

C510 – Whitechapel and Liverpool Street Station Tunnels

Instrumentation and Monitoring Close Out Report Block 16 Liverpool Street

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1 Purpose of Close out Report

Materials and Workmanship Specification - Instrumentation and Monitoring (C122-OVE-Z4-RSP-CR001-00007), section KX10.2114 specifies the requirement for a close out report prior to the decommissioning of monitoring sensors and instruments. It is therefore, the purpose of this close out report to gain acceptance to decommission identified monitoring sensors in Block 16 of Crossrail's C510 Liverpool St. Acceptance to decommission sensors will result in ceasing measurements, stopping the reporting and removing sensors.

To gain approval to decommission instrumentation and monitoring, the monitoring data will be analysed to demonstrate settlement does not breach specified rates after the minimum monitoring period is complete.

This revision of the close out report (revision 3) proposes to decommission all remaining sensors not agreed in revision 2. The summary table, associated graphs and figures for sensors agreed to be decommissioned in revision 1 and 2 are provided in appendix 1 and 2, respectively.

N.B. Monitoring sensors refers to all monitoring points; which includes BREs, road studs, extensometers, inclinometers, tilt meters, crack meters, retros (survey stickers) and prisms. Please note this is not an exhaustive list and does not include monitoring systems/equipment, such as communication boxes.



2 Scope of Monitoring Assessment for Close Out

Specification KX10.4103 of document C122-OVE-Z4-RSP-CR001-00007 states that to establish approval for decommissioning, the contractor is to produce a close out report which summarises the observations in correlation with the construction activities. The report is to demonstrate monitoring has reached acceptable settlement rates; whether to the specified rate, or where no rate is specified trigger values are evaluated against potential residual risks. I&M schedule C122-OVE-C2-DDJ-CR001-Z-31511 specifies the acceptable settlement rates with the requirements to monitor at different construction phases, and duration for completion. To summarise the I&M schedule states that the manual monitoring decommissioning specified rate is 2mm per year, following 16 months post construction monitoring (4 months step down and quarterly measurements for a minimum of 12 months long term monitoring). The I&M schedule does not identify the need for long term automated monitoring or specify a settlement rate requirement, it only states that monitoring must continue for 6 months post construction. At the 6 month juncture, agreement must be sought from the project manager to decommission automated monitoring programmes through a close out report or agreeing to cease the works with the project manager. In most cases decommissioning will be possible, as the residual risk will be captured through the remaining long term manual monitoring.

Contrary to the Specification for Instrumentation and Monitoring (*C122-OVE-Z4-RSP-CR001-00007*), the Project Managers Instruction (PMI) C510-PMI-01102 replaces long term monitoring with satellite interferometry (InSAR) for the areas agreed by the project manager. If long term monitoring responsibilities are removed from BBMV and covered by satellite interferometry, the specified settlement criteria may not be met by BBMV. If this occurs, reference to the agreement will be provided to state BBMV are no longer responsible for the sensors and consequently decommissioning acceptance will be proposed.

In some cases it may be agreed with the project manager to cease monitoring prior to meeting the specified rates. The close out report will be revised to incorporate these agreements prior to decommissioning. Due to multiple influencers and large construction monitoring zones, it may be prudent to submit successive document revisions for close out reports, where the specification is not met or the minimum post construction monitoring has not been achieved.



3 Close Out Report Block Description and Location Plan

3.1 Block 16 Location

Figure 1 shows the Liverpool St general location plan, C510 tunnel construction and where Block 16 is situated. Detailed location plans can be found within the installation reports and photomontages as listed in Section 3.2. Each monitoring sensor's location is shown within the assessment plans (Section 5.4).

A Thames Water 8 inch cast iron water main is located on Old Broad Street within close proximity to Block 16. Other utilities include plastic gas mains, brick sewers and numerous water mains. Location and details of these critical assets can be found in the Instrumentation and Monitoring Plan: Liverpool Street Station Ground Movement and Asset Protection C122-OVE-C2-RGN-C101-50013 or the relevant C122 prepared Damage Assessment Reports.

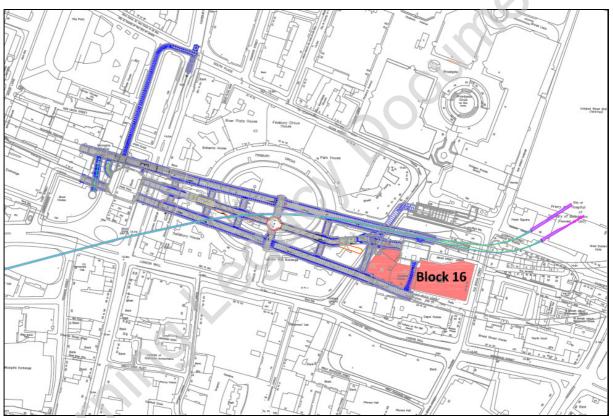


Figure 1- Liverpool St General Location Plan - including Block 16 monitoring area



3.2 Block 16 Description

Block 16 is located between Blomfield St and Old Broad St. The block occupies County House, New Broad Street House and Swedbank House. Block 16 contains the following types of monitoring sensors:

- Building (BREs)- manual monitoring
- Road Studs (LP) manual monitoring
- Tiltmeters (TB)- automated monitoring
- 3D Geodetic Prism Monitoring (RP) automated monitoring
- Water Settlement Cell- Electronic (SH)- automated monitoring
- Invar Scale (LC)- manual monitoring
- Crackmeters (CK)- manual monitoring

Each monitoring assets details are listed within the Decommissioning Status Tracker and further relevant information can be sourced from the following reports.

Block 16 Report References:

- Installation Report- New Broad Street House (Block 16), Liverpool Street CRL Document Number: C510-BBM-C2-RGN-C101-50015
- Monitoring Installation Report Internal LIV-LP-16- Blomfield Street CRL Document Number: C510-BBM-C2-RGN-C101-50141
- Monitoring Installation Report- LIV- LB- 16 Liverpool Street CRL Document Number: C510-BBM-G-RGN-C101-50005
- Monitoring Installation Report LIV- All Block- Crack Meters- Liverpool St CRL Document Number: C510-BBM-G-RGN-C101-50224

The Settlement Contour Drawing (C122-OVE-C2-DDA-CR001_Z-21313) predicts the Block 16 area to experience approximately 10-110mm of settlement.



4 **Construction Programme Influencing Block 16**

Extent of Influence (EOI) monitoring areas were established to record ground movements in relation to Crossrail construction. The EOI purpose is to ensure all assets and areas are adequately monitored for movement during construction, this is achieved by controlling when and how often monitoring occurs. The Asset Protection Instrument and Monitoring (I&M) Schedules (C122 –OVE-C2-DDJ-CR001_Z-31511) states the extent of influence (EOI) of an active tunnel is 2 x depth from the active tunnel face. The EOI is used to determine when monitoring sensors are no longer influenced by construction and can be considered for decommissioning.

The original specification received amendments to manual monitoring frequency within the EOI through several PMIs, with the latest PMI (C510-PMI-01103) establishing an Active ZOI (Zone of Influence) as 2 x tunnel diameter from the active tunnel face projected to the surface. The Active ZOI changed the rates of monitoring frequency, it did not replace EOI. The EOI is used to determine when a monitoring sensor is eligible for decommissioning. Whereas, active ZOI is used to analyse manual monitoring movement against construction.

To identify the tunnels that had the potential to significantly affect Block 16, a ZOI area was established by giving each monitoring sensor a radius of 2.0 x tunnel diameter. This area was then used to determine all the mining advances that occurred within its boundary, *Figure 2* shows the ZOI boundary (pink outline) and the tunnel constructions. Tunnel advance start and finish dates will be used in assessment of the monitoring data.

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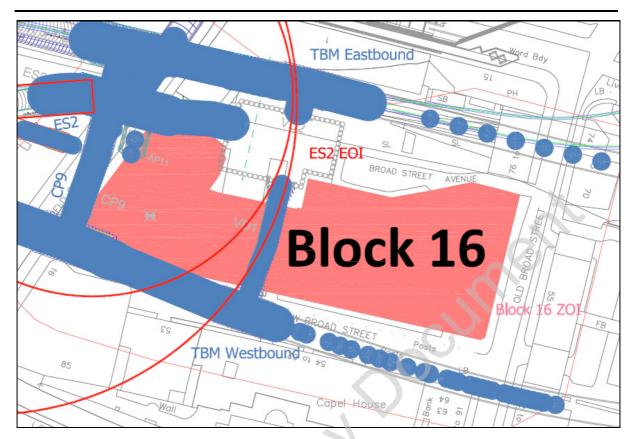


Figure 2 - Block 16 ZOI Constructions

N.B. ES2 EOI is represented in Figure 2 to show the area of Block 16 that is within its boundary.

Figure 2 shows the Block 16 ZOI and the tunnel advances that occurred within its boundary. The construction advances within the ZOI that have the potential to affect Block 16 are listed and summarised in *Table 1*. Further evidence for construction dates can be seen in *Table 2* which lists the latest tunnel advances for each point.

As the ES2 safe stop was completed on the 24th of November 2016, post construction monitoring had not been completed for a portion of Block 16 that was within the ES2 EOI during revision 1. Revision 2 did not propose all sensors to be decommissioned as they had not met the trend requirements. Post construction monitoring has been completed for Block 16, therefore the remaining sensors can now be considered for decommissioning. Further evidence for Block 16 sensors decommissioning status can be found in the decommissioning tracker.

N.B. It should be noted that C502 and C503 works may have affected Block 16. Reference should be made to C502 and C503 close out reports for construction dates.



4.1 Tunnel Advances Affecting Block 16

The information presented in *Table 1* is used in the monitoring graphs (Section 5.1), to show the ground movements in relation to construction. Construction advances will vary depending on the sensor type as the location of the sensors will vary.

	Tunne	Advances Start & End	s for Graphs		
Tunnel Code	Tunnel Reference	Primary Layer Type	Start Date	End Date	ZONE
ES2- Safe Stop	ES2	Enlargement	20/11/2016	24/11/2016	EOI
ES2-Enlargement	ES2	Enlargement	03/10/2016	07/11/2016	ZOI
CH3-Enlargement	CH3	Enlargement	21/08/2016	28/08/2016	ZOI
AP11-Enlargement	AP11	Enlargement	06/08/2016	14/08/2016	ZOI
AP12-Enlargement	AP12	Enlargement	04/08/2016	04/08/2016	ZOI
AP2-Enlargement	AP2	Enlargement	28/06/2016	07/06/2016	ZOI
AP2-Pilot	AP2	Pilot	25/04/2016	12/05/2016	ZOI
ES2-Pilot	ES2	Pilot	14/02/2016	24/04/2016	ZOI
TBM-West-RC-Pilot	TBM-West-RC	Pilot	07/03/2015	12/03/2015	C305
TBM-East-RC-Pilot	TBM-East-RC	Pilot	25/01/2015	31/01/2015	C305
CP10-Enlargement	CP10	Enlargement	15/08/2014	17/08/2014	ZOI
CP9-Enlargement	CP9	Enlargement	08/08/2014	23/08/2014	ZOI
CP9-Pilot	CP9	Pilot	17/07/2014	23/07/2014	ZOI
CP10-Pilot	CP10	Pilot	15/07/2014	16/07/2014	ZOI
VD1-Enlargement	VD1	Enlargement	28/05/2014	08/06/2014	ZOI
VD2-Enlargement	VD2	Enlargement	17/05/2014	17/05/2014	ZOI
RCW-Enlargement	RCW	Enlargement	14/04/2014	07/05/2014	ZOI
PTW-East-Enlargement	PTW-East	Enlargement	25/03/2014	14/04/2014	ZOI
RCE-Enlargement	RCE	Enlargement	31/01/2014	05/03/2014	ZOI
PTE-East-Enlargement	PTE-East	Enlargement	19/01/2014	30/01/2014	ZOI
RCW-Pilot	RCW	Pilot	18/10/2013	28/10/2013	ZOI
PTW-East-Pilot	PTW-East	Pilot	06/10/2013	18/10/2013	ZOI
RCE-Pilot	RCE	Pilot	09/09/2013	26/09/2013	ZOI
PTE-East-Pilot	PTE-East	Pilot	01/09/2013	09/09/2013	ZOI
AP1a-Enlargement	AP1a	Enlargement	04/08/2013	14/08/2013	ZOI
AP1b-Enlargement	AP1b	Enlargement	13/07/2013	04/08/2013	ZOI
AP1a-Pilot	AP1a	Pilot	19/05/2013	07/06/2013	ZOI
AP1b-Pilot	AP1b	Pilot	27/03/2013	18/05/2013	ZOI
GAD2-Pilot	GAD2	Pilot	07/03/2012	09/03/2012	ZOI

Table 1- Tunnel Advances Affecting Block 16

Heading Index:

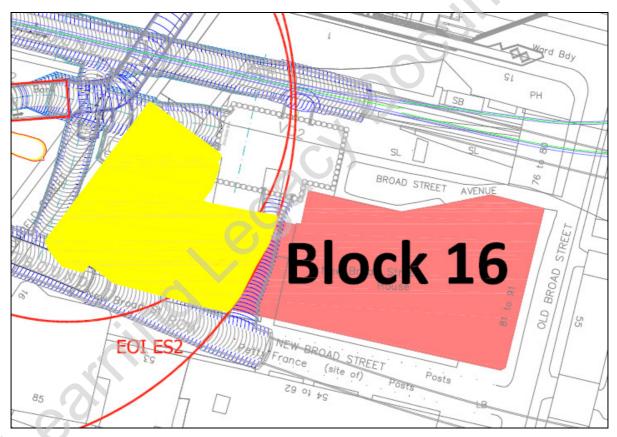
- AP Access Passage
- CH Chamber
- CP Cross Passage
- ES Escalator
- GAD Grout Adit
- LCE Launch Chamber East
- LCW Launch Chamber West
- PTE Platform Tunnel East
- PTW Platform Tunnel West
- RCE Reception Chamber East
- RCW Reception Chamber West
- TBM Tunnel Boring Machine
- VD Ventilation Drive



5 Monitoring Assessment of Block 16

Evidence for decommissioning each monitoring sensor is shown through graphs, tables and plans. Each element of assessment compliments the other and is used together to determine acceptance of decommissioning. *Table 2* highlights the monitoring sensors to be considered for decommissioning and provides supporting evidence for the decision. In some cases supplementary evidence is required to prove stability or provide reasoning for decommissioning.

In revision 1 of Block 16 close out report, not all monitoring sensors were able to be considered for decommissioning as they were within the EOI of ES2 (yellow highlight). As post construction monitoring has now been completed for the entirety of Block 16, revision 2 allowed for decommissioning of all sensors. However not all sensors had met trends requirements in revision 2. Revision 3 is dealing with all sensors not proposed in revision 2





N.B. The highlighted yellow area was not considered for decommissioning in Revision 1



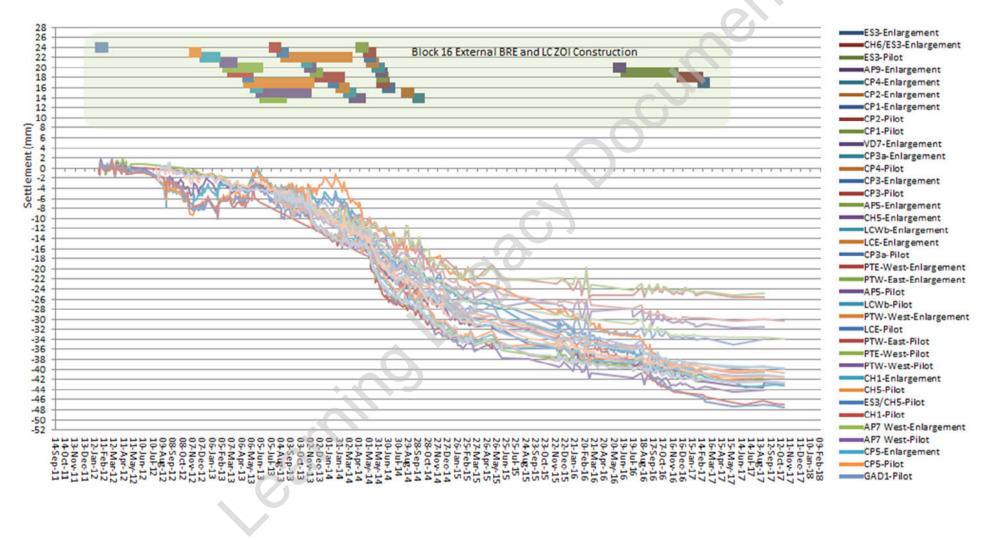
5.1 Time Graphs Monitoring Full History and Construction Durations

To assess the movement of Block 16 monitoring sensors; each monitoring sensor data type is displayed in a line graph, with a gantt chart (bar) representing the construction identified in Section 4:

- Graph 1- All Remaining Block 16 BREs & Invar Scales (LB & LC) Manual Monitoring History in Relation to Construction
- Graph 2- All Remaining Block 16 Road Studs (LP) Manual Monitoring History in Relation to Construction



C510-BBM-C2-RGN-C101-50237 Rev.3.0

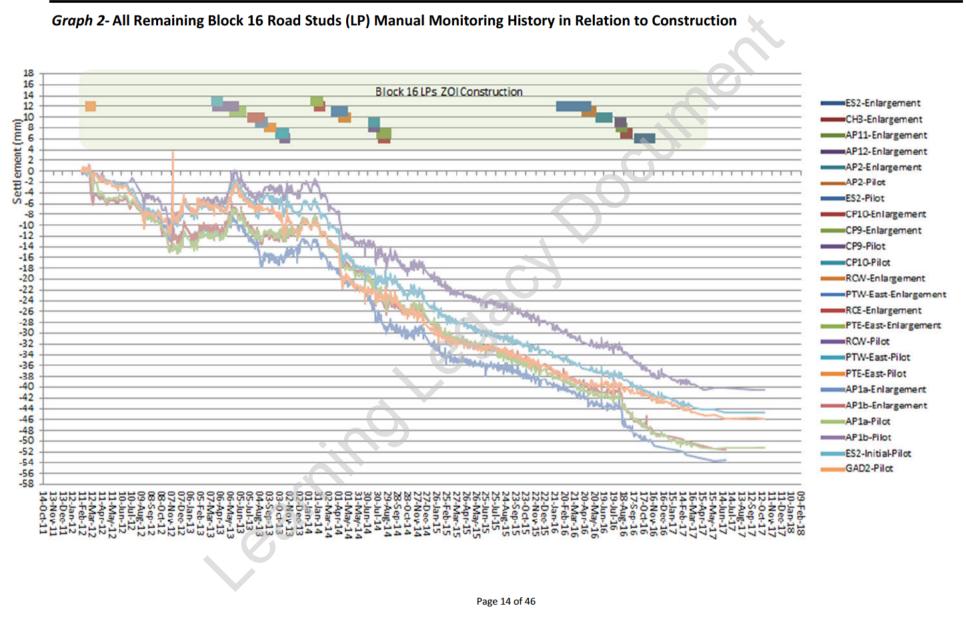


Graph 1- All Remaining Block 16 BREs & Invar Scales (LB & LC) Manual Monitoring History in Relation to Construction

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5.2 Block 16 Decommissioning Status Tracker

The decommissioning tracker identifies (*Table 2*) each monitoring sensor and provides the critical information to enable decommissioning assessment for each sensor. The initial fields shown in the tracker are descriptors of the monitoring sensor, whilst the remaining fields are the assessment for decommissioning. The purpose of the tracker is to provide Crossrail reviewers with sufficient information in conjunction with construction movement graphs and plots, to accept BBMV's proposal to decommission sensors on an individual basis.

