Project

New Victoria Development

Document

Network Rail and TFGM and its operator KAM Construction Management Plan

Rev 3

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Revision History

This document, together with any associated documents, should be reviewed at regular intervals.

This document should be reviewed at least every 12 months in order to maintain its effectiveness.

Record the details of any changes made as a result of these reviews in the table below.

Rev:	Date:	Reason for Review:	Nature of Changes:	Prepared by:	Checked by:
1	18/03/19	Construction Issue	n/fa	Sean Delaney	
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1. Introduction

1.1 References

Asset Protection Outside Parties Guidance Document

NR/L2/INI/02009	Engineering Management for Projects
NR/L2/CIV/003	Engineering assurance of building and civil engineering works
CPA TCIG	Good Practice Guide 'Requirements for Tower Cranes Alongside Railways Controlled by Network Rail and TFGM'
NR/L3/INI/CP0063	Piling adjacent to the running line
NR/L3/ELP/29987	Working on or about 25kVa ac electrified lines
NR/L2/RMVP/0200	Infrastructure Plant Manual and associated modules
NR/L2/CIV/177	Monitoring track over or adjacent to Building and Civil Engineering work

TFGM and its operator KAM Document ~ Working Safely near Metrolink

1.2 Definitions

n/a

2. Purpose

This document outlines the measures intended to be implemented in the design, planning and construction phases of the works to satisfy the requirements of Network Rail and TFGM and its operator KAM (Keolis Amey Metrolink).

3. Scope

The procedures outlined in this plan are to be implemented where

- Network Rail and TFGM and its operator KAM control measures need to be implemented to manage and control the design, planning and execution of the site operations adjacent to the Network Rail and TFGM and its operator KAM boundary.
- there is a reasonably foreseeable risk to the operational railway and tramway

4. Procedure

4.1 Introduction

An Asset Protection Agreement shall be in place between Muse Developments and Network Rail and TFGM which will set out the Network Rail and TFGM and its operator KAM requirements for Outside Parties working over or adjacent to the operational railway and tramway. Network Rail and TFGM and its operator KAM will appoint a dedicated Asset Protection Manager who will be the main point of contact between Muse Developments and Network Rail and TFGM and its operator KAM.

Network Rail and TFGM and its operator KAM will provide all available information on their assets including the structural assessment reports on the railway and culvert. It may be necessary to carry out an additional survey if the Network Rail and TFGM and its operator KAM information is not sufficient to inform the design.

The TFGM and its operator KAM document 'working safely near Metrolink' is to be implemented where applicable.

4.2 Strategy and timescales for engagement and obtaining necessary approvals

It is important that there is early engagement with Network Rail and TFGM and its operator KAM (require 21 days turn around for designs and method statements) so that all the designs and method statements of works that may affect the railway are identified and the timescales for submission, acceptance and revision are identified and agreed by all parties and included on the project deliverable schedule.

The relevant Network Rail and TFGM and its operator KAM representatives will be invited to attend IDC-IDR design meetings so that they can comment on the design and proposed methodology prior to the submission of the documents to negate the need to revise and reissue documents.

4.2.1 Design; Temporary and Permanent

The main risk to Network Rail and TFGM and its operator KAM infrastructure is any works that could adversely affect the foundations to the viaduct and overturning/ failure of construction plant or equipment especially tower cranes, piling rigs, concrete pumps, scaffolding.

The constraints are identified in the document, 'Network Rail Key Constraints' section 3.2 Constraints and Easements;

- A zone of 2.75 m from the electrified overhead line equipment (OLE), starting from the outside of the existing isolator or return conductor. This zone starts at track level and extends vertically upwards (to infinity).
- A zone of 3 m from the nearest rail represents the zone into which any incursion would require a track possession.
- A zone of 4.5 m for the nearest rail which represents a hazard zone or desirable horizontal clearance zone. Any structure, placed in this zone, either permanent or temporary should comply / conform with the Network Rail standards.
- A zone extending from the track to 1 m above the OLE.

Vinci also acknowledge the works interface with TFGM and its operator KAM and where applicable will identify constraints on the temporary and permanent design.

Therefore, the designs that may require Network Rail and TFGM and its operator KAM acceptance are:

Piling mats

Tower Cranes base

Access scaffold and platforms on the elevation closest to the railway

Reduce dig to Form ramp access to basement.

The designs affecting Network Rail will be carried out in accordance with NR/L2/CIV/003.

