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DETAIL A - CORBEL CONNECTION DESIGNED BY OTHERS.

#### APPENDIX K - NETWORK RAIL MONITORING AND CONTINGENCY PROCEDURE



Ref:	NR/L2/CIV/177/F001	
Issue:	1	
Date:	03 June 2017	

## **Track Monitoring Plan**

**Project Title:** 

#### **317 Finchley Road**

**PMP** Construction Ltd

Principal Contractor:

Location:

Route:

#### Prepared by: Richard Mayo

Position: Contractor's structural engineer

Signed: no

Date: 09/07/18

**Approved by: Andy Yates** 

Position: CRE

Signed: A. M.

Date: 10/07/18

This document has been produced in accordance with NR/L2/CIV/177: Monitoring of the track over or adjacent to civil engineering works.



Ref:	NR/L2/CIV/177/F001
Issue:	1
Date:	03 June 2017

Project Name and location	317 Finchley Road, London		
	Adjacent to Finchley and Frognal Overground station		
NR Project Contact	Steve Tombs, Naz Mohamad Mohamad Qureshi		
Start date of works	July 2018 – commencement of ground works		
(affecting NR Assets)			
End date of works	Appx February 2019 – works to be one storey above ground at		
(affecting NR Assets)	this stage		
Description of the work	Demolition of existing building on the site, construction of a		
being undertaken	series of 3 residential blocks, up to 10 storeys, with a two storey		
	basement.		
	Bacament construction to use sheet piles as temporary works		
	and contiguous niles as permanent basement structure with		
	insitu RC walls above this.		
	Superstructure framing is external stone columns and beams.		
	supporting RC slabs and internal walls.		
Where works are to be	Work to be carried out continuously – Network Rail to be		
completed in stages,	provided with programme updates as work progresses		
provide details here			
Will work be completed	Line open to traffic		
during a possession, line			
blockage or with the line			
open to traffic?			

### 2. Site Details

ELR	BOK2
Track ID	
Start (miles & yards)	2m 0969yds
End (miles & yards)	
Line speed (mph)	
Track Category	Not Known

Details can be found in the sectional appendix or for track category from the local Track Maintenance Engineer (TME).



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# **3.** Responsibility for Day to Day Management of the Monitoring

#### **Primary Contact**

Principal Contractor	PMP CONSTRUCTION LTD
Name of Representative	Marios Leonida
Position	Site Manager
Contact Number	07985102237
Contact email	Mleonida@pmpcl.com

#### **Secondary Contact**

Principal Contractor	PMP CONSTRUCTION LTD
Name of Deputy Representative	Yiannis Liassides
Position	Architectural Manager
Contact Number	07936839866
Contact email	Yiannis@pmpcl.com

### 4. Responsibility for carrying out monitoring activities

The individual/company referenced below is responsible for monitoring activities for the duration of the works.

Company	Sixense Ltd.
Name	Marco Bocci
Position	Project manager
Contact Number	07794291916
Contact email	Marco.bocci@sixense-group.com

### 5. Responsibility for the Rectification of Track Faults

Company	NR Maintainer
Name	To be confirmed
Position	
Contact Number	
Contact email	

Both of the above responsibilities apply for the duration of the monitoring works



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### 6. Baseline Readings

Changes in the gauge, geometry and position of the track need to be determined in accordance with NR/L2/CIV/177.

The difference in these values will be compared to the baseline values recorded prior to works commencing. These are recorded in the table below.

**Baseline Readings** 

Type/Location	Easting	Northing	Elevation
Refer to attached EXCEL document			

Note: Where baseline readings cannot be related in terms of Eastings, Northings and Elevation the above table should be modified accordingly.

Note: Where there are too many baseline readings to record in the table above they should be recorded in a separate file and that file referenced here.

### 7. Affected Network Rail Assets

The following Network Rail assets will be affected by the works being undertaken.

Note: Where specific monitoring is required for the identified assets additional sections should be added to this TMP and they should be referenced in the table below accordingly.

Affected Asset	Location (Miles & Yards)	Monitoring	Relevant
		Required	Section of
			this TMP
Finchley and Frognal	Start: 2m 0969yds	Track, platform,	All
Overground station	End: 2m 0969yds	tunnel, platform	
		stair	
	Start:		
	End:		



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### 8. Monitoring Frequency

Following a review of site conditions and the type of works, it is expected that the measurements of the track and the analysis of the readings will be completed at the following frequency.

