		<h2 style="margin: 0;">C310 THAMES TUNNEL REPORT</h2>			
EMPLOYER	CROSSRAIL	eB NO	C310-HTM-C-RGN-CR148-50026	Rev	3.0
TITLE	Monitoring Close-Out Reports for Thames Water assets relating to North Woolwich Portal – Royal Dock Sewer				

ORIGINATOR COMPANY NAME	Hochtief Murphy JV
-------------------------	--------------------

CMDL: C09.006


REVISION	DOCUMENT APPROVAL / REVISION RECORD DETAILS	DATE
1.0	Issued for CRL Acceptance	30/03/2015
2.0	CRL and TWUL comments incorporated, issued for acceptance	18-05-2015
3.0	DRS Comments Addressed, issued for acceptance	03-06-2015


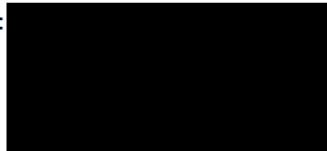
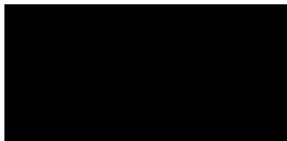
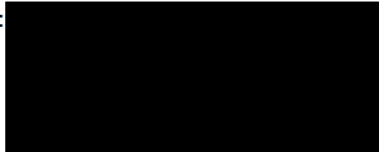
Stakeholder (THAMES WATER) review required? Yes: x No: ~~---~~

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Sign: \_\_\_\_\_ Name: \_\_\_\_\_ Date: \_\_\_\_\_

Review by Stakeholder (if required):					
Stakeholder organization	Job Title	Name	Signature	Date	Acceptance

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<b>REVIEWED BY: Portal Construction Manager</b> Print:  Sign: _____ Date: 03-06-2015	<b>APPROVED BY: HMJV Project Director</b> Print:  Sign: _____ Date: 03-06-2015


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		<b>C310 THAMES TUNNEL REPORT</b>		
EMPLOYER	<b>CROSSRAIL</b>	eB NO	<b>C310-HTM-C-RGN-CR148-50026</b>	Rev <b>3.0</b>
TITLE	<b>Monitoring Close-Out Reports for Thames Water assets relating to North Woolwich Portal – Royal Dock Sewer</b>			

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## CONTENTS

- 1.0 Introduction
- 2.0 Reference Documents
- 3.0 Appendices

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		<b>C310 THAMES TUNNEL REPORT</b>		
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## 1.0 INTRODUCTION

The purpose of this report is to compile the individual Thames Water Close-out report which summarise the monitoring data from the instrumentation of the Thames Water asset "Royal Dock Sewer" and relates it to the construction activities which have produced any observed movement changes.

The data that is presented within the body of the attached Close-out report is summarised in a cover sheet. This forms the basis for which the associated monitoring instrumentation is to be decommissioned. The values, comments and conclusions presented in the cover sheet of the attached Close-out report is derived from the monitoring data attached to the same close-out report.

The content of the Close-out report complies with what is required as per C122 – M&W Specification KX10 – Instrumentation & Monitoring C122-OVE-Z4-RSP-CR001-00007 Rev.7.0.

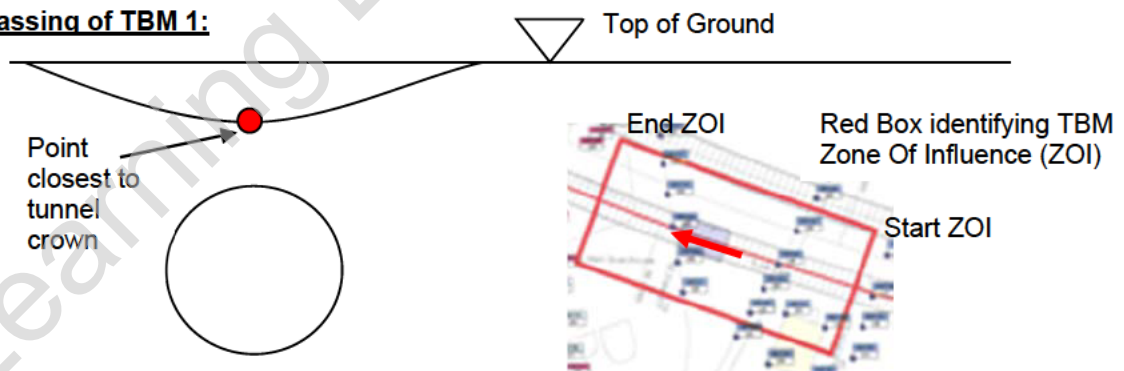
The attached Close-out report contains

- a cover summary sheet
- monitoring point location plan
- Settlement-time plot and/or monitoring data spreadsheets