A Form 1 (approval in principal) will be submitted for the whole project highlighting those areas of concern to Network Rail and listing the necessary Forms 2 and 3.

The Forms 2 and 3 (detailed design with CAT 3 check) will be submitted following the IDC and IDR meetings along with the outline methodology for each package of work.

Any comments on the DRN (document review note) will be actioned accordingly and if necessary the documents revised and resubmitted for Network Rail's and TFGM and its operator KAM (where applicable) review and acceptance.

TFGM and its operator KAM document ' Working safely near Metrolink'

4.2.2 Vibration and Movement Monitoring

The VINCI designer(s) will estimate the mm/s of any vibration at any other structure identified by Network Rail and TFGM and its operator KAM that is susceptible to damage from vibration and, if it exceeds the limit stipulated by Network Rail and TFGM and its operator KAM, then vibration monitoring will be put in place. Refer to main Construction Management Plan section 4.7 for trigger levels.

4.2.3 Over sailing of tower Cranes

Over sailing will be restricted as shown below, and the cranes will be fitted with wind sails and hook weights to restrict its free sailing radius, while out of service.

The mast heights and configurations selected, comply with the CPA good practice guide “CPA - Requirements for Tower Cranes Alongside Railways Controlled by Network Rail and TFGM and its operator KAM” - Published June 2014

4.2.4 Method Statements

The Construction Phase Plan (CPP) will be submitted for Network Rail and TFGM and its operator KAM (require 21 days turn around for designs and method statements) acceptance prior to any works taking place that could affect the operational railway and tramway. The CPP will include reference to the method statements which require Network Rail and TFGM and its operator KAM acceptance and the VINCI Risk Control Schedule which is a ‘live’ document updated regularly to reflect the current risks to health, safety and the environment.

The individual method statements for each package of work will be developed by the contractor carrying out the works and submitted via VINCI and Muse Developments for Network Rail and TFGM and its operator KAM acceptance within the agreed timescales.

4.3 Contractors Engineer Manager (CEM) and Contractors Responsible Engineer (CRE)

Mr Paul Vintner, Vinci Construction is the proposed CEM for the project.

In Network Rail standard NR/L2/INI/02009, the CEM is permitted to take on additional responsibility as the CRE for one discipline. Therefore, Mr Vintner will also be the CRE Building (Design and Construction).

4.4 Hazards, risks and controls that may import danger to the operational railway and tramway

All risks and controls for the project identified below will be detailed and reviewed within the Project Risk Control Schedule which is maintained by the project team. The VINCI project team will work with the Network Rail and TFGM and its operator KAM Designated Project Manager regarding inspection and erection of any temporary and/ or permanent structures near the railway.

Generally, any mechanical plant will be positioned or restricted such that neither the machine nor its load can foreseeably foul the railway and tram tracks in accordance with NR/L2/RMVP/0200 and associated modules for ALO. The controls will be set out in the method statement.

4.4.1 Piling

The design and methodology for the installation of the piling mat will be submitted to Network Rail and TFGM and its operator KAM for their acceptance along with the proposed methodology for the piling activities to assure Network Rail and TFGM and its operator KAM that there is no risk to their

infrastructure or the operational railway and that ALO (any line open) has been assessed. NR/L3/INI/CP0063 will be consulted if appropriate for piling next to the railway.

4.4.2 Mobile Crane Operation

Any crane will be positioned or restricted such that neither the crane nor its load can come within 3m from the closest running rail. The controls will be set out in the method statement.

4.4.3 Tower Crane: Erection, Operation, Removal

The tower cranes foundations design and the methodology of the erection and subsequent removal of the tower cranes will be subject to Network Rail and TFGM and its operator KAM acceptance.

The good practice guide from CPA-TCIG 'The Use of Tower Cranes Alongside Railways Managed by Network Rail and TFGM and its operator KAM' will be used in the design, planning and operation of the tower cranes.

The tower cranes will be de-rated by 25% for lifting and the foundation over designed by 33%

To prevent over sailing the Network Rail and TFGM lines the tower cranes will have a 'Zoning system' to ensure that the hook and its load is kept within the site boundary and 3m from the closest running rail of the railway tracks on the viaduct.

The cranes will be subject to thorough examination and load testing, together with independent inspection at handover. Regular inspections of the cranes and attachments will be implemented to monitor condition in accordance with the Lifting Operations and Lifting Equipment Regulations.