Detailed explanation of the tracker column headers:

Tracker Column Header – Last Construction Date and Traffic Lights

For each sensor the EOI parameter is used to determine the last completed construction advance that had the potential to cause settlement. All construction tunnel advances that had the potential to affect a sensor through its EOI are listed for each sensor, from the list the latest advance is used as a construction completion indicator. A traffic light system is used to highlight when a sensor has surpassed defined monitoring time frames; 4 months (120 days), 6 months (180 days) and 16 months (480 days).

N.B. Each monitoring sensor's last affecting primary construction heading and advance number's completion date has been listed within the Decommissioning Status Tracker. The last construction heading listed, is not the closest to the monitoring sensor, but the last completed within the 2 x diameter radius.

Tracker Column Header – 120, 180 & 365 Days Average Settlement Trend

There are three average settlement trends, which tie into the defined monitoring time frames; 120, 180 and 365 days. The calculation used to determine the trend is the same for all three periods. It is a slope calculation (explained below) of the defined period, multiplied over one year. The trend is calculated from the latest reading and includes all readings within the defined period, which is averaged and then multiplied over 1 year. If there is no initial reading for the time frame date, the calculation will continue back to include the next available date. This is an important consideration when assessing the trend and to assist the reviewers, the time frame used within the calculation is included within the decommissioning tracker status table. Defined monitoring time frames:

- The 120 day average rate is used to show the completion of manual monitoring step down period, this is the minimum period of monitoring prior to InSAR taking monitoring responsibility.
- The 180 day average rate is the minimum monitoring period after construction for automated sensors.
- The 365 day average trend is a calculation to determine annual settlement rates using measurements taken across a full year. This measurement period is therefore the desired duration to be used to assess whether long term settlement meets the 2mm per annum specification.



Slope calculation Settlement Trend:

Description – The settlement trend calculates the slope of the linear regression line through data points in known_y's and known_x's. The slope is the vertical distance divided by the horizontal distance between any two points on the line, which is the rate of change along the regression line.

Calculation

 $b = \frac{\sum (x - \overline{x})(y - \overline{y})}{\sum (x - \overline{x})^2}$

Example - If the calculated trend for a 6 month period is 1.5mm, it is multiplied into 365 days, to equal a projected settlement trend of 3mm over 1 year.

Tracker Column Header – ERP Ceased date

ERP and CTC meetings have identified project efficiencies, by ceasing manual monitoring programmes early, or prior to reaching 2mm/yr. InSAR may have taken responsibility of monitoring or the perceived risk may be low enough to warrant ceasing the monitoring. In these situations the cease date is provided, along with a comment explaining the reasoning. Monitoring that has been ceased still requires approval to decommission and will be identified within the decommissioning status tracker as proposed to decommission.

Tracker Column Header – Decommissioning Status

The status is the decommissioning situation for each sensor within Block 16. The different statuses are as follows:

- Outstanding Monitoring sensor has not met the close out requirements and approval to decommission will be sought in subsequent revisions of this close out report.
- Proposed the sensor is proposed to be decommissioned. Crossrail to accept the sensor can be decommissioned.
- Agreed Agreed to decommission through previous revision of the close out report. No
 further reporting or monitoring has taken place.
- Complete Monitoring sensor has been removed and evidence gathered during decommissioning.

N.B. When monitoring sensors have not met the requirements, it may still be appropriate to decommission. In this scenario supplementary evidence will be provided to explain the reasoning for decommissioning.

Name State 0-LB11638 Block 116 S11601 0-LB11639 Block 116 S11601 0-LB11640 Block 116 S11601 0-LB11641 Block 116 S11601 0-LB11642 Block 116 S11601 0-LB11643 Block 116 S11601 0-LB11644 Block 116 S11601 0-LB11645 Block 116 S11601 0-LB11646 Block 116 S11601 0-LB11646 Block 116 S11602 0-LB11648 Block 116 S11602	Int / Ext Internal Internal Internal Internal Internal Internal Internal	Measurement Type Manual Manual Manual Manual Manual	Sensor Type LB LB LB LB	Sensor Description BRE BRE BRE	Asset/Location	EOI Last Primary Layer Construction	Last Construction	Latest	AVERAG	E SETTLEMENT T 120 Day	ay	180 Day	λi λ	365 Day			D
Name BIOCK Section b4LB11638 Block 116 S11601 b4LB11639 Block 116 S11601 b4LB11640 Block 116 S11601 b4LB11640 Block 116 S11601 b4LB11641 Block 116 S11601 b4LB11642 Block 116 S11601 b4LB11643 Block 116 S11601 b4LB11644 Block 116 S11601 b4LB11645 Block 116 S11601 b4LB11646 Block 116 S11602 b4LB11648 Block 116 S11602	Internal Internal Internal Internal Internal Internal Internal Internal	Type Manual Manual Manual Manual Manual	Type LB LB LB	Description BRE BRE	County House				> 00 120 Da		ay	180 Day	2	365 Dav			
Heat Block 116 S11601 Heat Block 116 S11602 Heat Block 116 S11602 Heat Block 116 S11602	Internal Internal Internal Internal Internal Internal Internal	Manual Manual Manual Manual	LB LB	BRE	,			Surveyed Date	R 120 Da	ys Calculation Period	6 180 Days	Calculation Period	365 Days	Calculation Period	Ceased Date	General Comment	Decommission Status
b-LB11640 Block 116 S11601 b-LB11641 Block 116 S11601 b-LB11642 Block 116 S11601 b-LB11643 Block 116 S11601 b-LB11644 Block 116 S11601 b-LB11645 Block 116 S11601 b-LB11646 Block 116 S11601 b-LB11645 Block 116 S11602 b-LB11646 Block 116 S11602 b-LB11648 Block 116 S11602	Internal Internal Internal Internal Internal Internal	Manual Manual Manual	LB			LIV_CP9_Enlargement_Adv-32	23/08/2014	21/08/2017	-0.9		-0.97	181	-3.01	368		Stable 9 month trend	Proposed
Heat Block 116 S11601 Heat Block 116 S11602 Heat Block 116 S11602 Heat Block 116 S11602	Internal Internal Internal Internal Internal	Manual Manual		DDE	County House	LIV_CP9_Enlargement_Adv-32	23/08/2014	21/08/2017			-1.37	181	-3.31	368		Stable 6 month trend	Proposed
Hebril Block 116 S11601 Hebril Block 116 S11602 Hebril Block 116 S11602 Hebril Block 116 S11602	Internal Internal Internal Internal	Manual	LB		County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/08/2017			-1.38	181	-2.55	368			Proposed
Hebril Block 116 S11601 Hebril Block 116 S11602 Hebril Block 116 S11602 Hebril Block 116 S11602 Hebril Block 116 S11602	Internal Internal Internal			BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/08/2017			-1.37	181	-2.53	368		Stable 9 month trend	Proposed
b-LB11644 Block 116 S11601 b-LB11645 Block 116 S11601 b-LB11646 Block 116 S11602 b-LB11647 Block 116 S11602 b-LB11648 Block 116 S11602	Internal Internal		LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/08/2017			-0.35	181	-2.22	368			Proposed
D-LB11645 Block 116 S11601 D-LB11646 Block 116 S11602 D-LB11647 Block 116 S11602 D-LB11648 Block 116 S11602	Internal	Manual	LB LB	BRE	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	21/08/2017 21/08/2017			-2.20 -0.58	181 181	 -1.45 -1.21 	368 368		<2mm per annum specification met	Proposed Proposed
b-LB11646 Block 116 S11602 b-LB11647 Block 116 S11602 b-LB11648 Block 116 S11602		Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	21/08/2017 21/08/2017			-0.58	181	-1.21	368			Proposed
b-LB11647 Block 116 S11602 b-LB11648 Block 116 S11602	Internal	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	20/10/2017			-1.20	241	-2.66	368		-	Proposed
	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017			-1.39	241	-2.29	368		Stable 9 month trend	Proposed
D-LB11649 Block 116 S11602	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017	-0.3	6 154	-0.54	241	-2.34	368			Proposed
	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017			-0.47	241	-0.69	368			Proposed
	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017			-0.78		9 -1.17	368		<2mm per annum specification met	Proposed
	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017			-0.90		-1.67	368			Proposed
	Internal	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	20/10/2017			-0.90		-1.77	368			Proposed
	External	Manual	LB	BRE	Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	18/08/2017			-0.97		-0.68	507		CTC agreed 09/10/2017. See email correspondence from JK	Agreed
	External External	Manual Manual	LB LB	BRE	Swed Bank House County House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_VD1_Enlargement_Adv-23	12/03/2015 04/06/2014	18/08/2017 18/08/2017			-0.62-1.07	197 186	-0.50 -2.15	507 410		Stable 9 month trend	Agreed
	External	Manual	LB	BRE	County House	LIV_VD1_Enlargement_Adv-23	23/08/2014	18/08/2017			-1.47		-3.00	373		Stable 9 month trend	Proposed Proposed
	External	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	20/10/2017			-0.51	241	-2.78	366			Proposed
	External	Manual	LC	Invar Scale	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	20/10/2017			-1.01	241	-2.27	366		Stable 9 month trend	Proposed
	External	Manual	LC	Invar Scale	County House	LIV_CP9_Enlargement_Adv-32	23/08/2014	20/10/2017			-0.90		-1.61	366		<2mm per annum specification met	Proposed
D-LC11603 Block 116 S11603.2	External	Manual	LC	Invar Scale	Swed Bank House	LIV_VD1_Enlargement_Adv-28	05/06/2014	18/08/2017	-1.2	2 178	-1.23	197	-1.73	499		CTC agreed 09/10/2017. See email correspondence from JK	Agreed
-LB11628 Block 116 S11603.8;S11604	External	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017			-1.18		-4.5 5	365			Proposed
	External	Manual	LB	BRE	County House	LIV_ES2_Invert_Adv-8	07/11/2016	20/10/2017	-		-1.03	182	-4.59	365		Stable 6 month trend	Proposed
	External	Manual	LB	BRE	County House	LIV_ES2_Invert_Adv-8	07/11/2016	20/10/2017			-1.19	241	-4.45	365			Proposed
	External	Manual	LB	BRE	County House	LIV_ES2_Invert_Adv-8	07/11/2016	20/10/2017			-1.82	241	0.20	372			Proposed
	External	Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	22/06/2017	#N//		#N/A #N/A		#N/A #N/A			Sensor destroyed as surface was altered. See photo in	Proposed
	External External	Manual Manual	LP LP	Road Stud Road Stud	Bloomfield St Bloomfield St	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	22/06/2017 20/10/2017	#N//		-0.07	182	#IN/A	365		Supplementary Evidence.	Proposed Proposed
	External	Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	20/10/2017			-0.59		-4.75	365			Proposed
	External	Manual	LP	Road Stud	Bloomfield St	LIV_CH3_Enlargement_Adv-11	28/08/2016	20/10/2017			-1.26	182	-5.11	365		Stable 6 month trend	Proposed
	External	Manual	LP	Road Stud	Bloomfield St	LIV_CP9_Enlargement_Adv-32	23/08/2014	20/10/2017			-1.07	182	-5.68	365			Proposed
									Ś	3							
						ear		0									



5.3 Supplementary Evidence for Decommissioning

In some cases supplementary evidence will be provided to support the decommissioning evidence.

Roadstuds (LP) Manual Monitoring- Blomfield St

Includes: C510-LP11604-05

Reasons to propose decommissioning

LP11604-05 have not been measured since 22/06/2017. The road studs have been destroyed and access has been block by another contractor's site hoarding on Blomfield St. *Figure 4* shows the site hoarding on Blomfield St. Ground was changed when the bleu hoarding was installed so road studs cannot be replaced. It is therefore proposed to decommission C510-LP11604-05.



Figure 4- Blomfield Street Site Hoarding

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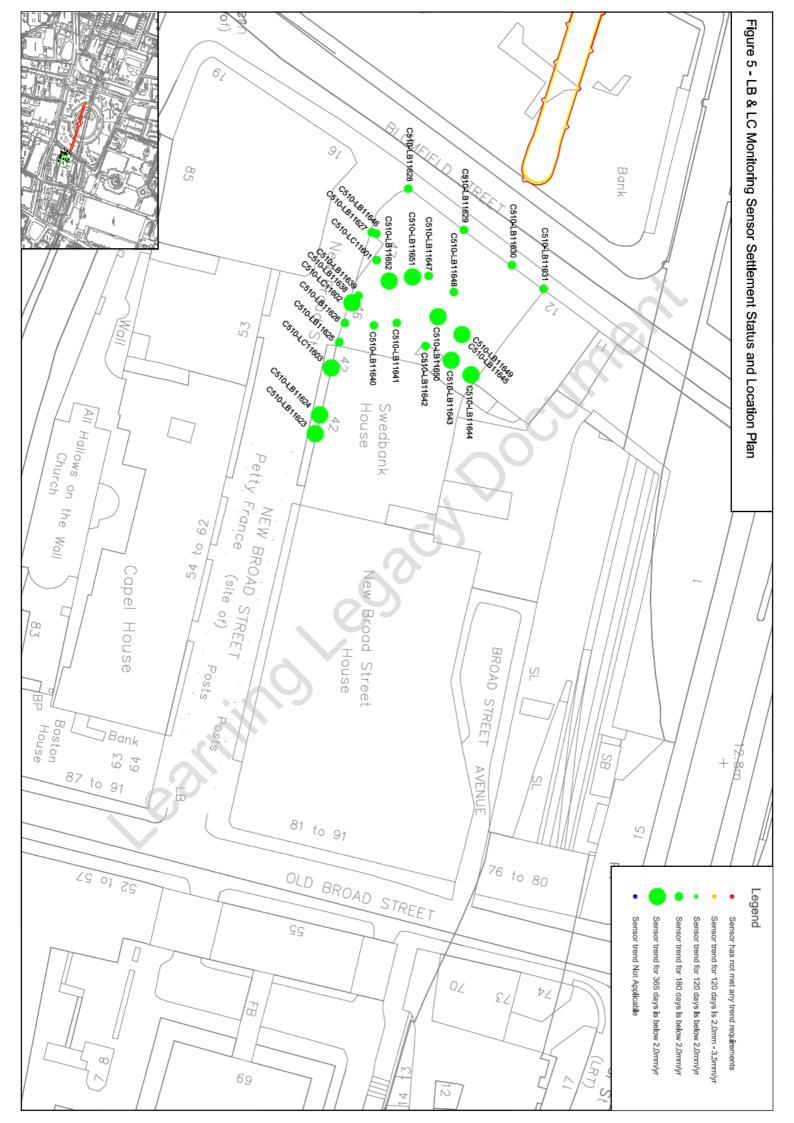


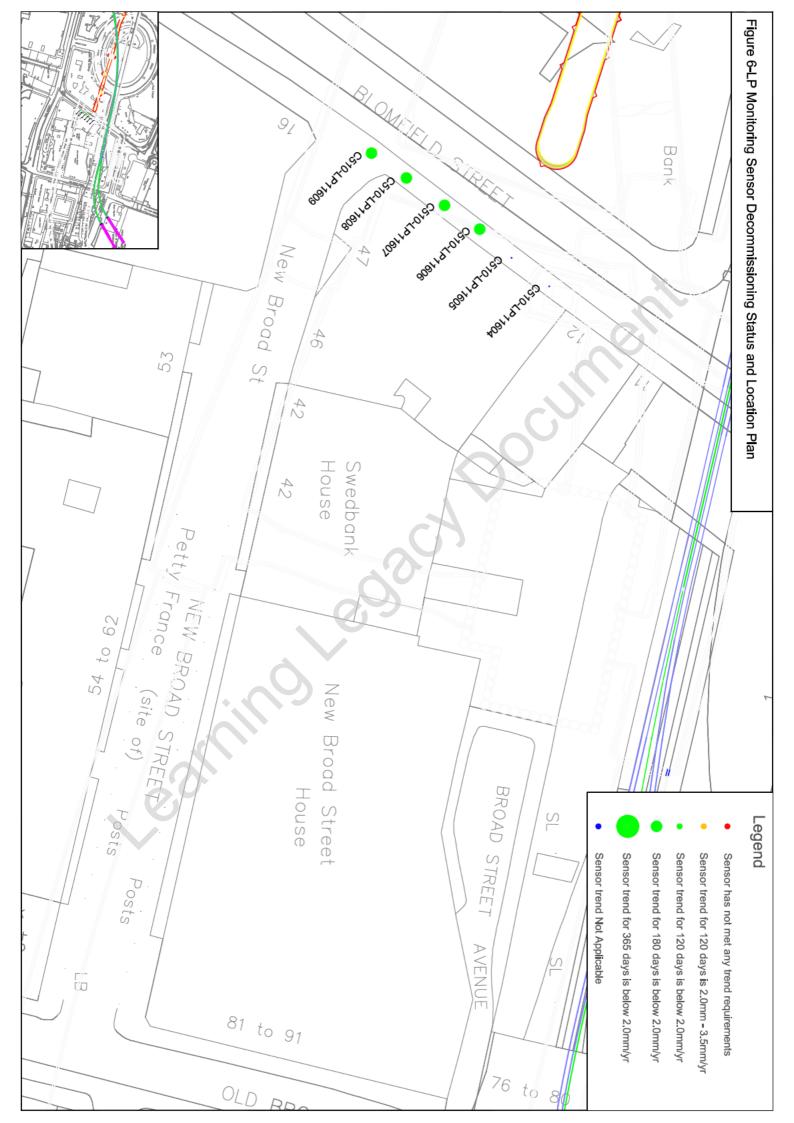
5.4 Monitoring sensor Location Plan and Decommissioning Status

The following plots provide a visual representation of all Block 16 monitoring sensors with a colour circle that defines its settlement status. A green circle represents when a trend is below 2mm/yr and the larger the circle the greater the trend period. When a trend has not been met, a small red circle will represent the monitoring sensor.

- Figure 5- LB & LC Monitoring Sensor Settlement Status and Location Plan
- Figure 6- LP Monitoring Sensor Settlement Status and Location Plan

(From General Document Template ref: BBMV-Form-59-04 rev 5.0)







6 **Decommissioning Recommendations**

Revision 3 of Block 16 close out report requests all of the remaining monitoring sensors to be decommissioned.