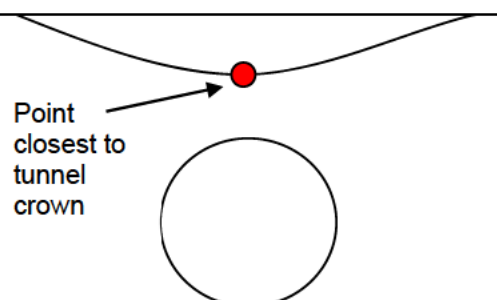
The cover summary sheet entails:


- Information on location of Monitoring area and/or asset
- Reference C310 I&M drawing
- Relevant chainage
- Sensor type
- Trigger value
- Selected critical monitoring points following the logic illustrated below:

### Passing of TBM 1:



### Passing of TBM 2:

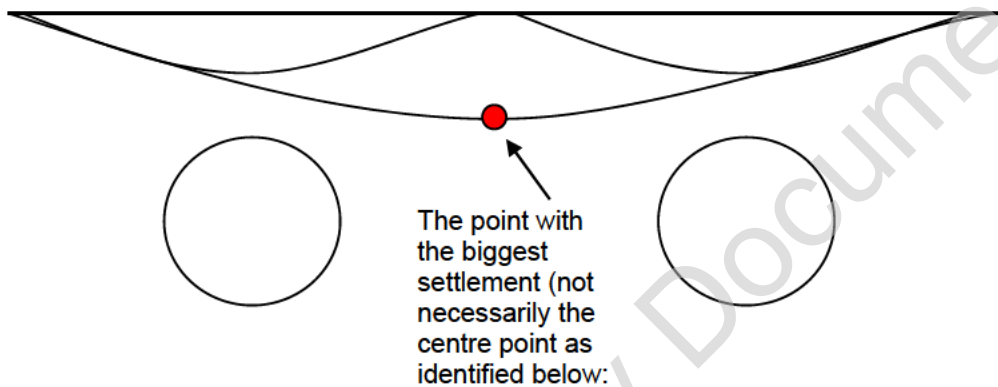


		<b>C310 THAMES TUNNEL REPORT</b>		
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- Start and end date of relevant construction activity (other than TBM-Drive), where applicable.

- Long-term: The monitoring point with the greatest confirmed value of vertical movement of the corresponding monitoring asset.

**After Passage of TBM 1 and TBM 2**




- Note on possible residual risks

- Supporting comments and conclusions that also focus on Thames Water specific requirements:

- Deflection ratio for surface monitoring (e.g. ground studs) to be presented if settlements are more than 10mm.
- Movements at shallow datum to be checked with the similar movement trend as the monitoring on the surface.
- Rate of change in monitoring data to be less than 2mm per annum (suggesting simple settlement-time curves to demonstrate that the settlement is of no further concern).
- Reasons or explanations to be provided for no requirement to continue monitoring.

All close-out reports identified in the appendices form part of this report.

		<b>C310 THAMES TUNNEL REPORT</b>		
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TITLE	<b>Monitoring Close-Out Reports for Thames Water assets relating to North Woolwich Portal – Royal Dock Sewer</b>			

## 2.0 REFERENCE DOCUMENTS

MPCGM C310-HTM-Z-STP-CR148-50058 Rev.14.0

MPCGM NWP C310-HTM-Z-STP-CR146-50002 Rev. 4.0

HMJV I&M Drawings:


C310-HTM-C-DWG-CR146\_ST004-70003 Rev. 12.0

M&W Specification KX10 – Instrumentation & Monitoring / C122-OVE-Z4-RSP-CR001-00007 Rev. 7.0

## 3.0 APPENDICES

- 00 Overall Register / Close out report
- 108 Factory Road Extensometer
- + and
- 118 Extensometer Portal NWP - RDS

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		<b>C310 THAMES TUNNEL REPORT</b>		
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**APPENDIX 00**