Daily checks will be carried out on the zoning system by the tower crane operator and recorded by the VINCI Appointed Person.

To mitigate the risk of failure of the tower crane in operation there will be a lift plan in place which will be implemented in accordance with VINCI Minimum Safety Standard for lifting. Lifts will be supervision and monitored by the VINCI Appointed Person.

4.4.4 Concrete Pump Operation

Where any works include the use of a mobile concrete pump then a lifting plan will be submitted to Network Rail and TFGM for acceptance.

4.4.5 Scaffolding to the elevations adjacent to Network Rail and TFGM and its operator KAM

The design of standard scaffold or any other access system, together with any specific designs for loading bays, ladder beam bridge sections, hoist towers, sheeted scaffold tying arrangement will be designed by the scaffold contractor and CAT 3 checked. If the scaffold falls within the limits stipulated by Network Rail and TFGM and its operator KAM then it may need to be bonded due to its proximity to the overhead traction cables. The design will be issued to Network Rail and TFGM and its operator KAM together with:

- Section showing scaffold in relation to railway
- Bonding details if necessary
- Timeline through erection and dismantle
- Confirmed inspection schedule for scaffold
- Confirmed inspection/maintenance of debris netting
- Completion of NR/L2/CIV/003 Form 5 for temporary erection as necessary

Prior to commencement of erection the scaffold design will be reviewed with scaffold supervisor and gang at a pre-start meeting to confirm specifically arrangements for scaffold erection and temporary condition on the Network Rail and TFGM and its operator KAM elevation.

Tool box talk will be presented based on securing materials and installation and maintenance of debris netting and schedule of inspections agreed. This will include additional inspection when high wind forecast.

Erection sequence as agreed with Network Rail and TFGM and its operator KAM will also be briefed, including control of ties

During the erection of scaffold there will be Daily checks will be made by nominated person for Network Rail and TFGM elevation scaffold and will be issued to the site Temporary Works who will complete independent checks every other day.

In temporary condition, Form 5 will be completed following inspection and be issued to Network Rail and TFGM and its operator KAM if applicable. On completion, a copy of the handover certificate will be issued to Network Rail and its operator KAM if applicable.

4.4.6 Hoist Operation

Any hoists will be designed, installed and checked similarly to the scaffolding with regards to:

- Ties
- Temporary erection sign off
- Inspections

4.4.7 Forklift Operation to Loading Bays

Any forklifts used on the elevation on the Network Rail and TFGM and its operator KAM boundary will be controlled using:

- Permit to load for operation on haul road to confirm bearing capacity
- Lifting Plan for the specific loading to the Northern Boundary
- Driver will be briefed on plan and restrictions of extending forks over the Network Rail and TFGM and its operator KAM boundary by way of Tool Box Talk

4.4.8 Securing of Materials in High Wind

There is a risk of materials blowing onto the operational railway and tramway so measures are required to mitigate these risks.

Housekeeping – good standards to be implemented for all scaffolds and working platforms.

Scaffold – The scaffold elevation to the Network Rail and TFGM and its operator KAM boundary will receive brick guards and debris netting to prevent the risk of air borne material entering Network Rail and TFGM and its operator KAM boundary. Monarflex will NOT be used due to risks of wind loading on the scaffold, and the fact that in high winds this sheeting is designed to detach from the scaffold which could fall onto Network Rail and TFGM and its operator KAM line.

Sheet materials – will be stored at ground level until required for installation and will be secured against wind. When installed at scaffold /slab level, will be stored in agreed location and weighed down/secured in place. Off cuts will be removed to waste bin. The specialist contractor supervisor will be briefed on his responsibility for controlling materials in this manner. The workforce will also receive a Tool Box Talk on the same prior to commencement.

Other materials – prior to loading to high level, the Sub Contract Supervisor is to notify VINCI manager and agreed storage arrangements agreed. Monitoring and implementation as Sheet Materials.

Signage – Signage will be posted on scaffold and floor plates to reinforce the requirement of storing materials correctly.

Inspections – The work area will be inspected by the designated VINCI manager before the end of the working day to ensure correct storage is maintained and actioned as necessary. If high wind is forecast, supplementary checks will be completed.

5. Appendix Rail Documents

VC-RAI-PR-XXXX-0021 Design Procedure Temporary and Permanent

VC-RAI-PR-XXXX-0024 Mitigating the risks of working on or adjacent to Network Rail and TFGM and its operator KAM Infrastructure