First Aid / Remote First Aid;
- Agricultural Chemical User Certificate (Safe chemical handling and storage);
- Operate and Maintain Chainsaws;
- 4x4 / Off Road Driving.
- Other work health and safety training delivered by an RTO, as approved by Landcare Australia.

Upon completion of the Services, Landcare Australia will agree a publication with the Company to go on the Landcare Australia website on how this work has improved the landcare community. The parties acknowledge that this publication (and any other publications relating to this scope of work) will refer to it being the result of an Enforceable Undertaking issued to The Company by the QLD Government.

A copy of the publication will also be provided to the OIR.

Benefits to the community.

The Services are consistent with the objects of the Act to protect workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work and to promote the provision of advice, information, education and training in relation to work health and safety. The Services aim to assist Landcare Australia support volunteers to carry out work safely and to make work health and safety resources more readily accessible to them.

Minimum Costs

The total Project will cost \$45,000.

The breakdown for the work is as follows:

Activity	Recipient	Cost (ex GST)
Grant Administration	Landcare Australia	\$5,000
Staff and/or volunteer training in WHS, delivered by an RTO, and/or purchase of PPE and/or directly-	Grant Recipients	\$40,000

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related WHS tools and equipment.- to a maximum of \$2,000 per grant, including an allowance of up to 10% of grant funding towards administration and overheads directly related to the grant.		
	Total	\$45,000

Grants Administration - \$5,000

Landcare Australia will administer the Community WHS Training and Supply Grants on behalf of the Organisation, to offer grants of up to \$2,000 will be offered to the landcare community across Australia (from a total funding pool of \$40,000).

To facilitate the grants round, the following activities will be undertaken:

- Guideline Development
- Establishment of online grants portal and application form
- Grants promotion to the Landcare community across Australia
- Applicant Support
- Application review and approval of final grant recipients
- Grant Agreement acceptance and payments
- Reporting, including the group name, location, summary of activity and funding provided to grant recipients. Confirmation of project completion.

Grant Recipients - \$40,000

Grants of up to \$2,000 each will be provided to the Landcare community across Australia, to be awarded based on merit.

Grants will provide funding to facilitate community environmental groups to undertake WHS-related training relevant to their staff and volunteers, delivered by an RTO; and/or to purchase directly-related WHS tools and equipment.

Up to 10% of the value of each grant is allowable for administrative costs, to contribute to facilitation costs, such as staffing, venue hire, catering etc.

Once grant applications are approved by Landcare Australia, groups will undertake WHS related training and purchases in line with approved Grant Agreements.

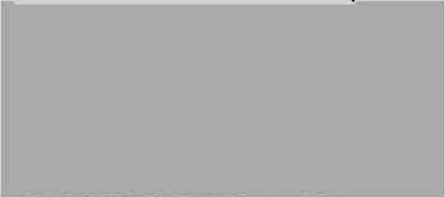
Timeframe

Extend timeframe from 12 months from acceptance (3 March 2023) of EU to 12 May 2024 (29.5 Months).

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Variation Accepted



Enrique Blanco
Managing Director - Australia
Ferrovia Construction (Australia) Pty Ltd
3 July 2023



Peter McKay
Deputy Director-General
Office of Industrial Relations
29 September 2023

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