N.B. When required, decommissioning and re-instatement evidence will be collected during the removal of monitoring sensors, which will be included within the final report.



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Appendix 1 (Graphs, Tables and Figures of Rev.1) 7

Appendix 1 includes the Graphs, Tables and Figures that were used as evidence to agree decommissioning in Revision 1 of Block 16 Close out Report.

From General Document Template ref: BBMV-Form-S9-04 rev 5.0)

Table 2 - Block 16 Decommissioning Status Tracker SH & TB

< 2.0 mm GREEN < 3.5 mm AMBER > 3.5 mm AVERAGE SETTLEMENT TREND RED

											AVERAGE S	SETTLEMENT	TREND					
C510 Sensor	Diask	Contine	lat / Eut	Measurement	Conser Trees	Sensor	Accet/l conting	EOI Last Primary Layer	Last	Latest	day 100 Dava	120 Day	day 100 Dana	180 Day	day of Dana	365 Day	Canad Data	Canada Communit
Name	Block	Section	Int / Ext	Туре	Sensor Type	Description	Asset/Location	Construction	Construction Date	Surveyed Date	120 Days	Calculation Period	180 Days	Calculation Period	9 365 Days	Calculation Period	Ceased Date	General Comment
C510-SH011601	Block 116	S11601	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	07/03/2016	-2.15	120	-4.27	180	-1.16	366	1	No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011602	Block 116	S11601	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	07/03/2016	2.21	120	-4.07	180	-0.68	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011603	Block 116	S11601	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	07/03/2016	0.09	120	-2.49	180	0.29	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011604	Block 116	S11601	Internal	Automated	SH	Settlement Cell-Electroni		LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	07/03/2016	-0.01	120	-2.70	180	-0.02	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011611	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	07/03/2016	-0.05	120	-2.75	180	0.00	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011612 C510-SH011613	Block 116 Block 116	S11602 S11602	Internal	Automated Automated	SH SH	Settlement Cell-Electronic Settlement Cell-Electronic	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	07/03/2016 07/03/2016	1.681.53	120 120	-1.30 -0.45	180 180	0.84 4.97	366 366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016. No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011613	Block 116	S11602	Internal Internal	Automated	SH	Settlement Cell-Electronic	Swedbank House	LIV_VD1_Enlargement_Adv-41	08/06/2014	07/03/2016	1.55	120	-0.45	180	-2.01	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011615	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electronic	Swedbank House	LIV TBM-West-RC Pilot Adv-4008	12/03/2015	07/03/2016	1.82	120	-2.51	180	-1.90	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011616	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_VD1_Enlargement_Adv-41	08/06/2014	07/03/2016	1.71	120	-1.09	180	2.96	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011617	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_VD1_Enlargement_Adv-41	08/06/2014	07/03/2016	0.01	120	-2.33	180	0.56	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011618	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	07/03/2016	1.44	120	-1.38	180	0.74	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011619	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_AP11_Enlargement_Adv-25	14/08/2016	07/03/2016	-0.03	120	-2.76	180	0.24	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011620	Block 116	S11602	Internal	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_AP11_Enlargement_Adv-25	14/08/2016	07/03/2016	-0.02	120	-2.60	180	1.01	366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011621 C510-SH011622	Block 116 Block 116	S11602 S11602	Internal Internal	Automated Automated	SH SH	Settlement Cell-Electronic Settlement Cell-Electronic	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_AP11_Enlargement_Adv-25	08/06/2014 14/08/2016	07/03/2016 07/03/2016	- <u>2.95</u> -1.72	120 120	-5.44 -4.44	180 180	0.500.67	366 366		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016. No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016.
C510-SH011631	Block 116	S11603	External	Automated	SH	Settlement Cell-Electronic	Swedbank House	LIV_VD1_Enlargement_Adv-26	05/06/2014	09/09/2016	-20.24	120		180	8.92	366		Power Box Damaged+ Supplementary Evidence
C510-SH011632	Block 116 Block 116	S11603	External	Automated	SH	Settlement Cell-Electronic	Swedbank House	LIV_VD1_Enlargement_Adv-28	05/06/2014	09/09/2016	-4.88	120	-12.94	180	-6.24	366		Power Box Damaged+ Supplementary Evidence
C510-SH011633	Block 116	S11603	External	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	09/09/2016	-6.49	120	-12.86	180	-5.29	366		Power Box Damaged+ Supplementary Evidence
C510-SH011634	Block 116	S11603	External	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	09/09/2016	1.30	120	-7.15	180	-3.67	366		Power Box Damaged+ Supplementary Evidence
C510-SH011635	Block 116	S11603	External	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	09/09/2016	1.35	120	-7.15	180	-3.43	366		Power Box Damaged+ Supplementary Evidence
C510-SH011636	Block 116	S11603	External	Automated	SH	Settlement Cell-Electroni	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	09/09/2016	2.25	120	-5.87	180	-3.08	366		Power Box Damaged+ Supplementary Evidence
C510-SH011641	Block 116	S11604	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	9.68	120	8.21	180	7.17	366		Within ES2 EOI
C510-SH011642 C510-SH011643	Block 116 Block 116	S11604 S11604	Internal Internal	Automated Automated	SH SH	Settlement Cell-Electroni Settlement Cell-Electroni	County House	LIV_CH3_Enlargement_Adv-11 LIV CH3 Enlargement Adv-11	28/08/2016 28/08/2016	16/02/2017 16/02/2017	10.17 3.05	120 120	7.56 1.99	180 180	7.38 4.45	366 366		Within ES2 EOI Within ES2 EOI
C510-SH011643 C510-SH011644	Block 116 Block 116	S11604 S11604	Internal	Automated Automated	SH	Settlement Cell-Electronic	County House	LIV_CH3_Enlargement_Adv-11 LIV CH3 Enlargement Adv-11	28/08/2016	16/02/2017 16/02/2017	2.47	120	3.84	180	4.45 5.22	366	1	Within ES2 EOI
C510-SH011645	Block 116	S11604	Internal	Automated	SH	Settlement Cell-Electronic	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/02/2017	4.25	120	4.79	180	5.74	366	1	Within ES2 EO1
C510-SH011646	Block 116	S11604	Internal	Automated	SH	Settlement Cell-Electronic	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	2.11	120	2.67	180	4.60	366		Within ES2 EOI
C510-SH011647	Block 116	S11604	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	3.28	120	1.87	180	3.55	366		Within ES2 EOI
C510-SH011651	Block 116	S11605	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	2.22	120	2.72	180	4.60	366		Within ES2 EOI
C510-SH011652	Block 116	S11605	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	4.04	120	4.06	180	4.34	366		Within ES2 EOI
C510-SH011653	Block 116	S11605	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	9.46	120	10.71	180	7.97	366		Within ES2 EOI
C510-SH011654	Block 116	S11605	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	4.39	120	3.38	180	3.73	366		Within ES2 EOI
C510-SH011655 C510-SH011661	Block 116 Block 116	S11605 S11606	Internal Internal	Automated Automated	SH SH	Settlement Cell-Electroni Settlement Cell-Electroni	County House	LIV_CP9_Enlargement_Adv-32 LIV CH3 Enlargement Adv-11	23/08/2014 28/08/2016	16/02/2017 16/02/2017		120 120	1.281.00	180 180	 1.91 2.52 	366		Within ES2 EOI Within ES2 EOI
C510-SH011661	Block 116 Block 116	S11606	Internal	Automated	SH	Settlement Cell-Electronic	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/02/2017	 1.13 0.83 	120	-0.16	180	0.07	366		Within ES2 EOI
C510-SH011663	Block 116	S11606	Internal	Automated	SH	Settlement Cell-Electronic	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	1.08	120	2.14	180	3.94	366	<u> </u>	Within ES2 EOI
C510-SH011664	Block 116 Block 116	S11606	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV CH3 Enlargement Adv-11	28/08/2016	16/02/2017	2.54	120	3.11	180	4.47	366		Within ES2 EOI
C510-SH011665	Block 116	S11606	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/02/2017	4.23	120	4.31	180	4.67	366		Within ES2 EOI
C510-SH011666	Block 116	S11606	Internal	Automated	SH	Settlement Cell-Electroni	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/02/2017	4.25	120	4.87	180	5.53	366		Within ES2 EOI
C510-TB11601A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016	0.20	120	-0.27	180	0.04	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11601B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016	0.14	120	-0.20	180	0.11	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11602A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_AP11_Enlargement_Adv-25	14/08/2016	08/03/2016	-0.05	120	-0.01	180	0.19	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11602B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_AP11_Enlargement_Adv-25 LIV TBM-West-RC Pilot Adv-4008	14/08/2016	08/03/2016	0.33	120	0.23	180	0.08	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11603A C510-TB11603B	Block 116 Block 116	N/A N/A	Internal Internal	Automated Automated	TB TB	Tiltmeter-Biaxial Tiltmeter-Biaxial	New Broad St House New Broad St House	LIV_IBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	11/09/2016 11/09/2016	0.91 1.86	120 120	-1.32 -2.47	180	 -0.70 -1.34 	365 365		Power Box Damaged+ Supplementary Evidence- Agreed to decommission (va Power Box Damaged+ Supplementary Evidence- Agreed to decommission (va
C510-TB11604A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV TBM-West-RC Pilot Adv-4008	12/03/2015	08/03/2016	0.23	120	0.07	180	0.13	365		No data following renovations 20.05.2016. CTC agreed to decommission (va
C510-TB11604B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV TBM-West-RC Pilot Adv-4008	12/03/2015	08/03/2016	-0.08	120	-0.04	180	0.15	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11605A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	11/09/2016	0.00	120	-0.02	180	0.13	365		Power Box Damaged+ Supplementary Evidence- Agreed to decommission (va
C510-TB11605B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	11/09/2016	0.04	120	-0.06	180	0.23	365		Power Box Damaged+ Supplementary Evidence- Agreed to decommission (va
C510-TB11611A	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial	Swedbank North Façade	-	08/06/2014	08/03/2016	0.06	120	0.02	180	-1.34	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11611B	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial	Swedbank North Façade		08/06/2014	08/03/2016	0.91	120	0.99	180	-0.50	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (N
C510-TB11612A	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial	Swedbank North Façade		08/06/2014	08/03/2016	0.18	120	-0.06	180	-0.18	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11612B C510-TB11613A	Block 116 Block 116	11601 11601	External External	Automated	TB TB	Tiltmeter-Biaxial Tiltmeter-Biaxial		LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	08/03/2016 08/03/2016	0.76	120 120	0.40	180 180	 0.09 -0.19 	365 365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11613B	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial		LIV_VD1_Enlargement_Adv-41	08/06/2014		0.64	120			-0.02	365		No data following renovations 20.05.2010. CTC agreed to cease 07/06/2010 (v
C510-TB11614A	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial		LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016		120	-0.36	180	-0.47	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (N
C510-TB11614B	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial	Swedbank North Façade		08/06/2014	08/03/2016		120	-0.41	180	0.18	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11615A	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial		LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016	0.44	120	-0.36	180	0.32	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11615B	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial	Swedbank North Façade		08/06/2014	08/03/2016	-0.36	120	-0.24	180	-0.94	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11616A	Block 116	11601	External	Automated	TB	Tiltmeter-Biaxial		LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016	-0.69	120	-0.50	180	-0.34	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11616B C510-TB11617A	Block 116 Block 116	11601 N/A	External Internal	Automated Automated	TB TB	Tiltmeter-Biaxial Tiltmeter-Biaxial	Swedbank North Façade New Broad St House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	08/03/2016 08/03/2016	-0.48 -0.55	120 120	-0.47 -0.91	180 180	-0.21 -0.18	365 365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11617A	Block 116 Block 116	N/A N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016	-0.55	120	-0.91	180	-0.18	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (V No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11618A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016			-0.31		-0.05	365	1	No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11618B	Block 116 Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41	08/06/2014		0.17		0.24	180	0.12	365	1	No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11619A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41	08/06/2014	08/03/2016	0.40	120	0.48	180	0.14	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11619B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_VD1_Enlargement_Adv-41	08/06/2014		0.05	120	0.05	180	-0.06	365		No data following renovations 20.05.2016. CTC agreed to cease 07/06/2016 (v
C510-TB11621A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	10/02/2011	-0.29		-0.85		0.34	365		Within ES2 EOI (values are tilt mm/m)
C510-TB11621B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/02/2017	0.23		0.85		0.13	365		Within ES2 EOI (values are tilt mm/m)
C510-TB11622A	Block 116 Block 116	N/A N/A	Internal	Automated	TB TB	Tiltmeter-Biaxial	County House	LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25	14/08/2016		0.16	120	0.29		0.41	365		Within ES2 EOI (values are tilt mm/m)
C510-TB11622B C510-TB11623A	Block 116 Block 116	N/A N/A	Internal Internal	Automated Automated	TB TB	Tiltmeter-Biaxial Tiltmeter-Biaxial	County House County House	LIV_AP11_Enlargement_Adv-25 LIV_CH3_Enlargement_Adv-11	14/08/2016 28/08/2016		-0.11 -0.30	120 120	-0.19 -0.44		 -0.19 -0.26 	365 365	1	Within ES2 EOI (values are tilt mm/m) Within ES2 EOI (values are tilt mm/m)
C510-TB11623A	Block 116 Block 116	N/A N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016	1	-0.30		-0.44		-0.26	365		Within ES2 EOI (values are tilt mm/m) Within ES2 EOI (values are tilt mm/m)
C510-TB11624A	Block 116 Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_ES2_Invert_Adv-8	07/11/2016		-0.38	120	-0.69	180	 0.00 -0.35 	365	1	Within ES2 EOI (values are tilt mm/m)
C510-TB11624B	Block 116 Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_ES2_Invert_Adv-8	07/11/2016	16/02/2017	-0.03	120	-0.34	180	 0.00 -0.12 	365	1	Within ES2 EOI (values are tilt mm/m)
C510-TB11625A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_ES2_Invert_Adv-8	07/11/2016	16/02/2017	-0.13	120	-0.97	180	-0.83	365		Within ES2 EOI (values are tilt mm/m)
C510-TB11625B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_ES2_Invert_Adv-8	07/11/2016	16/02/2017	-0.06	120	0.08	180	0.45	365		Within ES2 EOI (values are tilt mm/m)
C510-TB11631A	Block 116	N/A	Unknown	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3909		16/02/2017	-0.21	120	-0.40	180	0.07	365		6 Months automated monitoring specification complete (values are tilt mm/m)
C510-TB11631B	Block 116	N/A	Unknown	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015	16/02/2017	-0.10	120	-0.16	180	-0.03	365		6 Months automated monitoring specification complete (values are tilt mm/m)
C510-TB11632A	Block 116	N/A	Unknown	Automated	TB	Tiltmeter-Biaxial	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015	16/02/2017	0.06	120	0.34	180	0.37	365		6 Months automated monitoring specification complete (values are tilt mm/m)
C510-TB11632B C510-TB11633A	Block 116 Block 116	N/A N/A	Unknown	Automated	TB TB	Tiltmeter-Biaxial Tiltmeter-Biaxial	New Broad St House New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3909 LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015 31/01/2015		-0.25	120 120	-0.28	180 180	 -0.14 -0.09 	365 365		6 Months automated monitoring specification complete (values are tilt mm/m) 6 Months automated monitoring specification complete (values are tilt mm/m)
C510-TB11633A C510-TB11633B	Block 116 Block 116	N/A N/A	Unknown Unknown	Automated Automated	TB	Tiltmeter-Biaxial	New Broad St House New Broad St House	LIV_IBM-East-RC_Pilot_Adv-3909 LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015 31/01/2015	16/02/2017 16/02/2017	0.00	120	 -0.22 0.31 	180	0.09	365	1	6 Months automated monitoring specification complete (values are tilt mm/m) 6 Months automated monitoring specification complete (values are tilt mm/m)
C510-TB11641A	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/02/2017	0.00	120	-0.23	180	0.00	365	1	Within ES2 EOI (values are tilt mm/m)
C510-TB11641B	Block 116	N/A	Internal	Automated	TB	Tiltmeter-Biaxial	Swedbank House	LIV_CH3_Enlargement_Adv-11	28/08/2016		-0.24	120	-0.41	180	0.01	365	1	Within ES2 EOI (values are tilt mm/m)
C510-TB11651A	Block 116	N/A	External	Automated	TB	Tiltmeter-Biaxial	Swedbank House	LIV_CP9_Enlargement_Adv-32	23/08/2014	1	0.00	120	-1.48	180	0.99	365		Within ES2 EOI (values are tilt mm/m)
C510-TB11651B	Block 116	N/A	External	Automated	TB	Tiltmeter-Biaxial	Swedbank House	LIV_CP9_Enlargement_Adv-32	23/08/2014	16/02/2017	0.02	120	0.01	180	0.09	365		Within ES2 EOI (values are tilt mm/m)
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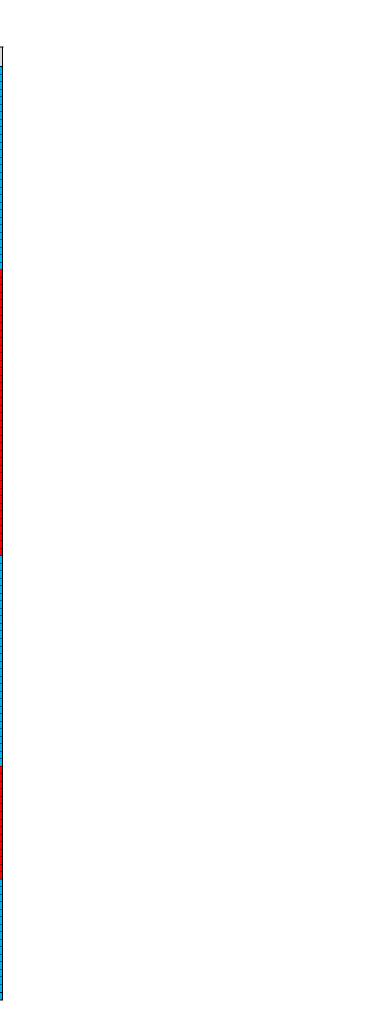
Table 3 - Block 16 Decommissioning Status Tracker LB + LC + LP