*Note: NR/L2/CIV/177 identifies the minimum required frequency while works are being carried out.* 

Stage of Project	Frequency	Duration of	Planned date	(dd/mm/yyyy)
		works (Week(s)	From	То
Baseline	N/A	Completed	02/04/2018	23/07/2018
During Works To 1 <sup>st</sup> floor level	Twice Daily	34	23/07/2018	18/03/2019
Work From 1 <sup>st</sup> to 4 <sup>th</sup> floor level	Daily	6	18/03/2019	29/04/2019
During Works From 4th to 7 <sup>th</sup> floor level	Daily	6	29/04/2019	10/06/2019
During Works) From 7 <sup>th</sup> to superstructure completion	Three times a Week	4	10/06/2019	08/07/2019
4 weeks after completion of work	To be determined by TME	4	08/07/2019	29/07/2019

Readings will start from the date at which works with the potential to affect NR assets commence and continue following completion of works for a <u>minimum</u> of four weeks.

If movement is still being noticed 3 weeks after completion of works then monitoring will be continued for an additional period in line with NR/L2/CIV/177.

Where the project is not running to planned dates, monitoring will be carried out at the frequency appropriate for the stage of the project.



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### 9. Fault Level and Mandatory Actions

Minimum fault levels and actions are referenced in NR/L2/CIV/177.

Following a review of the works being undertaken and predicted ground movements the following trigger levels and mandatory actions have been determined for the duration of the works.

The actions in the table below need to be followed upon reaching the predetermined trigger level.

Note: Consideration can be given to producing additional trigger levels on top of those detailed in the table below if they are required for the specific project.

Fault	Measure	Trigger	Limiting Value	Action
1	Cross level /	Level 1	<10mm across 3 metres	Note.
	Twist			No immediate action.
		Level 2	Greater than 15mm across 3 metres	Report to Infrastructure Control Centre (ICC).
				Rectify fault within 7 days
		Level 3	Greater than 24mm	Report to ICC.
			across 3 metres	Stop work.
				Rectify fault within 24 hours.
		Level 4	Greater than 33 mm	BLOCK THE LINE
			across 3 metres	(contact signaller direct)
				Report to ICC.
				Stop work.
				Rectify fault before opening the line.
				Increase monitoring frequency until settlement has stabilised.
2	Cant		Change in cant from original datum position of ±15mm	Report to ICC. Stop work until track has been inspected by SM[T] (Section Manager [Track]). Correct fault as directed by
3	Displacement (vertical, horizontal or voiding)		Greater than 25mm	SM[T]. Review method of working.



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The works being undertaken will not affect the track support zone; therefore Critical Rail Temperature does not need to be monitored as part of this project.



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### **11. Useful Contact Details**

Role	Name/Location	Phone Number
Route Control	West Anglia	020 7979 3619
Electrical Control	Rugby	01788 555422
Signaller	North London Line Central workstation	01708 255787
Route Asset Manager (Track)	Richard Tullo	07515 619282
Track Maintenance Engineer	Shaun Green	07766 695811
Section Manager (Track)	Trevor Cody	07917 578307
NR Project Manager	Tim Axten	07779 707220
NR Construction Manager	Robert Howard	07779707210
NR Project Engineer	Naz Mohammed	07917775849
Contractor CRE	Andy Yates	020 3696 1550

### **12.** Other Monitoring Requirements

• Monitoring is carried out in accordance with Sixense document WPP – which outlines all locations of monitoring positions for Network Rail assets.



# **Emergency Action Plan**

J2680 317 Finchley Road

Ref: J2680-S-PL-0001

Revision: 02

Status: S5

Webb Yates Engineers Ltd 48-50 Scrutton Street London. EC2A 4HH 020 3696 1550 london@webbyates.com www.webbyates.com

Registered in England & Wales No.: 5393930



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#### **REVISION HISTORY**

Revision	Status	Date	Author	Reviewer	Approver
00	For Construction	07.09.18	RM	SW	SW
01	For Construction	02.10.18	RM	SW	SW
02	For Construction	12.10.18	RM	SW	SVV

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#### Network Rail Approval:

N	R Project Manager			
PMP Construction	NAME (print)	POSITION	SIGNATURE	DATE
Manager	Andreas Charalam	Appointed CEM		17.10.1
Sixense Project	NAME (print)	POSITION	SIGNATURE	Z DATE
Manager	Marco Bocci	Project Manager	Multico	02.10.1
NR Project Manager	NAME (print) Steve Tombs	POSITION Scheme Project Manager	SIGNATURE	DATE



#### I. Project Details

The site is located at 317 Finchley Road, NW3 6EP. The site is currently occupied by a three storey pub building. The site gently slopes such that ground floor at the rear of the building is the same as the basement level at the front of the site. The rear portion of the site consists of a garden with some paving and low to mid height trees.