**Overall Register / Close out report**

Learning Legacy Document


**Close Out report: processing status**

last update: 07/02/2015

	No.	Name of Report	Installation Type	Passing with TBM 1	Passing with TBM 2	
Plumstead Portal	1	White Hard Depot Building	Hydrostatic Levelling Cell	destressing of ground anchors - approx. Mar 2015 removal of last props - Feb. 2015		
	2	White Hard Depot Building	Tiltmeter			
	3	APB posts	Levelling Studs			
Tunnel Drive T1 / Westbound & T2 / Eastbound	4	CS1 - Crane Platform / Headwall	Levelling Studs	10.01.2013	20.05.2013	
	5	CS2 - Crane Platform / Headwall	Levelling Studs	18.01.2013	24.05.2013	
	6	White Hard Road Bridge	Hydrostatic Levelling Cell	21.-25.01.2013	25.-27.05.2013	
	7	White Hard Road Bridge	Tiltmeter	21.-25.01.2013	25.-27.05.2013	
	8	White Hard Road	Levelling Studs	23.-25.01.2013	26.-27.05.2013	
	9	Cathedral Substation - HLC	Hydrostatic Levelling Cell	26.-28.01.2013	28.-29.05.2013	
	10	Cathedral Substation - TM	Tiltmeter	26.-28.01.2013	28.-29.05.2013	
	11	Cathedral Substation - Lev.St.	Levelling Studs	26.-28.01.2013	28.-29.05.2013	
	12	CS1 - Old Coalyard	Levelling Studs	30.01.2013	30.05.2013	
	13	CS2 - Old Coalyard	Levelling Studs	03.02.2013	09.06.2013	
	14	CS3 - Old Coalyard	Levelling Studs	25.02.2013	12.06.2013	
	15	CS4 - Old Coalyard	Levelling Studs	02.03.2013	16.06.2013	
	16	APB Sidings - Old Coalyard	Levelling Studs	30.01.-09.03.2013	30.05.-18.06.2013	
	17	Cross Passage 19	Levelling Studs	Excavation Nov.-Dec.2013		
	18	Geotechnical Cross Section 1	Levelling Studs	09.03.2013	18.06.2013	
	19	Southern Outfall Sewer 1	Levelling Studs	12.03.2013	18.06.2013	
	20	Southern Outfall Sewer 2	Levelling Studs	13.03.2013	19.06.2013	
	21	Southern Outfall Sewer 3	Levelling Studs	15.03.2013	21.06.2013	
	22	Southern Outfall Sewer Pumping Station	Levelling Studs	13.03.2013	20.06.2013	
	23	Southern Outfall Sewer Extensometer	Extensometer	17.03.2013	20.06.2013	
	24	CS 5 - Petment Crescent Bridge - Lev.St.	Levelling Studs	24.03.2013	28.6.2013	
	25	Petment Crescent Bridge - HLC	Hydrostatic Levelling Cell	24.-25.03.2013	28.-29.06.2013	
	26	Royal Mail	Hydrostatic Levelling Cell	27.-29.03.2013	30.06.-02.07.2013	
	27	Mc Donald	Hydrostatic Levelling Cell	26.-27.03.2013	30.06.-01.07.2013	
	28	CS6 - Bus Garage	Levelling Studs	29.03.2013	02.07.2013	
	29	Bus Garage	Hydrostatic Levelling Cell	01.-05.04.2013	05.-09.07.2013	
	30	Bus Garage	Tiltmeter	01.-05.04.2013	05.-09.07.2013	
	31	CS7 - Petment Cresent + Subway	Levelling Studs	05.-07.04.2013	09.-11.07.2013	
	32	SOS Plumstead Road South	Levelling Studs	05.04.-02.05.2013	10.07.-01.08.2013	
	33	SOS Plumstead Road North	Levelling Studs	16.04.-07.05.2013	17.07.-07.08.2013	
	34	SOS Plumstead Road Extensometer	Extensometer	20.04.-06.05.2013	20.07.-04.08.2013	
	35	Cross Passage 18	Levelling Studs	Excavation Jan.-Feb.2014		
	36	Gateway Business center	Levelling Studs	07.-16.04.2013	13.07.-17.07.2013	
	37	CS8 - Signature Industries	Levelling Studs	19.04.2013	19.07.2013	
	38	Signatute Industries	Levelling Studs	20.-26.04.2013	20.-24.07.2013	
	39	Geotechnical Cross Section 2	Levelling Studs	28.04.2013	28.07.2013	
	40	CS9 - Wall Marshgate Path	Levelling Studs	28.04.2013	28.07.2013	
	41	Wall Middle Gate House	Levelling Studs	30.04.2013	30.07.2013	
	42	Wall Plumstead Road	Levelling Studs	28.04.-06.05.2013	28.07.-05.08.2013	
	43	Middle Gate House	Hydrostatic Levelling Cell	01.-02.05.2013	30.-31.07.2013	
	44	Middle Gate House	Tiltmeter	01.-02.05.2013	30.-31.07.2013	
	45	DLR Down line Tunnel	Hydrostatic Levelling Cell	01.05.2013	30.07.2013	
	46	DLR Up line Tunnel	Hydrostatic Levelling Cell	02.05.2013	31.07.2013	
	47	CS10 - Footpath MGH to Plumstead Road	Levelling Studs	03.05.2013	01.08.2013	
	48	CS11 - I/O Center	Levelling Studs	05.05.2013	03.08.2013	
	49	I/O Center Building	Levelling Studs	05.-11.05.2013	02.-09.08.2013	
	50	I/O Center Car Park	Levelling Studs	08.-12.05.2013	07.-10.08.2013	
	51	CS12 - Cornwallis Road	Levelling Studs	12.05.2013	10.08.2013	
	52	CS13 - 1200 BH Sewer WSB	Levelling Studs	12.05.2013	10.08.2013	
	Woolwich Station Box	removal of last props - approx. Mar. 2015				