< 2.0 mm GREEN < 3.5 mm AMBER > 3.5 mm AVERAGE SETTLEMENT TREND

RED

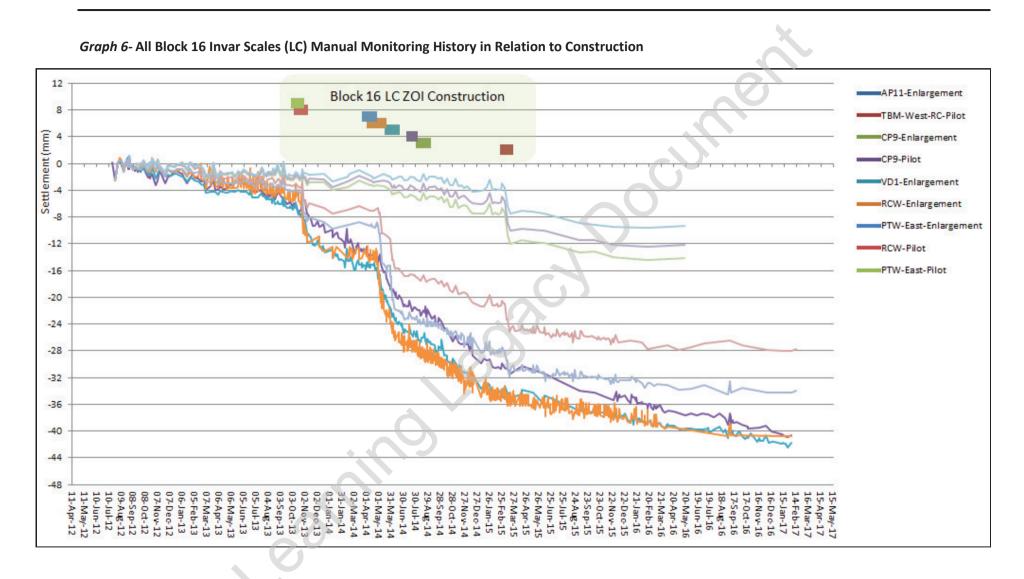
											AVERAGE	SETTLEMENT T	REND						
C510 Sensor Name	Block	Section	Int / Ext	Measurement Type	Sensor Type	Sensor Description	Asset/Location	EOI Last Primary Layer Construction	Last Construction Date	Latest Surveyed Date	120 Days	120 Day Calculation Period	180 Days	180 Day Calculation Period	App 365 Days	365 Day Calculation Period	Ceased Date	General Comment Dec	ecommissioning Status
C510-LB11601	Block 116	S11601	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015	17/02/2016	-2.83	168	-4.39	252	-1.54	366	14.06.2016	CTC 14.06.2016 Confimred monitoring to be replaced by InSAR.	Proposed
C510-LB11602	Block 116	S11601	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015	17/02/2016	-3.70	168			-1.57	366			Proposed
C510-LB11603	Block 116	S11601	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3905	31/01/2015	17/02/2016 🥘	-2.83	168		252	-1.63	366	14.06.2016	CTC 14.06.2016 Confimred monitoring to be replaced by InSAR.	Proposed
C510-LB11604	Block 116	S11601	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015	15/05/2016		172		200	-2.62	368			Proposed
C510-LB11605	Block 116	S11601	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015	15/05/2016		172			-2.56	368			Proposed
C510-LB11606 C510-LB11607	Block 116 Block 116	S11601 S11601	External External	Manual Manual	LB LB	BRE	New Broad St House New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015	15/05/2016 15/05/2016	-0.21 -0.22	172 172	0.00	256 256	-2.16 -1.93	368 368			Proposed
C510-LB11607 C510-LB11608	Block 116 Block 116	S11601 S11601	External	Manual	LB	BRE	New Broad St House	LIV_IBM-East-RC_Pilot_Adv-3895	27/01/2015	15/05/2016		172	-		-1.93	368			Proposed Proposed
C510-LB11609	Block 116 Block 116	S11601;S11602	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC Pilot Adv-3890	27/01/2015	15/05/2016		172		256	-2.34	368			Proposed
C510-LB11610	Block 116	S11602	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3885	26/01/2015	15/05/2016		172	-		-2.18	368			Proposed
C510-LB11611	Block 116	S11602	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3885	26/01/2015	15/05/2016	-0.85	172	-1.92	256	-2.81	368			Proposed
C510-LB11612	Block 116	S11602	External	Manual	LB	BRE	New Broad St House	LIV_TBM-East-RC_Pilot_Adv-3885	26/01/2015	15/05/2016 🥘	-	172			-2.70	368		ů ,	Proposed
C510-LB11613	Block 116	S11602	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-3980	06/03/2015	15/05/2016	-0.21	172		256	-2.38	368	<u></u>		Proposed
C510-LB11614	Block 116	S11602	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-3987	07/03/2015	15/05/2016		172		200	-2.52	368			Proposed
C510-LB11615 C510-LB11616	Block 116 Block 116	S11602 S11603.1	External External	Manual Manual	LB LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-3989 LIV_TBM-West-RC_Pilot_Adv-3991	07/03/2015	15/05/2016 15/05/2016	-0.21 -0.19	172 172		256 256	-2.34 -2.29	368 368			Proposed Proposed
C510-LB11617	Block 116 Block 116	S11603.1	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-3991	07/03/2015	15/05/2016	0.01	172			-2.29	368			Proposed
C510-LB11618	Block 116	S11603.1	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-3996	07/03/2015	15/05/2016	-0.84	172			-2.48	368			Proposed
C510-LB11619	Block 116	S11603.1	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4001	08/03/2015	15/05/2016		172	-1.41		-2.65	368			Proposed
C510-LB11620	Block 116	S11603.1	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4006	12/03/2015	15/05/2016 🥘		172		256	-2.52	368			Proposed
C510-LB11621	Block 116	S11603.1	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	15/05/2016	-3.62	167	2.02	184	-2.12	366			Proposed
C510-LB11622	Block 116	S11603.1	External	Manual	LB	BRE	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	15/05/2016	-4.28	167		184	-2.25	366	14.06.2016	ů ,	Proposed
C510-LB11623	Block 116	S11603.2	External	Manual	LB	BRE	Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	21/02/2017	-0.28	167	0.02	010	-1.44 -1.74	369			Outstanding
C510-LB11624 C510-LB11625	Block 116 Block 116	S11603.2 S11603.2	External External	Manual Manual	LB LB	BRE	Swed Bank House County House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV VD1 Enlargement Adv-23	12/03/2015 04/06/2014	21/02/2017	-0.28 -2.77	167 140	-0.52 -2.49	329 232	-1.74 -2.14	369 369			Outstanding Outstanding
C510-LB11625 C510-LB11626	Block 116 Block 116	S11603.2	External	Manual	LB	BRE	County House	LIV_VD1_Enlargement_Adv-23 LIV CP9 Enlargement Adv-32	23/08/2014	21/02/2017		125	-2.49		-2.14	369			Outstanding
C510-LB11627	Block 116 Block 116	S11603.2	External	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/02/2017	-5.69	125	-6.09		-4.95	369			Outstanding
C510-LB11628	Block 116	S11603.8;S11604	External	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	21/02/2017	-5.98	124	-6.93	181	-7.70	369			Outstanding
C510-LB11629	Block 116	S11604	External	Manual	LB	BRE	County House	LIV_ES2_Invert_Adv-8	07/11/2016	21/02/2017 🕑	-8.25	124			-11.54	369			Outstanding
C510-LB11630	Block 116	S11604	External	Manual	LB	BRE	County House	LIV_ES2_Invert_Adv-8	07/11/2016	21/02/2017	-8.63	124			-15.34	369			Outstanding
C510-LB11631	Block 116	S11604	External	Manual	LB	BRE	County House	LIV_ES2_Invert_Adv-8	07/11/2016	21/02/2017	-5.25	131	0.01		-11.61	369			Outstanding
C510-LB11632	Block 116	S11601	Internal	Manual	LB	BRE	Swed Bank House	LIV_VD1_Enlargement_Adv-28	05/06/2014	07/09/2016	-3.55	182	-3.55	182	-3.32	365			Outstanding
C510-LB11633 C510-LB11634	Block 116 Block 116	S11601;S11602 S11601	Internal Internal	Manual Manual	LB	BRE	Swed Bank House Swed Bank House	LIV_VD1_Enlargement_Adv-41 LIV TBM-West-RC Pilot Adv-4008	08/06/2014	09/03/2016	-4.65 -2.71	187 175		187 182	-2.44 -2.41	370 447			Outstanding Outstanding
C510-LB11634 C510-LB11635	Block 116 Block 116	S11601	Internal	Manual	LB	BRE	Swed Bank House	LIV_IBM-West-RC_Pliot_Adv-4008 LIV VD1 Enlargement Adv-41	08/06/2014	09/03/2016	-4.42	175	0.11		-2.41	370			Outstanding
C510-LB11636	Block 116	S11601	Internal	Manual	LB	BRE	Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	09/03/2016	-4.11	187	4.46		-1.96	370			Outstanding
C510-LB11637	Block 116	S11601	Internal	Manual	LB	BRE	Swed Bank House	LIV_VD1_Enlargement_Adv-41	08/06/2014	31/08/2016	-0.83	175	-0.28		-1.42	447			Outstanding
C510-LB11638	Block 116	S11601	Internal	Manual	LB	BRE	County House	LIV_CP9_Enlargement_Adv-32	23/08/2014	21/02/2017	-3.61	127			-3. 67	370			Outstanding
C510-LB11639	Block 116	S11601	Internal	Manual	LB	BRE	County House	LIV_CP9_Enlargement_Adv-32	23/08/2014	21/02/2017		127			-3.36	370			Outstanding
C510-LB11640	Block 116	S11601	Internal	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/02/2017		127			-2.61	370			Outstanding
C510-LB11641 C510-LB11642	Block 116 Block 116	S11601 S11601	Internal Internal	Manual Manual	LB LB	BRE	County House County House	LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25	14/08/2016 14/08/2016	21/02/2017	-3.97 -3.06	127 127	0.2.		- <u>3.06</u> - <u>2.68</u>	370 370			Outstanding
C510-LB11642 C510-LB11643	Block 116 Block 116	S11601	Internal	Manual	LB	BRE	County House	LIV_APTI_Enlargement_Adv-25 LIV_CH3_Enlargement_Adv-11	28/08/2016	21/02/2017		127	0.01		-2.68	370			Outstanding Outstanding
C510-LB11644	Block 116	S11601	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	21/02/2017	-		-1.28	187		370		Within ES2 EOI- Review in rev 2	Outstanding
C510-LB11645	Block 116	S11601	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	21/02/2017			-3.05		-3.17	370			Outstanding
C510-LB11646	Block 116	S11602	Internal	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/02/2017		127		-	-5.67	370		Within ES2 EOI- Review in rev 2	Outstanding
C510-LB11647	Block 116	S11602	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	21/02/2017 🕘		127			-6.28	370			Outstanding
C510-LB11648	Block 116	S11602	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	21/02/2017			-8.57	-	-8.43	370			Outstanding
C510-LB11649	Block 116	S11602	Internal	Manual	LB	BRE	County House	LIV_CH3_Enlargement_Adv-11 LIV CH3 Enlargement Adv-11	28/08/2016	21/02/2017		127		-	-3.89 -3.86	370		Within ES2 EOI- Review in rev 2	Outstanding
C510-LB11650 C510-LB11651	Block 116 Block 116	S11602 S11602	Internal Internal	Manual Manual	LB	BRE	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	21/02/2017 21/02/2017		127 127			-3.86 -5.06	370 370			Outstanding Outstanding
C510-LB11652	Block 116 Block 116	S11602	Internal	Manual	LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	21/02/2017			-5.04		-4.56	370			Outstanding
C510-LB11653	Block 116	S11602	Internal	Manual	LB	BRE	Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	31/08/2016			-2.01		-3.12	369			Outstanding
C510-LB11654	Block 116	S11603	Internal	Manual	LB	BRE	Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	31/08/2016	-1.87	175	-1.30	182	-2.83	369		Within ES2 EOI- Review in rev 2	Outstanding
C510-LB11655	Block 116	S11600	External	Manual	LB	BRE	Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	31/08/2016 🥘			-2.78		3.33	369		Within ES2 EOI- Review in rev 2	Outstanding
C510-LC11601	Block 116	S11603.2	External	Manual	LC	Invar Scale	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	02/02/2017		134			-4.49	367			Outstanding
C510-LC11602	Block 116	S11603.2	External	Manual	LC	Invar Scale	County House	LIV_CP9_Enlargement_Adv-32	23/08/2014	02/02/2017	-		-5.18		-3.10	365			Outstanding
C510-LC11603	Block 116	S11603.2	External	Manual	LC	Invar Scale	Swed Bank House	LIV_VD1_Enlargement_Adv-28	05/06/2014	02/02/2017			-1.80		- <u>2.21</u>	365			Outstanding
C510-LC11604 C510-LC11605	Block 116 Block 116	S11603.2 S11603.1;S11603.2	External External	Manual Manual	LC LC	Invar Scale Invar Scale	Swed Bank House New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	13/02/2017 13/02/2017		132 132		_	-1.13 -0.58	369 376			Proposed Proposed
C510-LC11605	Block 116 Block 116	S11603.1;S11603.2 S11603.1	External	Manual	LC	Invar Scale	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	15/05/2017	-0.41	172	-		-0.58	368			Proposed
C510-LC11607	Block 116	S11603.1	External	Manual	LC	Invar Scale	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	15/05/2016			-1.23		-2.56	368			Proposed
C510-LC11608	Block 116	S11603.1	External	Manual	LC	Invar Scale	New Broad St House	LIV_TBM-West-RC_Pilot_Adv-4001	08/03/2015	15/05/2016		172			-2.35	368		<u> </u>	Proposed
C510-LP11601	Block 116	S11601	External	Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	26/11/2012	N/A		N/A		N/A			Covered by C502 site	Proposed
C510-LP11602	Block 116	S11601	External	Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	26/11/2012	N/A		N/A		N/A				Proposed
C510-LP11603	Block 116	S11601	External	Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	26/11/2012	N/A		N/A		N/A				Proposed
C510-LP11604	Block 116	S11601	External	Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	23/02/2017		121		-	-13.55	366			Outstanding
C510-LP11605 C510-LP11606	Block 116 Block 116	S11601 S11601	External	Manual	LP	Road Stud Road Stud	Bloomfield St Bloomfield St	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016	23/02/2017 25/02/2017		121 (123 (-10.80 -11.51		-13.54 -12.77	366 367			Outstanding
C510-LP11606 C510-LP11607	Block 116 Block 116	S11601 S11601	External External	Manual Manual	LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016	25/02/2017			-11.51		-12.77	367			Outstanding Outstanding
C510-LP11608	Block 116 Block 116	S11601	External	Manual	LP	Road Stud	Bloomfield St	LIV_E32_Invert_Adv-6	28/08/2016	25/02/2017		-	-9.90		-9.94	367			Outstanding
C510-LP11609	Block 116	S11601	External	Manual	LP	Road Stud	Bloomfield St	LIV_CP9_Enlargement_Adv-32	23/08/2014	25/02/2017			-7.75		-5.70	367			Outstanding
	-																		