To the north of the site is Finchley Road and Frognal Overground Station and the Overground Network Rail Line. To the east of the site is Finchley Road. The south and west of the site are currently bordered by the pedestrian right of way Billy Fury Way, adjacent to which are existing buildings.

The proposed building is located on the south side of the site, resulting in the relocation of Billy Fury Way to the north side of the site. The proposed building is set 2m back from the Network Rail boundary as agreed with Network Rail.

The proposed development will be mixed used, with retail space at ground floor. A new two storey basement will then be constructed, using perimeter contiguous piles and RC slabs, with three residential blocks built above ground floor level, to 6, 8 and 10 storeys. These blocks will be RC slab supported by perimeter stone column and beam framing. Internal RC walls will be used to provide stability.

As part of the works, Billy Fury Way will be relocated from its current position to be between the site and the overground station (within the site boundary and fully supported by the structure of 317 Finchley Road).



Figure 1: Map of Local Area with site boundary marked in red



#### 2. Monitoring Regime

Network Rail assets will be monitored by:

- Prismatic monitoring targets will be installed on both rails of the track nearest the site at 3 m centres for the extent of the site plus another 30 m in each direction beyond that point. The 30 m is considered to be beyond the 'zone of influence'.
- Prisms will be installed on the platform nearest the site at 6 m centres using tamper resistant prisms.
- Prisms or tilt meters will be positioned within the tunnel section from the tail wall of the platform (at high and low level, height will be determined by line of sight and the safe working distance from the OHLE).
- Prisms or tilt meters will be installed on the retaining wall adjacent to the development.
- Prisms will be installed at high and low levels at 6 m centres or tilt meters will be installed at 6 m centres.

Monitoring will be undertaken on the tracks, platform, and station retaining wall and within the tunnel section for both vertical and horizontal movement. The positions and extent of the monitoring targets are indicated in Figure 2.



#### Figure 1: Proposed monitoring scheme

The automated system runs continuously 24 hours a day, seven days a week and will record movements from a baseline reading period. The system will record these movements and when they exceed the triggers set up in the attached alarm table an automated message will be sent by email to the designated contact person within the PMP and consultant team.



#### 2.1. During Site Working Hours

If a Level 2 movement trigger occurs, PMP will investigate to verify the breach and prepare an email report as set out by the flow chart below. The report will include the time and nature of the trigger breach, and evidence of the cause where available. An initial assessment of any impact of the breach (from ground level and visual only) will be made. If the source of the breach is identified and in PMP's control, then PMP will take appropriate action to try and avoid a Level 3 trigger. If a movement trigger level is at Level 2 at the end of the shift, a PMP representative will stay on site to monitor the trend until satisfied that a Level 3 trigger breach is unlikely to occur during unattended hours. The main point of contact for the site is Marios Leonida, as site manager. When he is not on site, his responsibilities will be delegated.

#### 2.2. Outside Site Working Hours

Movement alarms will continue to be received by PMP outside of working hours, and these will be checked periodically. If two Level 2 alarms are received from a single prism, then the incident controller will be notified – this will be done regardless of whether there were no trigger level breaches at the end of the previous working shift. The likelihood of a false alarm will be investigated at the start of the next working period, or an urgent inspection will be carried out. The process will follow that which is set out in the flow chart below. The main point of contact for the site is Marios Leonida, as site manager. When he is not on site, his responsibilities will be delegated.





#### 3. Trigger Levels and Resulting Actions

#### 3.1. Track Monitors

The table below shows the trigger levels and the required actions following any breaches of track monitors. This has been replicated from the Track Monitoring Plan (NR/L2/CIV/177/F001) previously submitted:

Fault	Measure	Trigger	Limiting Value	Action
I	Cross level /	Level I	<10mm across 3 metres	Note.
	Twist			No immediate action.
		Level 2	Greater than 15mm across 3	Report to Infrastructure Control
			metres	Centre (ICC).
				Rectify fault within 7 days
		Level 3	Greater than 24mm across 3	Report to ICC.
			metres	Stop work.
				Rectify fault within 24 hours.
		Level 4	Greater than 33 mm across	BLOCK THE LINE
			3 metres	(contact signaller direct)
				Report to ICC.
				Stop work.
				Rectify fault before opening the line.
				Increase monitoring frequency until
				settlement has stabilised.
2	Cant		Change in cant from original	Report to ICC.
			datum position of	Stop work until track has been
			±15mm	inspected by SM[T]
				(Section Manager [Track]).
				Correct fault as directed by SM[T].
3	Displacement		Greater than 25mm	Review method of working.
	(vertical,			
	horizontal or			
	voiding)			



#### 3.2. Wall, Platform and Stair Monitors

The table below shows the trigger levels and the required actions following any breaches of wall/tunnel/platform monitors.