Tunnel Drive T3 / Westbound & T4 / Eastbound	53	Building 11	Hydrostatic Levelling Cell	WSB- removal of last props in Western Box: approx. Mar. 2015		
				13.-17.09.2013	04.-09.02.2014	
	54	CS 15 - BH Hoarding	Levelling Studs	18.09.2013	10.02.2014	
	55	Verbrueggens House	Levelling Studs	22.-23.09.2013	11.-12.02.2014	
	56	CS 16 - Footpath Royal Arsenal	Levelling Studs	23.09.2013	12.02.2014	
	57	CS 17 - Footpath Royal Arsenal	Levelling Studs	25.09.2013	16.02.2014	
	58	Main Guard House	Hydrostatic Levelling Cell	28.09.-01.10.2013	17.-18.02.2014	
	59	Main Guard House	Tiltmeter	28.09.-01.10.2013	17.-18.02.2014	
	60	Royal Brass Foundry	Hydrostatic Levelling Cell	27.-29.09.2013	16.-17.02.2014	
	61	Royal Brass Foundry	Tiltmeter	27.-29.09.2013	16.-17.02.2014	
	62	CS Royal Arsenal Listed Wall	Levelling Studs	02.10.2013	21.02.2014	
	63	CS 18 - Warren lane	Levelling Studs	03.10.2013	22.02.2014	
	64	Hotel Warren lane	Levelling Studs	07.-23.10.2013	23.02.-05.03.2014	
	65	CS 19 - Warren lane Carpark	Levelling Studs	26.10.2013	08.03.2014	
	66	CS 20 - Warren lane Carpark	Levelling Studs	27.10.2013	09.03.2014	
	67	CS 21 - Warren lane Carpark	Levelling Studs	29.10.2013	11.03.2014	
	68	CS 22 - Warren lane roundabout	Levelling Studs	31.10.2013	11.03.2014	
	69	Warren lane Carpark EB	Levelling Studs	26.-31.10.2013	08.-13.03.2014	
	70	Warren lane Carpark WB	Levelling Studs	26.-31.10.2013	08.-13.03.2014	
	71	Extensometer Warren lane Carpark	Extensometer	26.-31.10.2013	08.-13.03.2014	
	72	CS 23 - southside retaining wall footpath	Levelling Studs	06.11.2013	16.03.2014	
	73	Southside retaining wall	Prisms	06.11.2013	17.03.2014	
	74	Northside retaining wall	Prisms	11.12.2013	13.04.2014	
	75	Northside Flood Wall	Hydrostatic Levelling Cell	10.-11.12.2013	13.-15.04.2014	
	76	CS Pier Road	Levelling Studs	12.12.2013	17.04.2014	
	77	Old Station Museum	Hydrostatic Levelling Cell	12.-14.12.2013	17.-19.04.2014	
	78	Old Station Museum	Tiltmeter	12.-14.12.2013	17.-19.04.2014	
	79	Old Station Museum, Listed Wall	Hydrostatic Levelling Cell	18.12.2013-09.01.2014	21.-25.04.2014	
	80	CS 24 - CP 16 - CH 89210	Levelling Studs	17.12.2013	21.04.2014	
	81	CS CP 16	Levelling Studs	Excavation Jun.-Jul.2014		
	82	Geotechnical Cross Section 3	Levelling Studs	07.01.2014	23.04.2014	
	83	CS TRM	Levelling Studs	07.01.2014	23.04.2014	
	84	TRM Carpark	Levelling Studs	09.01.-15.01.2014	24.-30.04.2014	