Table 4 -	Block 16	Decommissi	oning Sta	atus Tracker RP					< 2.0 mm			n AMBEI	R > 3.5 mm	n RED		
C510 Sensor Name	Block	Section Int / Ext	Measurement Type	Sensor Sensor Type Description	Asset/Location	EOI Last Primary Layer Construction	Last Construction Date	Latest Surveyed Date	120 Days	120 Day Calculatio	180 Days	180 Day Calculation Period	365 Days	365 Day Calculation Ceased Date Period	General Comment	Decommissioning Status
C510-RP11601 C510-RP11602 C510-RP11603	Block 116 Block 116 Block 116		Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3890 LIV_TBM-East-RC_Pilot_Adv-3890 LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015 27/01/2015 27/01/2015	10/03/2015 19/02/2017 19/02/2017	-7.96 1.56 2.72	120 120	-4.04 2.19	180 180 180		366 365 365	Crossrail confirms in June CTO/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that the safe to the coverage to the safe term and the coverage term and the coverage term and the coverage term and the coverage term and the safe term and the coverage term and the coverage term and ter	Proposed Proposed
C510-RP11603 C510-RP11604 C510-RP11605	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015 27/01/2015	19/02/2017 19/02/2017	1.81 3.36	120 120 120	2.08 2.78	180 180 180		365 365	Crossral continues in other CTC/ERP that Insa' has solucient coverage to assume responsibility of the long term automated monitoring Crossral confirms in June CTC/ERP that Insa' has sufficient coverage to assume responsibility of the long term automated monitoring Crossral confirms in June CTC/ERP that Insa' has sufficient coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11606 C510-RP11607 C510-RP11608	Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015 27/01/2015 27/01/2015	19/02/2017 26/12/2016 19/02/2017	1.71 2.94	120	0.73	180	1.15 0.72	365 366	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Description of term automated monitoring Description of term automated Description of term	Proposed Proposed
C510-RP11608 C510-RP11608 C510-RP11608		N/A External N/A External N/A External	Automated	RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015 27/01/2015 27/01/2015	19/02/2017 19/02/2017 25/09/2015	1.10 2.02 1.88	120 120 120	0.90 1.05 -0.46	180 180 181	0.82 1.16 0.37	365 365 464	Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11609 C510-RP11609/		N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3905 LIV_TBM-East-RC_Pilot_Adv-3905	31/01/2015 31/01/2015	19/02/2017 20/02/2017	2.77	120 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	2.25 2.49	180 180	1.30	365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
C510-RP11610 C510-RP11610/ C510-RP116108			Automated		n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895 LIV_TBM-East-RC_Pilot_Adv-3895	27/01/2015 27/01/2015 27/01/2015	20/02/2017 20/02/2017 17/06/2014	1.54	120 120 122	0.68 1.31 -10.26	180 180 181		365 365 365	Crossrail confirms in June CTO/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTO/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTO/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11611 C510-RP11611/		N/A External	Automated Automated	RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3905 LIV_TBM-East-RC_Pilot_Adv-3905	31/01/2015 31/01/2015	07/01/2016 20/07/2016	-0.18	120 267	-3.63 -0.18	180 267	-2.24	365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
C510-RP11612 C510-RP11612/ C510-RP11613	Block 116 Block 116 Block 116		Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3905 LIV_TBM-East-RC_Pilot_Adv-3905 LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015 31/01/2015 31/01/2015	20/02/2017 19/02/2017 20/02/2017	1.50	120 120 120	1.39 0.66 1.56	180 180 180	0.99	365 365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11614 C510-RP11614/		N/A External	Automated		n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3909 LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015 31/01/2015	08/11/2015 20/02/2017	1.93	120 1 20	-6.45 1.07	180 180	1.19	365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
C510-RP11615 C510-RP11615 C510-RP11616	Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3909 LIV_TBM-East-RC_Pilot_Adv-3909 LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015 31/01/2015 31/01/2015	20/02/2017 19/02/2017 19/02/2017	1.00	120 120 120	-2.43 -0.06 -3.56	181 180 180	1.09	377 365 370	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11617 C510-RP11618	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House New Broad Street House		31/01/2015 31/01/2015	08/06/2015 12/04/2014	N/A N/A		N/A N/A		N/A N/A		Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
C510-RP116170 C510-RP116170 C510-RP116180	Block 116 Block 116 Block 116	N/A External N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	New Broad Street House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016 07/11/2016	20/02/2017 19/02/2017 19/02/2017	-5.22 -5.09	120 0 120 0	-5.34 -5.40 -6.93	180 180 180	-10.04 -9.88 -10.07	366 365 366	Within ES2 EOL Reassess in Rev 2 Within ES2 EOL Reasses in Rev 2 Within ES2 EOL Reasses in Rev 2	Outstanding Outstanding Outstanding
C510-RP11618F C510-RP11619	Block 116 Block 116	N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House n County House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	19/02/2017 20/02/2017	-5.80 -6.33	120 I 120 I	-6.94 -9.49	180 180	-10.04 -14.63	365 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11620 C510-RP11620 C510-RP11621	Block 116 Block 116 Block 116	N/A External N/A External N/A External	Automated Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n County House n County House n County House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016 07/11/2016	19/02/2017 19/02/2017 20/02/2017	-7.70	120 120	-10.87 -11.13 -8.51	180 180 180		365 365 365	Within ES2 EOL Reassess in Rev 2 Within ES2 EOL Reassess in Rev 2 Within ES2 EOL Reasses	Outstanding Outstanding Outstanding
C510-RP11622 C510-RP11622	Block 116 Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n County House n County House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016	19/02/2017 20/02/2017	-6.15 -6.79	120 I 120 I 120 I	-9.49 -9.55	180 180	-11.20 -11.38	366 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11623 C510-RP11624 C510-RP11624/	Block 116 Block 116 Block 116	N/A External N/A External N/A External	Automated Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Blomfield Street n Blomfield Street n Blomfield Street	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016 28/08/2016	07/01/2017 20/02/2017 20/02/2017	2.10	120 120 120	-6.66 -1.70 -5.76	180 180 180		366 365 365	Within ES2 EOI- Reasses in Rev 2 Within ES2 EOI- Reasses in Rev 2 Within ES2 EOI- Reasses in Rev 2	Outstanding Outstanding Outstanding
C510-RP116248 C510-RP116240	Block 116 Block 116	N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n Blomfield Street	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	19/02/2017 19/02/2017		120 I 120 I	-5.50 -5.22	180 180		365 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11625 C510-RP11626 C510-RP11627	Block 116 Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n County House n County House	LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25	14/08/2016 14/08/2016 14/08/2016	19/02/2017 19/02/2017 19/02/2017	-1.52 -1.97	120 120 211	-0.08 -1.48 0.16	180 180 211	-4.74 -4.89	365 365 500	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2 Within ES2 FOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11628 C510-RP11629	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n County House	LIV_AP11_Enlargement_Adv-25 LIV_CP9_Enlargement_Adv-32	14/08/2016 23/08/2014	19/02/2017 09/08/2014	0.48	120 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1.14 -30.28	180 180	-1.68 -23.13	365 366	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding Outstanding
C510-RP11631 C510-RP11632 C510-RP11633	Block 116 Block 116 Block 116	1011	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n County House n County House n Swedbank House	LIV_VD1_Enlargement_Adv-23 LIV_VD1_Enlargement_Adv-22 LIV_VD1_Enlargement_Adv-25	04/06/2014 03/06/2014 04/06/2014	19/02/2017 20/02/2017 19/02/2017	-3.85 -0.85 0.00	887 120	-3.85 -0.04 1.26	887 180 180	-3.85 -2.30 -1.91	887 365 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2 Within ES2 FOI- Reasses	Outstanding Outstanding Outstanding
C510-RP11633/ C510-RP11634	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House n Swedbank House	LIV_VD1_Enlargement_Adv-25 LIV_VD1_Enlargement_Adv-25	04/06/2014 04/06/2014	20/02/2017 20/02/2017	-0.51 -1.19	120	0.74	180 180	-2.14 -1.89	365 365	Within ES2 EOI- Reasess in Rev 2 Within ES2 EOI- Reasess in Rev 2	Outstanding Outstanding Outstanding
C510-RP11634/ C510-RP11635 C510-RP11635/	Block 116 Block 116 Block 116	N/A External N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House n Swedbank House n Swedbank House	LIV_VD1_Enlargement_Adv-25 LIV_VD1_Enlargement_Adv-29 LIV_VD1_Enlargement_Adv-29	04/06/2014 05/06/2014 05/06/2014	20/02/2017 20/02/2017 19/02/2017	-1.16 0.23 -0.08	120 120 120	-0.78 1.48 1.20	180 180 180	-1.96 -1.66 -1.80	365 365 365	Within ES2 EOL Reasses in Rev 2 Within ES2 EOL Reasses in Rev 2 Within ES2 EOL Reasses in Rev 2	Outstanding Outstanding Outstanding
C510-RP11636/ C510-RP11636/	Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	19/02/2017 19/02/2017	0.36	120	1.53 1.17	180 180	-1.48 -1.55	365 365	Within ES2 EOI-Reases in Rev 2 Within ES2 EOI-Reases in Rev 2	Outstanding Outstanding
C510-RP11637 C510-RP11637 C510-RP11638	Block 116 Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 12/03/2015	19/02/2017 20/02/2017 19/02/2017	-0.90	120 120 120	-0.76 -0.58 0.97	180 180 180	-1.79	365 365 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2 Within ES2 COL Reassess in Rev 2	Outstanding Outstanding
C510-RP11639 C510-RP11639	Block 116 Block 116	N/A External N/A External		RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	19/02/2017 19/02/2017	-0.67 -0.90	120 1 20	-0.98 -0.89	180 180	-1.74 -1.67	365 365	Wilhin ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11640 C510-RP11640/ C510-RP11641	Block 116 Block 116 Block 116	N/A External N/A External N/A External	Automated Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House n Swedbank House n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 12/03/2015	19/02/2017 20/02/2017 19/02/2017	1.71	120 120	1.23 1.99 -0.48	180 181 180	-1.47	365 365 365	Within ES2 EOI- Reasses in Rev 2 Within ES2 EOI- Reasses in Rev 2 Within ES2 EOI- Reasses in Rev 2	Outstanding Outstanding Outstanding
C510-RP11642 C510-RP11643	Block 116 Block 116	N/A External	Automated Automated	RP 3D Geodetic prism	n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	20/02/2017 20/02/2017	-0.74	120 120 120 120 120 120 120 120 120 120	0.76	180 180	-1.20	365 365	months automated monitoring specification complete 28/02/2017 months automated monitoring specification complete 28/02/2017	Proposed Proposed
C510-RP11644 C510-RP11645 C510-RP11646	Block 116 Block 116 Block 116	N/A External		RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 12/03/2015	19/02/2017 19/02/2017 20/02/2017	0.07	120 121 120	0.49 0.93 -1.19	180 182 180	-2.00	365 365 365	6 months automated monitoring specification complete 28/02/2017 6 months automated monitoring specification complete 28/02/2017 6 months automated monitoring specification complete 28/02/2017	Proposed Proposed Proposed
C510-RP11646/ C510-RP11647	Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House n New Broad Street House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	19/02/2017 19/02/2017	-1.08 1.37	121 1 132 1	-1.08 0.91	180 181	-1.41 -2.08	365 365	6 months automated monitoring specification complete 28/02/2017 Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
	Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism		LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 12/03/2015	20/02/2017 19/02/2017 19/02/2017	-0.77 -0.71 -0.08	121 120 120	-0.35 -0.06 0.57	180 180 180	-0.84	365 365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11649 C510-RP11650	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House n New Broad Street House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	06/07/2016		120	-6.91 0.13	180 180	-5.76 -0.82	699 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
	Block 116	N/A External	Automated	RP 3D Geodetic prism	n New Broad Street House n New Broad Street House n New Broad Street House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 12/03/2015	14/02/2017 19/02/2017 19/02/2017	0.34	127 120 120	0.18 1.12 1.13	184 180 180	-0.94	365 365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP116518	Block 116	N/A External	Automated	RP 3D Geodetic prism	n New Broad Street House n New Broad Street House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	27/07/2016	1.12	121	-7.74 2.12	180 180	-1.00	365 365	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House n New Broad Street House n New Broad Street House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 12/03/2015	11/02/2017 20/02/2017 19/02/2017	-0.76	129 120 120	-1.32 0.02 0.81	183 180 180	-0.92	365 365 365	Crossrail confirms in June CTO/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11654/ C510-RP11654 C510-RP11655	Block 116	N/A External	Automated	RP 3D Geodetic prism	n New Broad Street House n New Broad Street House n New Broad Street House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015 31/01/2015	20/02/2017 19/02/2017 09/06/2015	0.73	120 120 120	1.25 1.03 -1.39	180 180 180	-1.13	365 365 366	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. That Insar has sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP. The term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage to a second provide term is the sufficient coverage	Proposed Proposed Proposed
C510-RP11655 C510-RP11656 C510-RP11657	Block 116	N/A External	Automated	RP 3D Geodetic prism	n New Broad Street House New Broad Street House New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3909	31/01/2015 31/01/2015 31/01/2015	23/09/2015 09/06/2015	1.31	293 0 120 0	-1.39	293 180	0.73	365 365 366	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed Proposed
C510-RP11658 C510-RP11659	Block 116	N/A External	Automated	RP 3D Geodetic prism		LIV_TBM-West-RC_Pilot_Adv-4008	31/01/2015 12/03/2015	19/02/2017 10/06/2015	-0.87	120	-1.90 -5.70	196 180		370 366	Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Crossrail confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring	Proposed Proposed
C510-RP11660 C510-RP11661 C510-RP11662	Block 116 Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism	n Swedbank House n Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	12/03/2015 08/06/2014 08/06/2014	08/06/2015 10/06/2015 02/06/2015	1.24 0.89 2.74	120 120 120 120 120 120 120 120 120 120	-4.40 -3.65 -3.12	180 180 180	-9.33 -8.53 -9.89	365 366 365	Crossral confirms in June CTC/ERP that Insar has sufficent coverage to assume responsibility of the long term automated monitoring Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11663 C510-RP11664 C510-RP11665	Block 116 Block 116 Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014 08/06/2014	29/08/2016 19/02/2017 09/06/2015	1.47 -2.39	124	2.73 -2.41	180 180	-3.15 1.16	366 366	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11665 C510-RP11666 C510-RP11667	Block 116 Block 116 Block 116	N/A External		RP 3D Geodetic prism	n Swedbank House n Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014 08/06/2014	09/06/2015 09/06/2015 13/07/2016	0.05 0.96 -2.46	120 120 120	-3.63 -2.87 -2.67	180 180 286	-9.17 -10.18 -2.84	366 366 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding Outstanding
C510-RP11668 C510-RP11670 C510-RP11671	Block 116 Block 116 Block 116	N/A External	Automated Automated Automated	RP 3D Geodetic prism	n County House	LIV_VD1_Enlargement_Adv-41 LIV_CH3_Enlargement_Adv-11	08/06/2014 28/08/2016 28/08/2016	19/02/2017 19/02/2017 21/11/2013	-2.75 -1.51	120 120	-2.01 -2.39	180 180 181	0.89	366 626	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reasses in Rev 2 Within ES2 EOI- Reasses in Rev 2	Outstanding Outstanding Outstanding
C510-RP11671 C510-RP11672 C510-RP11673	Block 116 Block 116 Block 116	N/A External		RP 3D Geodetic prism RP 3D Geodetic prism	n County House n County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11 LIV_ES2_Enlargement_Adv-16	28/08/2016 24/09/2016	22/06/2016 19/02/2017		121 122 120	-8.00 4.62 -6.27	180 180	-6.25	365 379 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reassess in Rev 2	Outstanding Outstanding
C510-RP11674 C510-RP11675 C510-RP11676		N/A External		RP 3D Geodetic prism	n County House n County House	LIV_ES2_Enlargement_Adv-16 LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	24/09/2016 07/11/2016 07/11/2016	23/06/2016 20/02/2017 19/02/2017	-5.46	123 120 121	-7.46 -7.20 -3.84	180 180 180	-8.24	365 365 365	Within ES2 EOI- Reassess in Rev 2 Within ES2 EOI- Reasses in Rev 2 Within ES2 EOI- Reasses in Rev 2	Outstanding Outstanding Outstanding
C510-RP11676 C510-RP11678 C510-RP11679	Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n 12 Blomfield Street	LIV_ES2_Invert_Adv-8 LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	15/01/2015 27/04/2015	N/A	121	N/A N/A	100	N/A N/A	303	Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015	Proposed Proposed
C510-RP11680 C510-RP11681	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank Party Wall n Swedbank Party Wall	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	15/01/2015 30/05/2015	N/A N/A		N/A N/A N/A		N/A N/A N/A		Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015	Proposed Proposed
C510-RP11682 C510-RP11683 C510-RP11684	Block 116	N/A External	Automated	RP 3D Geodetic prism RP 3D Geodetic prism RP 3D Geodetic prism	n Swedbank Party Wall	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014 08/06/2014	05/06/2015 02/06/2015 11/11/2014	N/A N/A N/A	\vdash	N/A N/A N/A		N/A N/A N/A		Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2014	Proposed Proposed Proposed
C510-RP11685 C510-RP11686	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	07/07/2015 25/08/2015 07/07/2015	N/A N/A		N/A N/A		N/A N/A		Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015	Proposed Proposed
C510-RP11687 C510-RP11688 C510-RP11689	Block 116 Block 116	N/A External N/A External	Automated Automated		n County House n New Broad Street House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11 LIV_TBM-East-RC_Pilot_Adv-3909	28/08/2016 28/08/2016 31/01/2015	07/07/2015	N/A N/A N/A		N/A N/A N/A		N/A N/A N/A		Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015	Proposed Proposed Proposed
C510-RP11690 C510-RP11691 C510 RP11691	Block 116 Block 116	N/A External N/A External	Automated Automated	RP 3D Geodetic prism RP 3D Geodetic prism	n New Broad Street House New Broad Street House	LIV_TBM-East-RC_Pilot_Adv-3909 LIV_VD1_Enlargement_Adv-41	31/01/2015 08/06/2014	10/06/2015 10/06/2015	N/A N/A		N/A N/A		N/A N/A		Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015	Proposed Proposed
C510-RP11692 C510-CK11601				RP 3D Geodetic prism CK Crack Monitor	n New Broad Street House County House	LIV_VD1_Enlargement_Adv-41 LIV_CH3_Enlargement_Adv-11	08/06/2014 28/08/2016	10/06/2015 27/01/2017	N/A 0.00	137 🖸	N/A 0.00	184	N/A 0.00	373	Line of sight obstructed by C502 site and ATS 132 being relocated- No data since 2015 Crackmeter stable- 4 Months post construction monitoring complete 17/03/2017 (values are movement in mm)	Proposed Proposed