Fault	Measure	Trigger	Limiting Value	Action
I	Displacement	Level I	<5mm	Note.
	(vertical,			No immediate action.
	horizontal or	Level 2	<7mm	Report to Infrastructure Control
	voiding)			Centre (ICC).
				Rectify fault within 7 days
		Level 3	Greater than 7mm	Report to ICC.
				Stop work.
				Rectify fault within 24 hours.



#### 4. Network Rail Emergency Process

In the event of a trigger level breach, follow the flow charts, including notifying the Fault Control centre (if required) first:







#### EMERGENCY, INCIDENT OR ACCIDENT ACTION INFORMATION

### THE INITIAL CALL MUST GO DIRECTLY TO THE NETWORK RAIL INCIDENT CONTROL CENTRE (ICC)

#### USING BRITISH TELECOM OR MOBILE TELEPHONE DIAL – NETWORK RAIL INCIDENT CONTROL CENTRE (ICC) EMERGENCY LINE

EXTERNAL PHONE: -

020 7979 3619



EMERGENCY, INCIDENT OR ACCIDENT ACTION INFORMATION

IN THE EVENT OF ANY INCIDENT OR ACCIDENT OR NEAR MISS ON NETWORK RAIL CONTROLLED INFRASTRUCTURE THE FOLLOWING <u>ADDITIONAL</u> ACTIONS ARE REQUIRED ONCE THE INCIDENT CONTROL CENTRE, CONTROLLING SIGNAL BOX OR ELECTRICAL CONTROL ROOM HAVE BEEN CONTACTED AND THE EMERGENCY SERVICES HAVE BEEN CALLED.

#### FIRST ADDITIONAL CALL.

IMMEDIATE CONTACT **Steve Tombs** ON 07932910148 SCHEME PROJECT MANAGER (SPM).

IN THE EVENT THAT THE SPM IS UNCONTACTABLE.

SECOND CALL.

CONTACT **TIM AXTEN** ON 07779707220 PROJECT MANAGER.



#### 5. Contact Details

Role	Name/Location	Phone Number		
Route Control	West Anglia	020 7979 3619		
Electrical Control	Rugby	01788 555422		
Signaller	North London Line Central	01708 255787		
	workstation			
Emergency Control	- 020 7247 1292			
Fault Control/Incident Controller	- 020 7979 3615			
Route Asset Manager (Track)	Richard Tullo	07515 619282		
Track Maintenance Engineer	Shaun Green	07766 695811		
Section Manager (Track)	Trevor Cody	07917 578307		
NR Project Manager	Tim Axten	07779 707220		
NR Scheme Project Manager	Steve Tombs	020 3356 2511		
NR Construction Manager	Robert Howard	07779 707210		
NR Project Engineer	Naz Mohammed	07917 775849		
Contractor CRE	Andy Yates	020 3696 1550		
Contractor CEM	Andreas Charalambous	00357 9963 0954		
Site Manager (main point of	Marios Leonida	07985 102237		
contact for site)				
Contractor Project Manager	Yiannis Liassides	07936 839866		
Contractor Director of Operations	Christos Pierides	07910 150076		
Contractor Structural Engineer	Richard Mayo	07815 171997		
Sixense Project Manager	Marco Bocci	07794 291916		



#### 6. Emergency Arrangements

In an emergency affecting rail infrastructure, the signal box and ECO are to be contacted in the first instance. The duty ES and project/H&S manager are also to be informed as soon as possible.



Anglia Territory

#### EMERGENCY, INCIDENT OR ACCIDENT ACTION INFORMATION

The location of this site is at **317 Finchley Road, London. NW3 6EH** 

Network rail mileage: BOK2 2mile 0976yds

IN EMERGENCY CONACT NETWORK RAIL ZONE CONTROL NORTH LONDON LINE, - INTERNAL PHONE: - 020 7979 3615

LOCAL SIGNAL BOX North London Line central workstation - 01708 255787

LOCAL ELECTRICAL CONTROL ROOM Rugby - 01788555422

NEAREST ACCIDENT & EMERGENCY HOSPITAL

**Royal Free Hospital** 

Tel: 020 7794 0500

Pond Street

London

NW3 2QG



DESIGNATED NETWORK RAIL PROJECT MANAGER

Steve Tombs



#### 7. EAP Briefing Sheet

This form records personnel who have received a site induction on the contents of the Emergency Action Plan in this document, and that they have understood and will comply with the requirements of the briefing.

NAME	COMPANY	SIGNATURE	DATE