	85	Siding Apartments 1-16	Hydrostatic Levelling Cell	14.12.2013-06.01.2014	19.-21.04.2014	
	86	Siding Apartments 1-16	Tiltmeter	14.12.2013-06.01.2014	19.-21.04.2014	
	87	Siding Apartments 17-74	Hydrostatic Levelling Cell	06.-11.01.2014	22.-26.04.2014	
	88	Siding Apartments 17-74	Tiltmeter	06.-11.01.2014	22.-26.04.2014	
	89	Albert Road Building 171-209	Hydrostatic Levelling Cell	12.-14.01.2014	26.-29.04.2014	
	90	Albert Road Building 171-209	Tiltmeter	12.-14.01.2014	26.-29.04.2014	
	91	Albert Road Building 211-217	Hydrostatic Levelling Cell	15.-16.01.2014	29.-30.04.2014	
	92	Albert Road Building 211-217	Tiltmeter	15.-16.01.2014	29.-30.04.2014	
	93	TW Pumping Station	Hydrostatic Levelling Cell	16.-17.01.2014	30.04.-01.05.2014	
	94	TW Pumping Station	Tiltmeter	16.-17.01.2014	30.04.-01.05.2014	
	95	CS 25 - Old Station 1 - CH 89155	Levelling Studs	09.01.2014	25.04.2014	
	96	CS 26 - Old Station 2 - CH 89120	Levelling Studs	10.01.2014	26.04.2014	
	97	CS 27 - Old Station 3 - CH 89075	Levelling Studs	11.01.2014	28.04.2014	
	98	CS 28 - Pumping station - CH 89055	Levelling Studs	14.01.2014	29.04.2014	
	99	CS 29 - Store Road Sewer	Levelling Studs	16.01.2014	30.04.2014	
	100	Store Road Sewer - SAA	SAA	16.01.2014	01.05.2014	
	101	Store Road Sewer - SG	Strain Gauges	16.01.2014	01.05.2014	
	102	Store Road Sewer - FO SG	FO-Strain Gauges	16.01.2014	01.05.2014	
	103	Store Road Sewer - Extensometer	Extensometer	17.01.2014	02.05.2014	
	104	CS 30 - Store Road Sewer CL - CH 89025	Levelling Studs	16.01.2014	01.05.2014	
	105	Albert Road "2"	Levelling Studs	14.-31.01.2014	28.04.-17.05.2015	
	106	CS 31 - Store Road Sewer West - CH 89000	Levelling Studs	18.01.2014	02.05.2014	
	107	CS 32 - Factory Road 1 - CH 88970	Levelling Studs	19.01.2014	03.05.2014	
	108	Factory Road Extensometer / SD	Extensometer	19.-25.01.2014	03.-10.05.2014	
	109	Geotechnical Cross Section 4	Levelling Studs	19.01.2014	01.-03.05.2014	
	110	CS 33 - Factory Road 2 - CH 88935	Levelling Studs	21.01.2014	04.05.2014	
	111	CS 34 - Factory Road 3 - CH 88900	Levelling Studs	23.01.2014	06.05.2014	
	112	CS 35 - Factory Road 4 - CH 88870	Levelling Studs	25.01.2014	08.05.2014	
	North Woolwich Portal	113	CS Headwall	Levelling Studs	remoaval of last props - approx. Feb. 2015	
		114	Albert Road "1"	Levelling Studs		
		115	Factory Road	Levelling Studs		
		116	CS Headwall	Levelling Studs		
		117	Crane Slab	Levelling Studs		
		118	Extensometer Portal NWP - RDS	Extensometer		