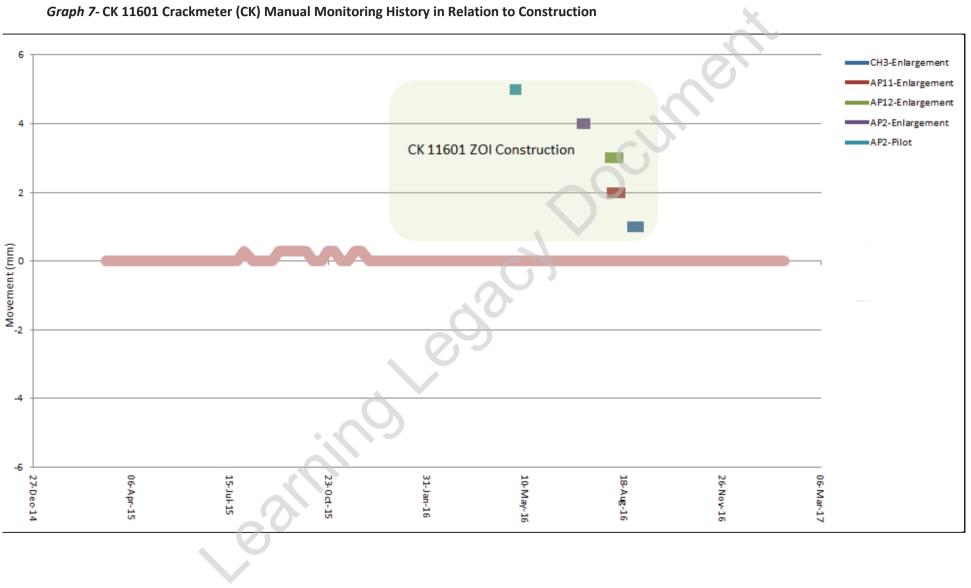
C510-BBM-C2-RGN-C101-50237 Rev.1.0



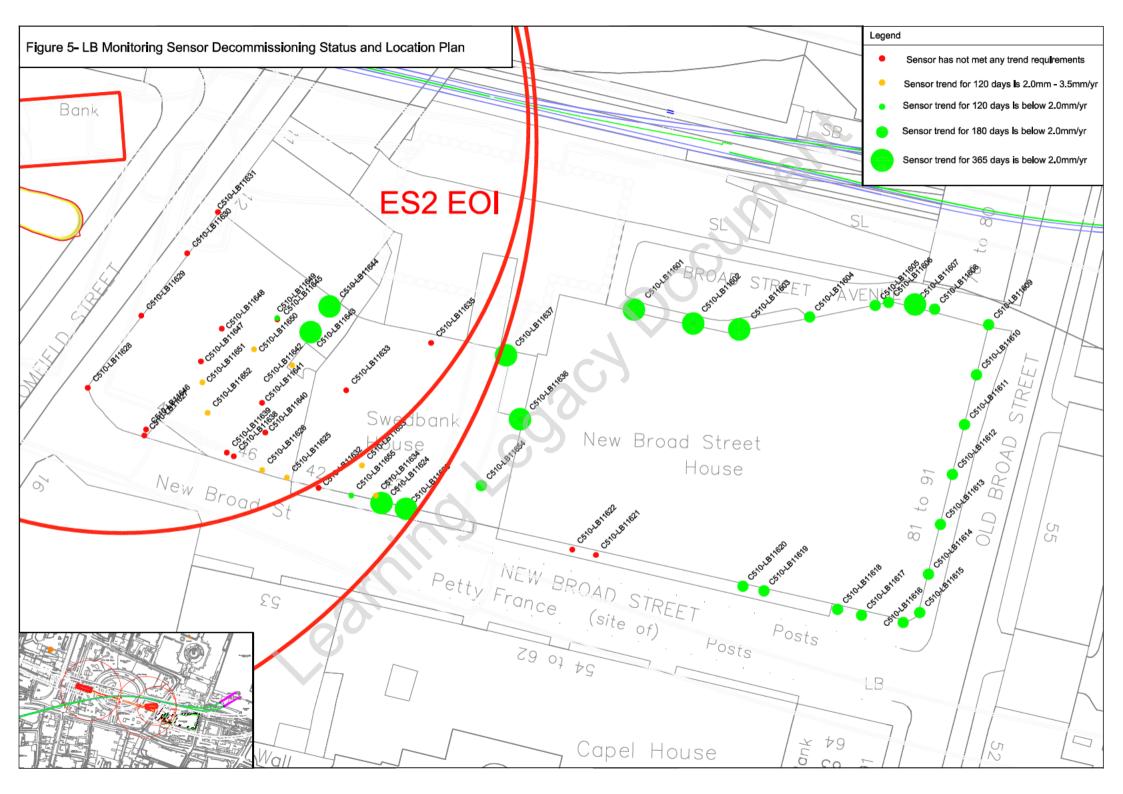
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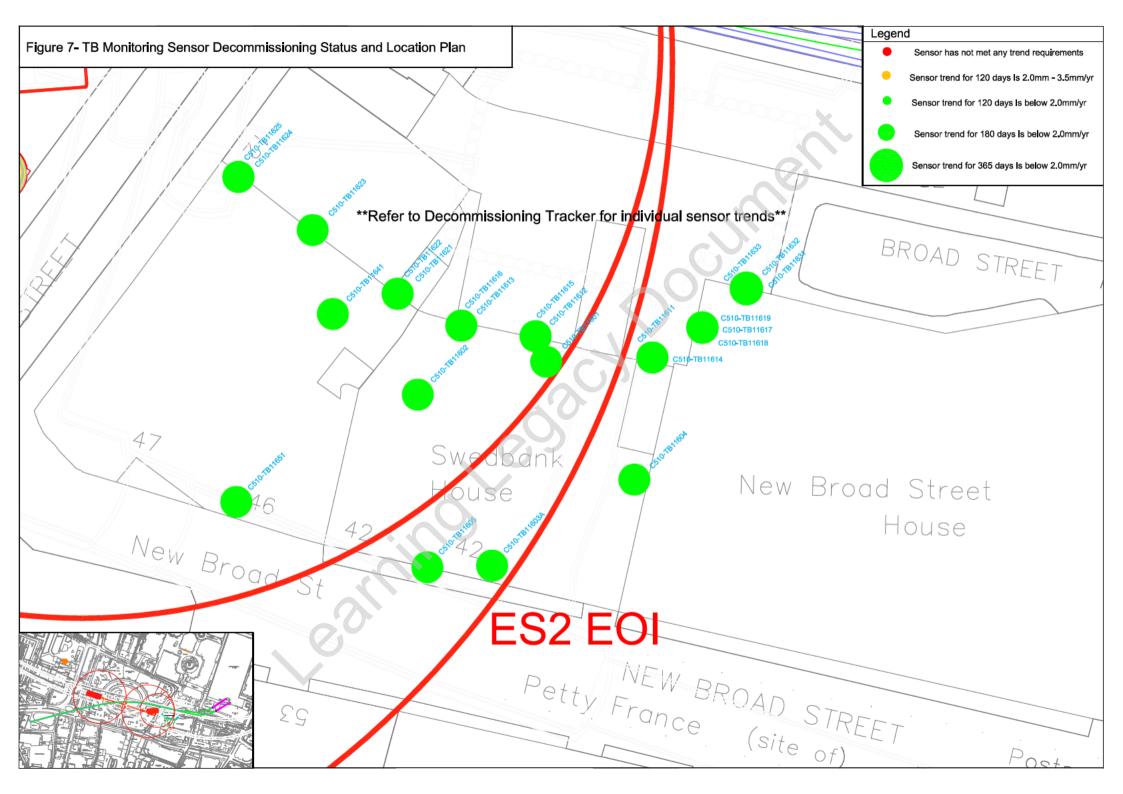


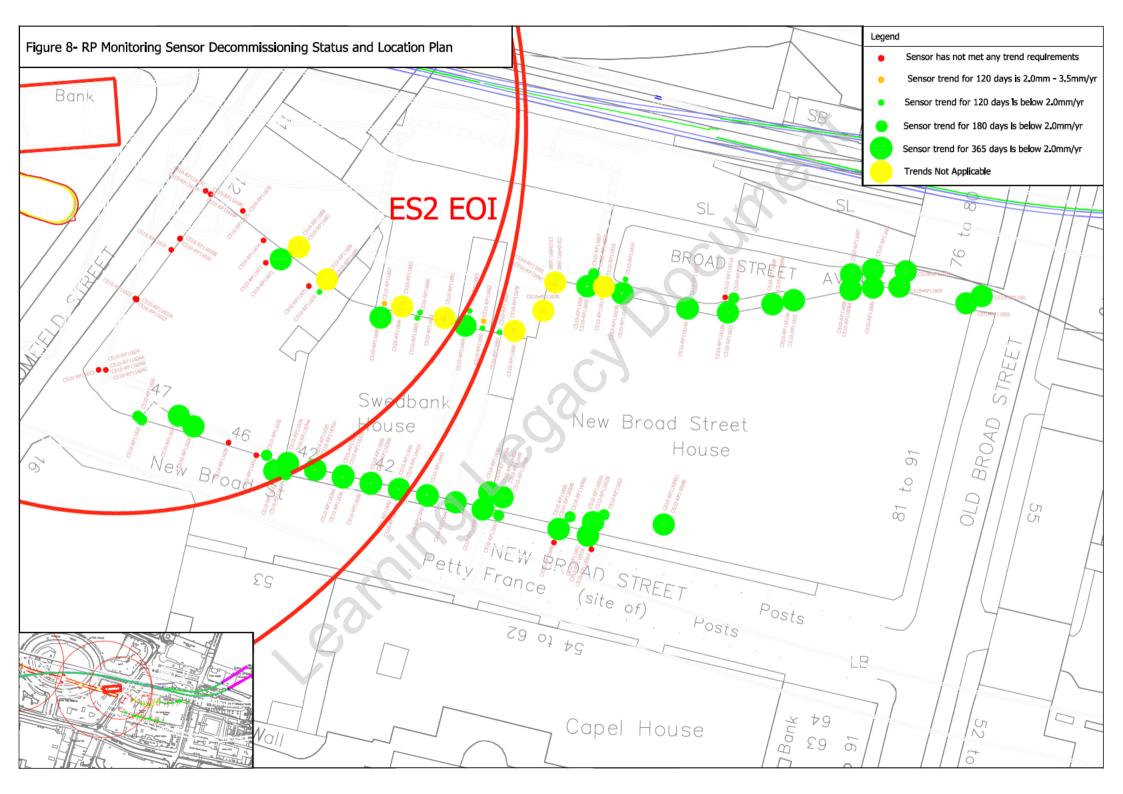
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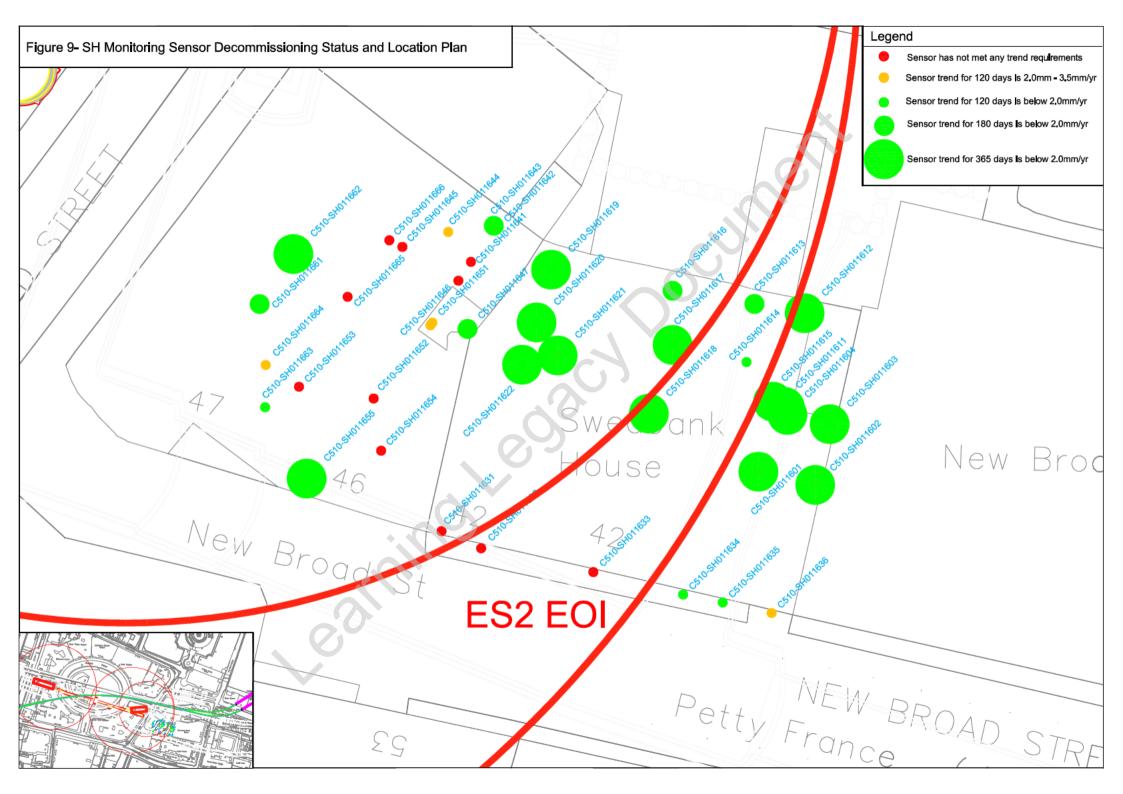


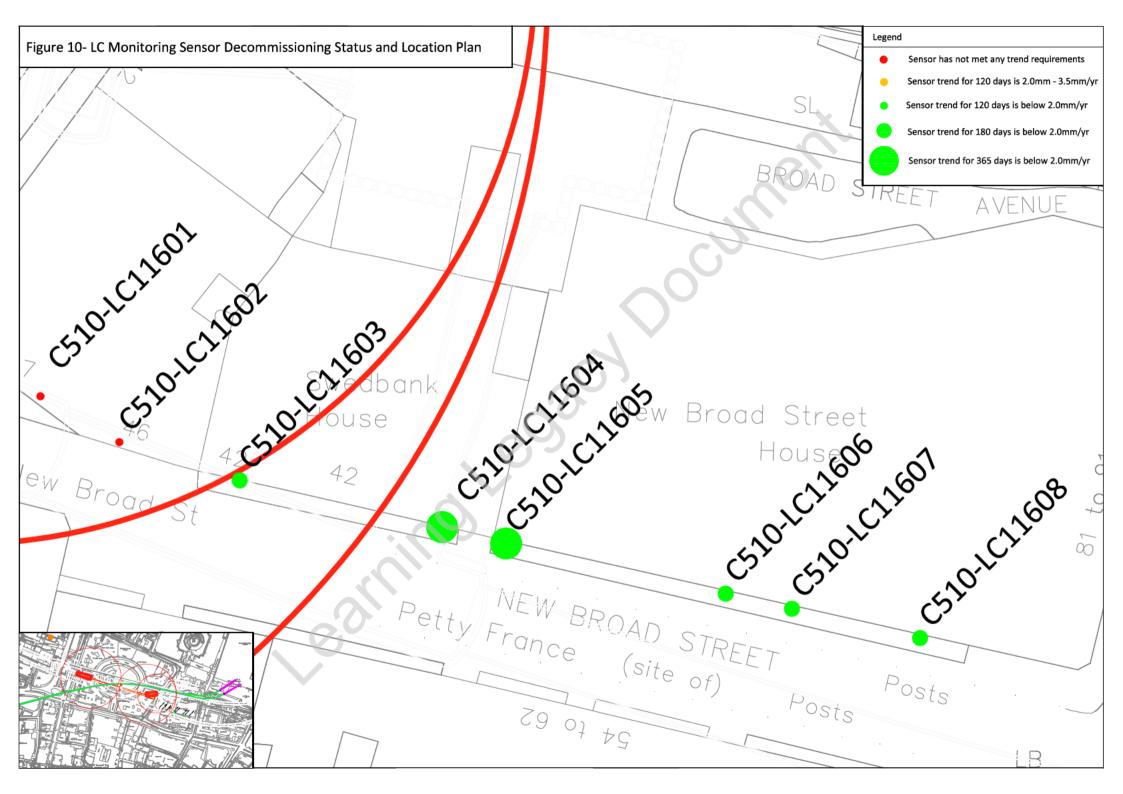
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Appendix 2 (Graphs, Tables and Figures of Rev.2) 8

Appendix 2 includes the Graphs, Tables and Figures that were used as evidence to agree decommissioning in Revision 2 of Block 16 Close out Report.

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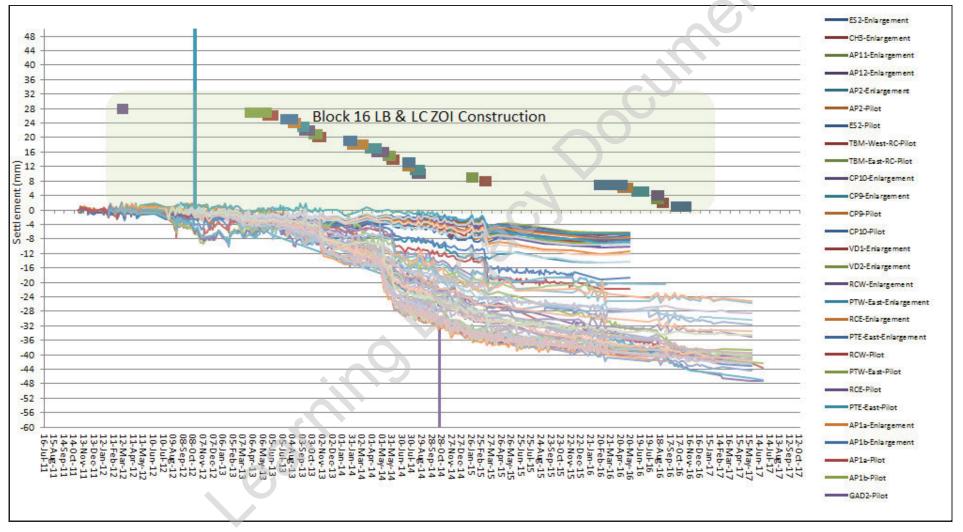
Table 2 - Block 16 Decommissioning Status Tracker 28/06/2017											n GREEN	< 3.5 m	n AMBER	> 3.5 m	m F	RED			
C510 Sensor Name	Block	Section	Int / Ext	Measurement Sensor Type Type	Sensor Description	Asset/Location	ZOI Last Primary Layer Construction	Last Construction Date	Latest Surveyed	AVERAGE SETTL	EMENT TREND 120 Day Calculation Period	180 Days	180 Day Calculation Period	365 Days	365 Day Calculation Period	Ceased Date	General Comment	Decommissioning Statu	
C510-LB11623 C510-LB11624	Block 116 Block 116	S11603.2 S11603.2	External	Manual LB Manual LB	BRE	Swed Bank House Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	19/05/2017	-0.39	254 254	-0.39	254	-0.54	416		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11625	Block 116	S11603.2	External	Manual LB	BRE	County House	LIV_VD1_Enlargement_Adv-23	04/06/2014	19/05/2017	-2.89	123	-2.73	227	-2.30	381		Manual Monitoring specification not met- Reasses in Rev 3	Outstanding	
C510-LB11626 C510-LB11627	Block 116 Block 116	S11603.2 S11603.2	External External	Manual LB Manual LB	BRE	County House County House	LIV_CP9_Enlargement_Adv-32 LIV_AP11_Enlargement_Adv-25	23/08/2014 14/08/2016	19/05/2017 19/05/2017	-1.76	123 121	- <u>3.13</u> -4.93	185 🎱 184 🥥	-3.13 -5.45	366 366		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11628 C510-LB11629	Block 116 Block 116	\$11603.8;S116 \$11604	4 External External	Manual LB Manual LB	BRE	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_ES2_Invert_Adv-8	28/08/2016 07/11/2016	22/06/2017	-5.56	121	-6.22	190	-7.37 -11.70	366		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11630	Block 116 Block 116	S11604 S11604	External	Manual LB Manual LB	BRE	County House County House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016	22/06/2017	-2.68	121 121	-5.20 -4.20	217	-14.61 -10.54	366 366		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11632	Block 116	S11601	Internal	Manual LB	BRE	Swed Bank House	LIV_VD1_Enlargement_Adv-28	05/06/2014	07/09/2016	N/A	121	N/A	217	N/A	300		Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2016	Proposed	
C510-LB11633 C510-LB11634	Block 116 Block 116	S11601;S1160 S11601	2 Internal Internal	Manual LB Manual LB	BRE	Swed Bank House Swed Bank House	LIV_VD1_Enlargement_Adv-41 LIV_TBM-West-RC_Pilot_Adv-4008	08/06/2014 12/03/2015	09/03/2016 31/08/2016	N/A N/A		N/A N/A		N/A N/A			Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2017 Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2018	Proposed Proposed	
C510-LB11635 C510-LB11636	Block 116 Block 116	S11601 S11601	Internal Internal	Manual LB Manual LB	BRE	Swed Bank House Swed Bank House	LIV_VD1_Enlargement_Adv-41 LIV_TBM-West-RC_Pilot_Adv-4008	08/06/2014 12/03/2015	09/03/2016 09/03/2016	N/A N/A		N/A N/A		N/A N/A			Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2019 Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2020	Proposed Proposed	
C510-LB11637 C510-LB11638	Block 116 Block 116	S11601 S11601	Internal	Manual LB	BRE	Swed Bank House	LIV_VD1_Enlargement_Adv-41	08/06/2014 23/08/2014	31/08/2016	N/A -1.72	101	N/A	184	N/A	436		Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2021	Proposed	
C510-LB11639	Block 116	S11601	Internal	Manual LB	BRE	County House County House	LIV_CP9_Enlargement_Adv-32 LIV_CP9_Enlargement_Adv-32	23/08/2014	19/05/2017	-2.49	121 121	-2.25 -3.30	184	-3.78	436		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11640 C510-LB11641	Block 116 Block 116	S11601 S11601	Internal Internal	Manual LB Manual LB	BRE	County House County House	LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25	14/08/2016 14/08/2016	19/05/2017 19/05/2017	-1.86 -2.35	121 121	-2.56 -3.01	184 🥑 184 🥥	-2.76 -2.97	436 436		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11642	Block 116 Block 116	S11601	Internal	Manual LB Manual LB	BRE	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	19/05/2017	-3.56 -2.35	121 121	-2.86 -1.35	184 🥥	-2.61 -0.43	436		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification ont met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11644	Block 116	S11601	Internal	Manual LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	19/05/2017	-1.81	121	-1.80	184 🥥	-1.52	436		Manual Monitoring specification not met. Reasses in Rev 3	Outstanding	
C510-LB11645 C510-LB11646	Block 116 Block 116	S11601 S11602	Internal	Manual LB Manual LB	BRE	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_AP11_Enlargement_Adv-25	28/08/2016 14/08/2016	19/05/2017	-1.70 -3.08	121 121	-2.32 -3.77	184 🥑 184 🥑	-3.34 -5.46	436 436		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11647 C510-LB11648	Block 116 Block 116	S11602 S11602	Internal	Manual LB Manual LB	BRE	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	19/05/2017	-3.35 -2.72	121 121	-2.58 -3.42	184 🥥 184 🥥	-6.05 -8.15	436 436		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11649 C510-LB11650	Block 116	S11602	Internal	Manual LB	BRE	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	19/05/2017	-2.05	121	-0.77	184 🥥	-3.08	436		Manual Monitoring specification not met- Reasses in Rev 3	Outstanding	
C510-LB11650 C510-LB11651	Block 116 Block 116	S11602 S11602	Internal	Manual LB Manual LB	BRE	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	19/05/2017	-1.69 -2.92	121 121	-0.96 -2.19	184 🖸 184 🖸	-3.72 -4.71	443		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LB11652 C510-LB11653	Block 116 Block 116	S11602 S11602	Internal Internal	Manual LB Manual LB	BRE	County House Swed Bank House	LIV_AP11_Enlargement_Adv-25 LIV_TBM-West-RC_Pilot_Adv-4008	14/08/2016 12/03/2015	19/05/2017 31/08/2016	-2.27 N/A	121	2 -2.15 N/A	184 🥥	-4.52 N/A	436		Manual Monitoring specification not met- Reasses in Rev 3 Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2019	Outstanding Proposed	
C510-LB11654 C510-I B11655	Block 116 Block 116	S11603 S11600	Internal	Manual LB Manual LB	BRE	Swed Bank House Swed Bank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	31/08/2016 31/08/2016	N/A N/A		N/A N/A		N/A N/A			Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2020	Proposed	
C510-LC11601	Block 116 Block 116	S11600 S11603.2	External	Manual LB Manual LC	Invar Scale	Swed Bank House Swed Bank House	LIV_IBM-West-RC_Pilot_Adv-4008 LIV_AP11_Enlargement_Adv-25	12/03/2015	31/08/2016 19/05/2017	-3.01	123	-4.62	185 🥥	-5.15	366		Access no longer due to internal refurbishment- Agreed to cease Monitoring in CTC meeting 07/06/2021 Manual Monitoring specification not met- Reasses in Rev 3	Proposed Outstanding	
C510-LC11602	Block 116 Block 116	S11603.2	External	Manual LC Manual LC	Invar Scale	Swed Bank House Swed Bank House	LIV_CP9_Enlargement_Adv-32	23/08/2014	19/05/2017	-2.08 -2.46	121	-2.75	184	-3.97 -1.96	366		Manual Monitoring specification not met- Reasses in Rev 3 Manual Monitoring specification not met- Reasses in Rev 3	Outstanding	
C510-LP11601		S11601			Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	26/11/2012	N/A	120	N/A	204	N/A	100		Sensor destroyed- Unable to monitor	Proposed	
C510-LP11602 C510-LP11603	Block 116 Block 116	S11601 S11601	External External		Road Stud Road Stud	Bloomfield St Bloomfield St	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	26/11/2012 26/11/2012	N/A N/A		N/A N/A		N/A N/A			Sensor destroyed- Unable to monitor Sensor destroyed- Unable to monitor	Proposed Proposed	
C510-LP11604 C510-LP11605	Block 116 Block 116	S11601 S11601	External	Manual LP Manual LP	Road Stud Road Stud	Bloomfield St Bloomfield St	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016	22/06/2017	-3.83	121 121	-4.80 -5.48	217	-13.82 -14.52	368		Manual monitoring specification not met- Reasses in Rev 3 Manual monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LP11606	Block 116	S11601	External	Manual LP	Road Stud	Bloomfield St	LIV_ES2_Invert_Adv-8	07/11/2016	22/06/2017	-3.40	121	-4.41	183	-13.12	368		Manual monitoring specification not met- Reasses in Rev 3	Outstanding	
C510-LP11607 C510-LP11608	Block 116 Block 116	S11601 S11601	External	Manual LP Manual LP	Road Stud Road Stud	Bloomfield St Bloomfield St	LIV_ES2_Invert_Adv-8 LIV_CH3_Enlargement_Adv-11	07/11/2016 28/08/2016	22/06/2017 22/06/2017	-4.45 -4.85	121 121	-4.93 -5.85	183 🥥 183 🥥	-10.59 -8.74	368 368		Manual monitoring specification not met- Reasses in Rev 3 Manual monitoring specification not met- Reasses in Rev 3	Outstanding Outstanding	
C510-LP11609 C510-RP10758	Block 116 Block 116	S11601 N/A	External External	Manual LP Automated RP	Road Stud 3D Geodetic prism	Bloomfield St Swedbank House	LIV_CP9_Enlargement_Adv-32 LIV_CH3_Enlargement_Adv-9	23/08/2014 27/08/2016	22/06/2017 C	-5.54	121	-6.79	183 🥥	-7.20 N/A	368		Manual monitoring specification not met- Reasses in Rev 3 Prisms were installed for temporary works- No longer producing data and no more grouting in the area	Outstanding Proposed	
C510-RP10759	Block 116	N/A	External	Automated RP	3D Geodetic prism	Swedbank House	LIV_AP11_Enlargement_Adv-25	14/08/2016	11/07/2015	N/A		N/A		N/A			Prisms were installed for temporary works- No longer producing data and no more grouting in the area	Proposed	
C510-RP10760 C510-RP10761	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25	14/08/2016 14/08/2016	01/07/2015 09/06/2015	N/A N/A		N/A N/A		N/A N/A			Prisms were installed for temporary works- No longer producing data and no more grouting in the area Prisms were installed for temporary works- No longer producing data and no more grouting in the area	Proposed Proposed	
C510-RP10762 C510-RP10763	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	09/06/2015 06/07/2015	N/A N/A		N/A N/A		N/A N/A			Prisms were installed for temporary works- No longer producing data and no more grouting in the area Prisms were installed for temporary works- No longer producing data and no more grouting in the area	Proposed Proposed	
C510-RP10764 C510-RP11617C	Block 116	N/A N/A	External	Automated RP Automated RP	3D Geodetic prism	Swedbank House New Broad Street House	LIV_VD1_Enlargement_Adv-41	08/06/2014	09/06/2015	N/A	100	N/A	100	N/A	005		Prisms were installed for temporary works- No longer producing data and no more grouting in the area	Proposed Proposed	
C510-RP11617F	Block 116 Block 116	N/A	External External	Automated RP	3D Geodetic prism 3D Geodetic prism	New Broad Street House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	16/06/2017 16/06/2017	-3.42 -3.43	120 120	-4.58 -4.51	180 I 180 I	-6.39	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11618C C510-RP11618F	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	New Broad Street House New Broad Street House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	16/06/2017	-1.82	120 120	-2.87	180	-6.22 -6.26	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11619 C510-RP11620	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	16/06/2017	-3.60	120 120	-4.36 -2.60	180	-9.39 -9.34	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11620B	Block 116	N/A	External	Automated RP	3D Geodetic prism	County House	LIV_ES2_Invert_Adv-8	07/11/2016	16/06/2017	-1.69	120	-2.65	180 🥥	-9.47	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11621 C510-RP11622	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_ES2_Invert_Adv-8 LIV_ES2_Invert_Adv-8	07/11/2016 07/11/2016	16/06/2017	-4.03 -2.69	120 120	-4.74 -3.39	180	-7.91 -7.69	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11622A C510-RP11623	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_ES2_Invert_Adv-8 LIV_CH3_Enlargement_Adv-11	07/11/2016 28/08/2016	16/06/2017	-2.80 -2.26	120 132	-3.50	180	-7.86	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11624	Block 116	N/A	External	Automated RP	3D Geodetic prism	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/06/2017	-6.63	120	-6.27	180 🥥	-4.49	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11624A C510-RP11624B	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House Blomfield Street	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	16/06/2017	-3.61 -2.83	120	-4.16 -3.48	180	-5.41 -4.98	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11624C C510-RP11625	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Blomfield Street County House	LIV_CH3_Enlargement_Adv-11 LIV_AP11_Enlargement_Adv-25	28/08/2016 14/08/2016	16/06/2017	-3.58	120 120	-3.88	180 🔮 180 🔮	-5.09 -2.68	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11626	Block 116	N/A	External	Automated RP	3D Geodetic prism	County House	LIV_AP11_Enlargement_Adv-25	14/08/2016	16/06/2017	-3.82	120 120	-3.42	180 Ø	-2.71	365 365 366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11627 C510-RP11628	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_AP11_Enlargement_Adv-25 LIV_AP11_Enlargement_Adv-25	14/08/2016 14/08/2016	16/06/2017 16/06/2017	-3.73	120	-4.27	180	-1.47	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11629 C510-RP11630	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_CP9_Enlargement_Adv-32	23/08/2014	09/08/2014	N/A N/A		N/A N/A		N/A N/A			No data since 2014- Trends not applicable Prism installed but never produced any data.	Proposed Proposed	
C510-RP11631 C510-RP11632	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_VD1_Enlargement_Adv-23 LIV_VD1_Enlargement_Adv-22	04/06/2014 03/06/2014	16/06/2017	-2.47 -1.52	120 120	-2.16 -1.08	180 180	N/A -0.52	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11633	Block 116	N/A	External	Automated RP	3D Geodetic prism	Swedbank House	LIV_VD1_Enlargement_Adv-25	04/06/2014	16/06/2017	-1.63	120	-1.32	180	-0.08	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11633A C510-RP11634	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-25 LIV_VD1_Enlargement_Adv-25	04/06/2014 04/06/2014	16/06/2017	-1.65 -0.10	120 120	-1.34 0.34	180	-0.23 -0.14	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11634A C510-RP11635	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-25 LIV_VD1_Enlargement_Adv-29	04/06/2014 05/06/2014	16/06/2017 16/06/2017	-0.12	120 120	0.35	180 I 180 I	-0.12	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11635A	Block 116	N/A	External	Automated RP	3D Geodetic prism	Swedbank House	LIV_VD1_Enlargement_Adv-29	05/06/2014	16/06/2017	-1.21	120	-0.85	180 🧧	0.09	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11636 C510-RP11636A	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	16/06/2017	-1.34	120 120	-0.99	180	0.26	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11637 C510-RP11637A	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	16/06/2017	0.56	120 120	1.02	180 I 180 I	0.19	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11638	Block 116	N/A	External	Automated RP	3D Geodetic prism	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	16/06/2017	-0.46	120	-0.25	180 🥥	0.43	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11639 C510-RP11639A	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	16/06/2017	1.15 1.17	120 120	1.51 1.59	180	0.25 0.38	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11640 C510-RP11640A	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008 LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015 12/03/2015	16/06/2017	-0.21 -0.39	120 120	0.33	180 I	0.71 0.65	365 365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11641	Block 116	N/A	External	Automated RP	3D Geodetic prism	Swedbank House	LIV_TBM-West-RC_Pilot_Adv-4008	12/03/2015	16/06/2017	1.14	120	1.59	180	0.54	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11661 C510-RP11662	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	10/06/2015 02/06/2015	N/A N/A		N/A N/A		N/A N/A			No data since 2015- Trends not applicable No data since 2015- Trends not applicable	Proposed Proposed	
C510-RP11663 C510-RP11664	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	29/08/2016 16/06/2017	N/A 3.27	120	N/A 3.21	180	N/A 0.64	365		No data since 2016- Trends not applicable 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed Proposed	
C510-RP11665	Block 116	N/A	External	Automated RP	3D Geodetic prism	Swedbank House	LIV_VD1_Enlargement_Adv-41	08/06/2014	09/06/2015	N/A	120	N/A		N/A	500		No data since 2015- Trends not applicable	Proposed	
C510-RP11666 C510-RP11667	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41 LIV_VD1_Enlargement_Adv-41	08/06/2014 08/06/2014	09/06/2015 13/07/2016	N/A N/A		N/A N/A		N/A N/A			No data since 2015- Trends not applicable No data since 2016- Trends not applicable	Proposed Proposed	
C510-RP11668 C510-RP11669	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	Swedbank House Swedbank House	LIV_VD1_Enlargement_Adv-41	08/06/2014	16/06/2017	2.97 N/A	120	2.21 N/A	180	0.33 N/A	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Prism installed but never produced any data.	Proposed Proposed	
C510-RP11670	Block 116	N/A	External	Automated RP	3D Geodetic prism	County House	LIV_CH3_Enlargement_Adv-11	28/08/2016	16/06/2017	0.68	120	0.57	180	N/A			6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11671	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism 3D Geodetic prism	County House County House	LIV_CH3_Enlargement_Adv-11 LIV_CH3_Enlargement_Adv-11	28/08/2016 28/08/2016	21/11/2013 22/06/2016	N/A N/A	+	N/A N/A		N/A N/A			No data since 2013- Trends not applicable No data for 1 year- Trends not applicable	Proposed Proposed	
C510-RP11672					3D Geodetic prism	County House	LIV_ES2_Enlargement_Adv-16	24/09/2016	16/06/2017	1.46	120	0.67	180 🥥	-3.54	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed	
C510-RP11673 C510-RP11673 C510-RP11674	Block 116 Block 116	N/A N/A	External External	Automated RP Automated RP	3D Geodetic prism	County House	LIV_ES2_Enlargement_Adv-16	24/09/2016	23/06/2016	N/A		N/A		N/A			No data for 1 year- Trends not applicable	Proposed	