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**APPENDIX 108**

**Factory Road Extensometer**

**And**

**APPENDIX 118**

**Extensometer Portal NWP - RDS**

Learning Legacy Document

<b>monitoring asset</b>	<b>TW Royal Dock Sewer</b>		
reference monitoring drawing:	C310-HTM-C-DWG-CR146-ST004-70003		
<b>name of monitoring section:</b>	Factory Road Extensometer		
sensor type:	extensometer		
chainage:	89000-88850	point no.:	3004 1631 - 3004 1634
<b>trigger values:</b> [mm]	green: +12 -12	amber: +15 -15	red: +18 -18
reference document for trigger values:	Management Plan for Control of Ground Movement		
EB-no.:	C310-HTM-Z-STP-CR148-50058		
Appendix:	AAA, ZZ		

**monitoring data**

	date	max. value on surface	max. value toe of Royal Dock sewer	point no.	comments	
baseline	14/11/13	0.00	0.00			
TBM 1	start ZOI	16/01/14	-1.34	+2.85	3004 1631	
		20/01/14	-2.70	-2.86	3004 1632	
		20/01/14	-3.51	-4.40	30041633	
		24/01/14	-1.32	-2.46	30041634	
	end ZOI	20/01/14	-2.43	-2.31	3004 1631	no trigger value breached
		24/01/14	-0.71	-1.74	3004 1632	
		24/01/14	-4.82	-5.08	30041633	
		03/02/14	-0.72	-2.32	30041634	
TBM 2	start ZOI	30/04/14	-5.55	-2.54	3004 1631	values for 30041634 are from the last measurement which was possible on 05/02/2014. Due to disassembly of TBM 1 this sensor was permanently covered (see also comment box)
		03/05/14	-0.78	-1.81	3004 1632	
		04/05/14	-7.35	-4.72	30041633	
		07/05/14	-0.72	-2.32	30041634	
	end ZOI	03/05/14	-5.29	-2.10	3004 1631	no trigger value breached
		07/05/14	-0.80	-3.22	3004 1632	
		07/05/14	-11.24	-8.08	30041633	
		22/05/14	-9.20	-4.47	30041634	
longterm	21/11/14	-5.62	-7.65	3004 1631		
		-3.45	-6.09	3004 1632		
		-7.21	-7.24	30041633		
		-9.11	-7.27	30041634		
<b>Evaluation of any potential residual risks</b>	<input checked="" type="checkbox"/>	No residual risk since the Works have been completed by HMJV				
	<input type="checkbox"/>	Yes, residual risk (see comment below)				

**summary / comments**

Due to different site activities some of the points were damaged/destroyed/permanently covered (TBM disassembly). See datatable for more details.

The "max. value on surface" shows the movement of each sensor at the surface which was potentially caused by site activities and "heavy" traffic on Factory Road e.g. during TBM disassembly.

The "max. value toe of Royal Dock Sewer" shows the movement in a depth of approx. 18m, which is the level of the Royal Dock Sewer invert / toe.

The maximum deflection ratio in the relevant elevation (bottom of Royal Dock Sewer) is 1:11855 (3004 1632 - 3004 1633 - 3004 1634) - no TW trigger breached (TW alert value for Royal Dock Sewer is 1:11600).

Under consideration of temperature differences, the surrounding ground condition and the achievable accuracy of the measurement, HMJV has no concern to cease the monitoring.

The rate of change in the monitoring data is less than the required standards as per the specifications and drawings.

HMJV had a CCTV Survey carried out prior to the works and post the works, which were submitted to Crossrail under the Contractors Communication C310-CCM-00467 and C310-CCM-01335. HMJV confirms that the CCTV survey demonstrates no C310-works related damage identified in the Royal Dock sewer.

Project Managers Communication C310-PMC-01583 stipulates the Thames Water requirement to close-out the Royal Dock Sewer Monitoring "If the CCTV survey demonstrates no C310 works related damage and Contractor is able to demonstrate that there is no further movement between the time of the survey and completion of the portal.  
5mm movement or less is deemed to be no further movement in this instance."

Attached monitoring table demonstrates for the shallow datums, able to be monitored after the post-work CCTV survey on the 15th Dec 2014, that points 30040314, 30041632, 633 and 634 had less than 5mm movement over a period of approx. 1 month. In the meanwhile these points had to be removed due to completion of portal construction works and reinstatement works of Factory Road.

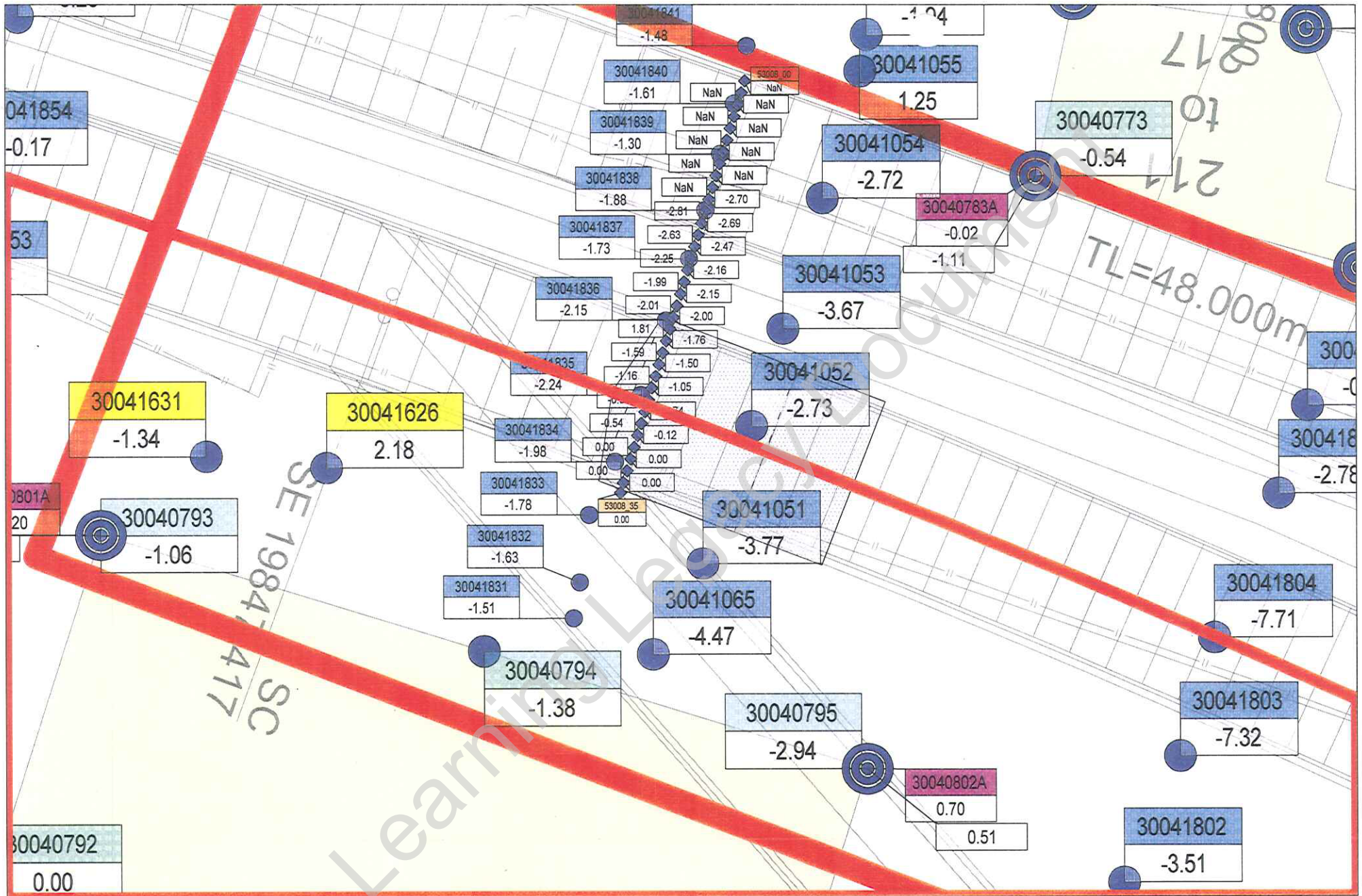
Up to 20mm of apparent heave was detected in Extensometers 30040311 – 30040314. This movement was in contrary to the predicted settlement trend (generally observed in areas around the portal). An independent check on the survey control point was carried out by Crossrail surveyors to verify the accuracy of the monitoring data.