Description No	Table 2 - Block 16 Decommissioning Status Tracker 28/06/2017											28/06/201	7	< 2.0 m	m GREEN	< 3.5 m	nm AMB	ER	> 3.5 mm		RED			
Distant Bas															AVERAGE SET									
Bits Num Bits Num Annum S Bits Num Annum S Bits Num Control State Control	C510 Sensor Name	Block	s	ection	Int / Ex			Sensor Type [Asset/Location	Z	ZOI Last Primary Layer Construction	Last Construction Da		· _	120 Day	3 to 180 Days			365 Days	365 Day Calculatio Period	Ceased Date	General Comment	Decommissioning Status
State Nu Users Allerer Jo Minuscular Justice Allerer Jo State Nu Users Allerer Jo State Nu State Allerer Jo State Nu	C510-SH011641	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	N/A		N/A			N/A			6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit- Trends unreliable due to poor network quality	Proposed
Description Bits N. None Alterna Head U. 0.000 Alterna Head None Head Head </td <td>C510-SH011642</td> <td>Block 1</td> <td>16</td> <td>N/A</td> <td>Unknow</td> <td>n Auto</td> <td>omated</td> <td>SH Settlem</td> <td>ent Cell-Electronic</td> <td>46 New Broad Street</td> <td></td> <td>LIV_CH3_Enlargement_Adv-11</td> <td>28/08/2016</td> <td>22/06/2017</td> <td>N/A</td> <td></td> <td>N/A</td> <td></td> <td></td> <td>19/73</td> <td></td> <td></td> <td>6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit- Trends unreliable due to poor network quality</td> <td>Proposed</td>	C510-SH011642	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	N/A		N/A			19/73			6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit- Trends unreliable due to poor network quality	Proposed
Bit No. Bit No. No. No. No. State No. State No. No. No. No. <		Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	3.66	120	2.11	180	0	1.65	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Both NA New Ame File Matheward Vi/MI Segment/A-S		Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016		-0.39		-2.04	180	0	-0.22			6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Separate Separate Number Num	C510-SH011645	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	2.37		1.05	180	0	1.96			6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Behl Nu Nu Nu Nu Nu<	C510-SH011646	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	0.65	120	-0.81	180		0.10	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Box 110 NA Name 91 Stement Of Linear Of Linear State	C510-SH011647	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	1.65	120	0.61	180		0.77	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Bits III NA Users Admass Bits Enternol Enternov Ideal State Mage Top Mage Top Mage Top Mage	C510-SH011651	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	0.65	120	-0.81	180		0.11	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Shore May Number Number Setteen Cell-Borne Here May	C510-SH011652	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	-1.71	120	-2.41	180		-0.34	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Separate Nu Vacuum Annual Set Separate Cli U/OP Engenerul, An-12 200071 Cli Addition Cli Addition <td>C510-SH011653</td> <td>Block 1</td> <td>16</td> <td>N/A</td> <td>Unknow</td> <td>n Auto</td> <td>omated</td> <td>SH Settlem</td> <td>ent Cell-Electronic</td> <td>46 New Broad Street</td> <td></td> <td>LIV_AP11_Enlargement_Adv-25</td> <td>14/08/2016</td> <td>22/06/2017</td> <td>-1.38</td> <td>120</td> <td>-1.52</td> <td>180</td> <td></td> <td>2.28</td> <td>366</td> <td></td> <td>6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit</td> <td>Proposed</td>	C510-SH011653	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	-1.38	120	-1.52	180		2.28	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Sch Teil Num Nu	C510-SH011654	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	-2.18	120	-2.30	180		-0.49			6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Sch 16 N.N. Ukron Annual 91 Statement Cal-Electrica 91 Voice Electrical	C510-SH011655	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CP9_Enlargement_Adv-32	23/08/2014	22/06/2017	-2.40	120	-3.18	180		-1.87	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Sol 18 NA Usom Aurnale Statement Call Electrone 44 Num Book State U/L/DE Langement Adv-11 200/071 0 0.42 180 0 0.43 366 6 Months post construction monitoring specification complete- Agreed to decommission the grouting addit Proceed CSS 9-91146 Book 116 NA Usom Aurnated 94 Settement Call Electrone 44 Num Book State U/L OCE Langement Adv-11 228/00/11 2.48/071 0 0.465 180 0 0.445 366 6 Months post construction monitoring specification complete- Agreed to decommission the grouting addit Proceed CSS 95111621 Book 116 NA Marmated 18 Comp Name U/L APE Langement Adv-15 148/0716 228/071 0 0.465 180 0 1.454 366 6 Months post construction monitoring specification complete- Agreed to decommission the grouting addit Proceed CSS 9111621 Book 116 NA Marmated 18 Timese- Baaid Comp Name Li/L APE Langement Adv-25 148/0716 228/071 0 0.466 120 0 0.48 </td <td>C510-SH011661</td> <td>Block 1</td> <td>16</td> <td>N/A</td> <td>Unknow</td> <td>n Auto</td> <td>omated</td> <td>SH Settlem</td> <td>ent Cell-Electronic</td> <td>46 New Broad Street</td> <td></td> <td>LIV_CH3_Enlargement_Adv-11</td> <td>28/08/2016</td> <td>22/06/2017</td> <td>1.31</td> <td>120</td> <td>-0.32</td> <td>180</td> <td>0</td> <td>-0.40</td> <td>366</td> <td></td> <td>6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit</td> <td>Proposed</td>	C510-SH011661	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	1.31	120	-0.32	180	0	-0.40	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Sci Solaritiski BixA tria Max Universe Automated Sti Solaritiski Sti Sola	C510-SH011662	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	1.66	120	0.12	180	0	-0.90	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Select Hig NA Ustrom Automale Statement Cell Electron 64 Nee adsaute LV (DIS Enlagement Adv-11 2008/017 0 167 100 167 366 6 Months post construction monitoring specification complete-Agreed to decommission the grouping adit Propend CS10-97116721 Biox N16 NA Hermal Automale TS Threet-Bioal Contry hose UV /API Enlagement Adv-51 90.07 0 90.07 <td>C510-SH011663</td> <td>Block 1</td> <td>16</td> <td>N/A</td> <td>Unknow</td> <td>n Auto</td> <td>omated</td> <td>SH Settlem</td> <td>ent Cell-Electronic</td> <td>46 New Broad Street</td> <td></td> <td>LIV_AP11_Enlargement_Adv-25</td> <td>14/08/2016</td> <td>22/06/2017</td> <td>0.22</td> <td>120</td> <td>-1.35</td> <td>180</td> <td>0</td> <td>-0.53</td> <td>366</td> <td></td> <td>6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit</td> <td>Proposed</td>	C510-SH011663	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	0.22	120	-1.35	180	0	-0.53	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
Story 11166 Biok 116 NA Unrow Advanded St Settlement Call Difference Convert Name Convert Nam Convert Nam ConverN	C510-SH011664	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	0.99	120	-0.65	180	0	0.24	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
S10 T311227.4 Biox 116 NA Internet-Bascal County House UV_AP1[Engreent_AA-25 14082016 2006271 0.007 120 0.049 180 2 0.13 365 6 Months post construction monitoring specification complete-Agreed to decommission the grouting adit Proposed C510-T311228 Biox 116 NA Internet-Bascal County House UV_AP1[Engreent_AA-25 14082016 20062017 0.049 180 0.24 365 6 Months post construction monitoring specification complete-Agreed to decommission the grouting adit Proposed C510-T311228 Biox 116 NA Internet Advanted TB Timete-Bascal County House UV_AP1[Engreent_AA-25 14082016 20062017 0.049 180 0.24 365 6 Months post construction monitoring specification complete-Agreed to decommission the grouting adit Proposed C510-T311228 Biox 116 NA Internet Advanted TB Timete-Bascal County House UV_AP1 Engreent_AA-25 14082016 20062017 0.041 180 0.042 365 6 Months post construction monitoring specification complet	C510-SH011665	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	1.57	120	0.65	180	0	1.54	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
C510 TB11/21/E Block 116 N/A Internal Automated Tile Tilemate-Basial Courty Hoase L/V, AP11_Entregement, Abs-25 1098/2016 2008/2017 0 0.04 180 0 0.24 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed C510 TB11622A Block 116 NA Internal Automated TB Tilmater-Basal Courly Hoase L/V, AP11_Entregement, Abs-25 10482016 2208/2017 0 0.04 180 0 0.24 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed C510 TB11622A Block 116 NA Internal Automated TB Tilmater-Basal Courly Hoase L/V, C45 Entergement, Abs-25 1060216 2062017 0 0.04 180 0 -0.010 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed 1060216 2062017 0 0.04 180 0 -0.010 365 6 Months post construction monitoring specification complet	C510-SH011666	Block 1	16	N/A	Unknow	n Auto	omated	SH Settlem	ent Cell-Electronic	46 New Broad Street		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	2.38	120	1.04	180	0	1.97	366		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
C510 TB11621R Biok 116 NA Internal Advanted TB TImeder-Bioxial Courty-hoses LUX AP11_Enlargement, Ab-23 10682016 20062017 0 0.416 108 0 0.424 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510 TB116228 Blok 116 NA Internal Advanted TB Timeder-Bioxial Courty-hoses LUX AP11_Enlargement, Ab-25 1080216 2006217 0 0.416 108 0 0.42 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510 TB11628 Blok 116 NA Internal Advanted TB Timeder-Bioxial Courty-hose LUX AP1_Enlargement, Ab-11 2060216 2006217 0 0.46 180 0 -0.14 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510 TB1162A Blok 116 NA Internal Advanted TB Timeder-Bioxial Courty-hose LUX AP1_Enlargement, A	C510-TB11621A	Block 1	16	N/A	Interna	I Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	0.07	120	0.49	180	0	0.13	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed
C510*TB11622A Blox 116 NA Internet -Biaxial Courty House LV AP11_Entragement, Ab-:5 1408/2016 200:207 0 0.46 120 0 43 160 0 263/5 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed C510/TB11622A Blox 116 NA Internet -Biaxial Courty House LV AP11_Entragement, Ab-:1 200/2016 200/201 0 0.46 180 0 4.10 865 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed C510/TB11622A Blox 116 NA Internet -Biaxial Courty House LV AP11_Entragement, Ab-:1 200/2016 220/2017 0 0.41 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed C510/TB11622A Blox 116 NA Internet -Biaxial Courty House LV X-ES1 (ment, Ab-:8 0711/105 220/2017 0 0.42 0.65 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proceed 0.66 0.616	C510-TB11621B	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	-0.26	120	-0.11	180	0	0.24	365			Proposed
C510T11622A Block 16 NA Internet-Biasia County House UV_AP11_Enlargement_AAv-3 14082076 2202017 3 0.01 180 3 0.011 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510T11622A Block 16 NA Internet-Biasia County House UV_AP1_Enlargement_AAv-11 2000207 0.015 120 0.011 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510T11622A Block 16 NA Internet-Biasia County House UV_AP1_Enlargement_AAv-11 2000207 0.012 120 0.017 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510T11624A Block 16 NA Internet-Biasia County House UV_S52_ment_A4v-8 07/112/16 2080207 0.042 120 0.045 0.056 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed Proposed Proposed Proposed Proposed Proposed	C510-TB11622A	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	0.06	120	0.13	180	0	0.22	365			Proposed
C510/TB11622A Block 116 NA Internel-Biasial County House L/V_CA3_Enlagment_Abr-11 28082016 2002017 0<0.20 120 0<13 180 0<11 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11622A Block 116 NA Internel-Biasial County House L/V_CA3_Enlagment_Abr-11 28082016 22082017 0<0.42	C510-TB11622B	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_AP11_Enlargement_Adv-25	14/08/2016	22/06/2017	0.15	120	-0.01	180	0	-0.10	365			Proposed
C510:T116238 Block 16 NA Internal Advanted TB Tilmeste-Biasial Curvy Hoase L/L / CAB_ Enlogment, Adv-11 2008/216 0.07 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11624A Block 116 NA Internal Automated TB Tilmeste-Biasial County Hoase L/L / CB2 Jmet, Adv-8 0711/2016 2008/217 0.42 120 0.62 180 0.065 65 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C610/TB11624A Block 116 NA Internal Automated TB Tilmeste-Biasial County Hoase L/L / CB2 Jmet, Adv-8 0711/2016 2008/2017 0.42 120 0.62 180 0.065 65 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11625A Block 116 NA Internal Automated TB Tilmeste-Biasial County Hoase L/L / CB2 Jmet, Adv-8 0711/2016 2008/2017 0.46 <td< td=""><td>C510-TB11623A</td><td>Block 1</td><td>16</td><td>N/A</td><td>Interna</td><td>Auto</td><td>omated</td><td>TB Tilt</td><td>meter-Biaxial</td><td>County House</td><td></td><td>LIV_CH3_Enlargement_Adv-11</td><td>28/08/2016</td><td>22/06/2017</td><td>0.20</td><td>120</td><td>0.13</td><td>180</td><td>0</td><td>-0.11</td><td>365</td><td></td><td></td><td>Proposed</td></td<>	C510-TB11623A	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	0.20	120	0.13	180	0	-0.11	365			Proposed
C5/07181/E24A Block 1/6 NA Internel Automated TB Tiltmeter-Biascial County House L/V_ES2_InterLAh-8 Of/11/2016 2208/2017 0.42 120 0.42 180 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C51/07181/624A Block 116 NA Internel Advanted TB Tiltmeter-Biascia County House L/V_ES2_InterLAh-8 Of/11/2016 2208/2017 0.40 120 0.40 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C51/07181/624A Block 116 NA Internel Automated TB Tiltmeter-Biascia County House L/V_ES2_InterLAh-8 Of/11/2016 2208/2017 0.404 120 0.66 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C51/07181/624B Block 116 NA Internel Automated TB Tiltmeter-Biascia County House L/V_CAS_Entergement_Ah-11 2208/2017 0.46 120 0.46	C510-TB11623B	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV CH3 Enlargement Adv-11	28/08/2016	22/06/2017	0.37	120	0.12	180		-0.17	365			Proposed
C510/TB11624A Block 116 NA Internet-Biasial County House LV_ES2_Inext_Abris Offit 120 0.40 120 0.41 180 0.406 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11625A Block 116 NA Internet-Biasial County House LV_ES2_Inext_Abris 07/11/2016 2208/2017 0.40 120 0.401 180 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11625A Block 116 NA Internet-Biasial County House LV_ES2_Inext_Abris 07/11/2016 2208/2017 0.406 120 0.401 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11641A Block 116 NA Internet-Biasial County House LV_CR3_Enlagment_Abris 2208/2017 0.25 120 0.46 180 0.11 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11	C510-TB11624A	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV ES2 Invert Adv-8	07/11/2016	22/06/2017	0.42	120	0.62	180		0.05	365			Proposed
C510-TB11623A Block 116 NA Internal Automatel TB Calumate-Basical County House UV_ES2_Intert_Adv-8 Off/11/2016 2080201 C30-D31	C510-TB11624B	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV ES2 Invert Adv-8	07/11/2016	22/06/2017	0.40	120	0.21	180	0	-0.06	365			Proposed
C510/TB11625B Block 116 NA Internal Automated TB Titmeter-Biaxial County House UV_ES2_Invert_Adv-8 07/11/2016 2208/2017 0.661 180 0.644 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11621A Block 116 NA Internal Automated TB Titmeter-Biaxial County House UV_CAS_Entragement_Adv-11 2808/2017 0.26 120 0.26 180 0.11 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11641A Block 116 NA Internal Automated TB Titmeter-Biaxial County House UV_CAS_Entragement_Adv-11 2808/2017 0.26 120 0.26 180 0.11 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11641A Block 116 NA Eternal Automated TB Titmeter-Biaxial County House UV_CPS_Entragement_Adv-12 208/2017 0.64	C510-TB11625A	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_ES2_Invert_Adv-8	07/11/2016	22/06/2017	0.35	120	0.97	180	0	0.18	365			Proposed
C510/TB11641A Block 16 NA Internet-Biasial Canny House L/V_CAB_Enlagment_Ab-r11 28082016 2002017 0 0.66 180 0 11 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510/TB11641A Block 16 NA Internet Automated TB Tiltmeter-Biasial County House L/V_CRB_Enlagment_Ab-r12 28082016 2002017 0 0.64 120 0 64 120 0.64 120 <t< td=""><td>C510-TB11625B</td><td>Block 1</td><td>16</td><td>N/A</td><td>Interna</td><td>Auto</td><td>omated</td><td>TB Tilt</td><td>meter-Biaxial</td><td>County House</td><td></td><td>LIV_ES2_Invert_Adv-8</td><td>07/11/2016</td><td>22/06/2017</td><td>-0.60</td><td>120</td><td>-0.61</td><td>180</td><td>0</td><td>-0.44</td><td>365</td><td></td><td></td><td>Proposed</td></t<>	C510-TB11625B	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_ES2_Invert_Adv-8	07/11/2016	22/06/2017	-0.60	120	-0.61	180	0	-0.44	365			Proposed
C510-TB11641B Block 116 NA Internal Automated TB Tittmeter-Biaxial County House LIV_CH3_Enlargement_Adv-11 2208/2016 0.54 120 0.66 180 0.21 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed C510-TB11651A Block 116 NA External Automated TB Tittmeter-Biaxial County House LIV_CP9_Enlargement_Adv-32 2308/2014 2208/2017 0 0.11 120 0 0.66 365 6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit Proposed	C510-TB11641A	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	meter-Biaxial	County House		LIV_CH3_Enlargement_Adv-11	28/08/2016	22/06/2017	0.25		0.26			0.11				Proposed
C510-TB11651A Block116 NA External Automated TB Tiltmeter-Biaxial County House LIV_CP9_Enlargement_Adv-32 23082014 22082017 2 0.11 12 0 0.08 18 0 -0.46 365 6 Months post construction monitoring specification complete-Agreed to decommission the grouting adit	C510-TB11641B	Block 1	16	N/A	Interna	Auto	omated	TB Tilt	neter-Biaxial	County House		LIV CH3 Enlargement Adv-11	28/08/2016	22/06/2017	0.54		0.56			0.21				Proposed
	C510-TB11651A	Block 1	16	N/A	Externa	I Auto	omated	TB Tilt	neter-Biaxial	County House		LIV CP9 Enlargement Adv-32	23/08/2014	22/06/2017	0.11		0.08			-0.46				Proposed
	C510-TB11651B	Block 1	16	N/A	Externa	I Auto	omated	TB Tilt	neter-Biaxial	County House		LIV CP9 Enlargement Adv-32	23/08/2014	22/06/2017	0.03	120	-0.01	180		0.02	365		6 Months post construction monitoring specification complete- Agreed to decommission the grouting adit	Proposed

N.B. It should be noted that adjacent Crossrail works have blocked line of sight for a number of prisms- Therefore decommissioning of these sensors has been proposed







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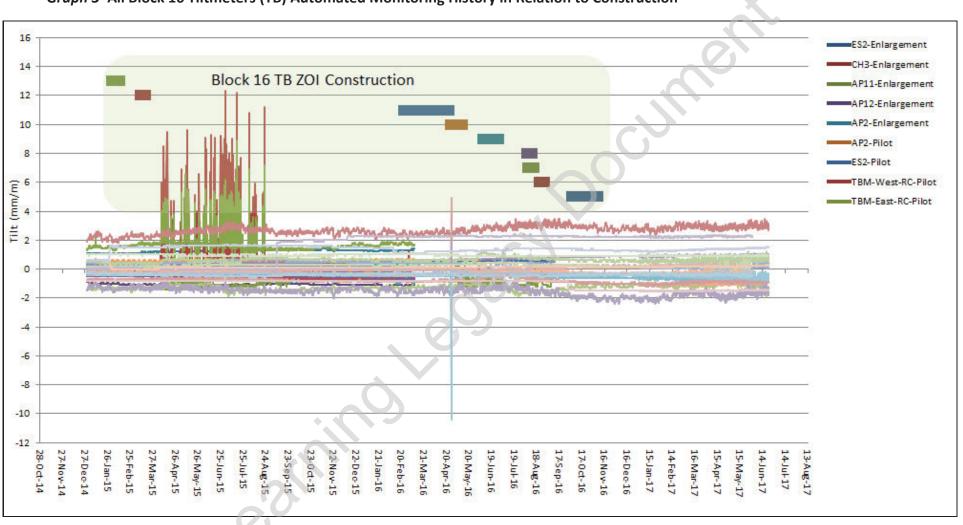


Graph 2- All Block 16 Road Studs (LP) Manual Monitoring History in Relation to Construction

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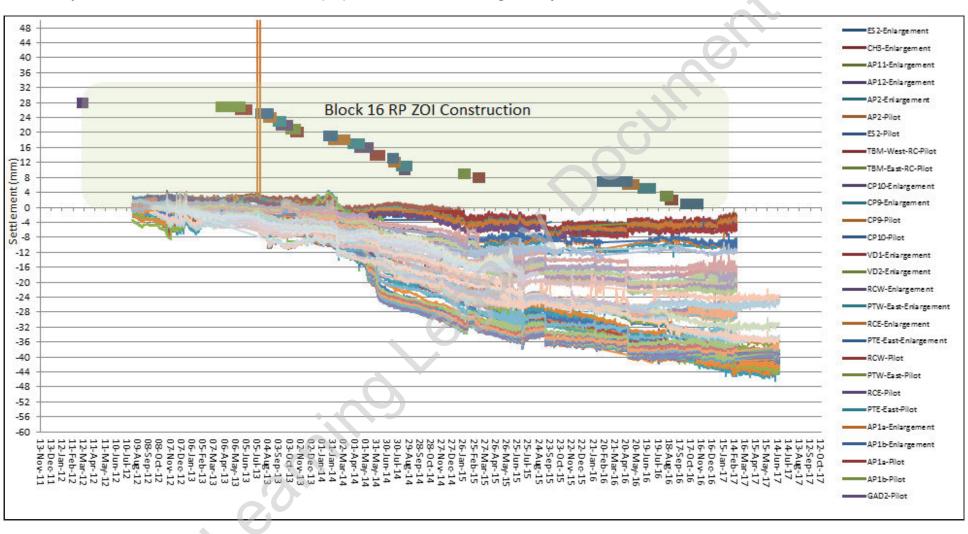
C510-BBM-C2-RGN-C101-50237 Rev.2.0



Graph 3- All Block 16 Tiltmeters (TB) Automated Monitoring History in Relation to Construction

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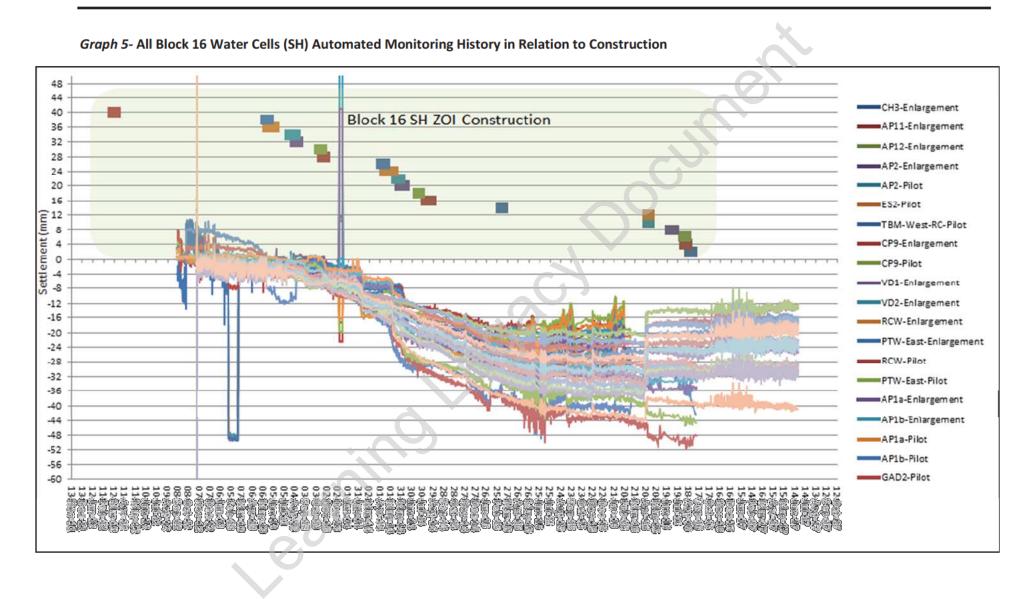




Graph 4- All Block 16 3d Geodetic Prisms (RP) Automated Monitoring History in Relation to Construction

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