date / signature: 03/06/20

print name:

HMJV project role: Design & Temporary Works Manager

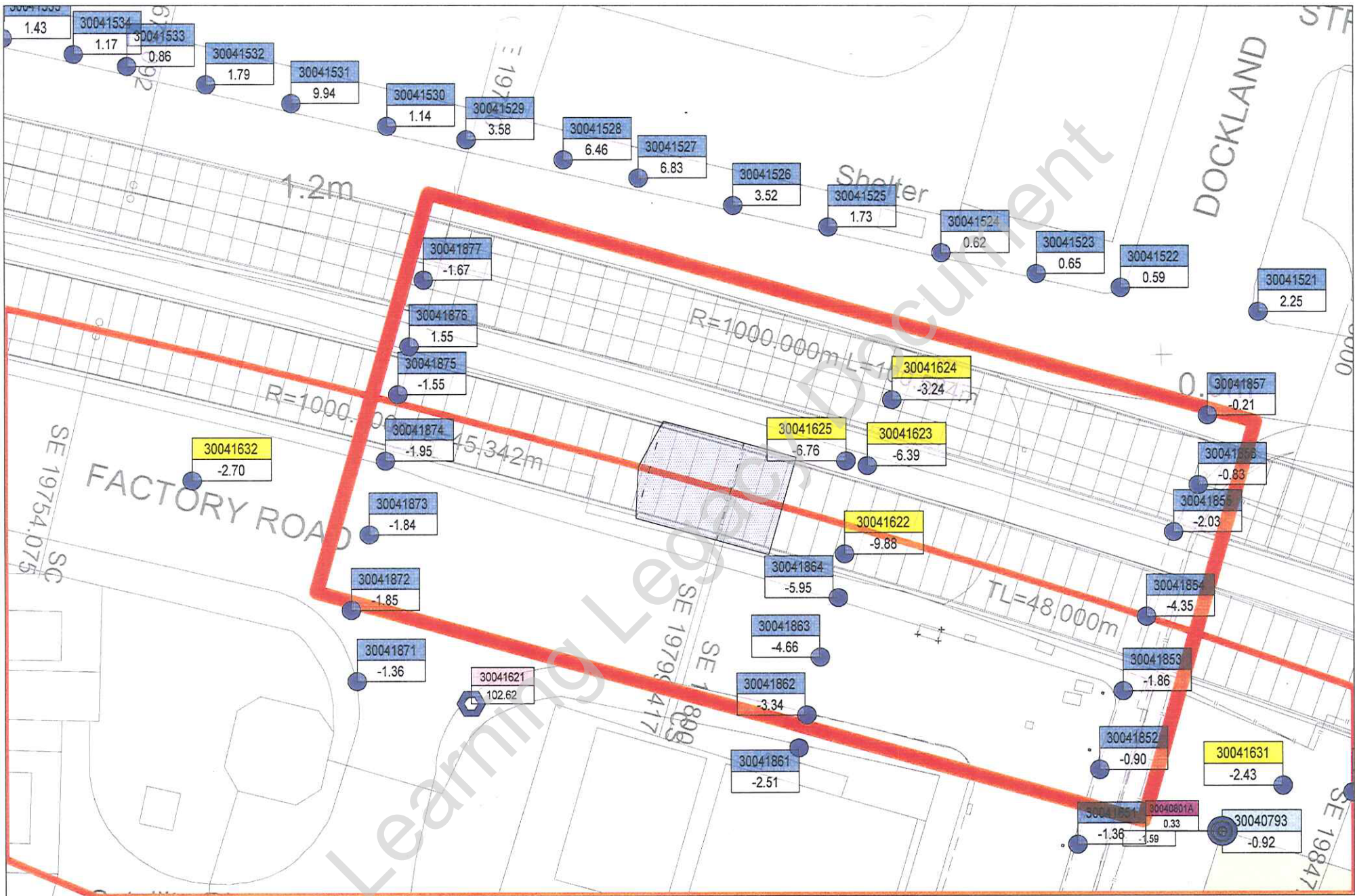




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: TBM drive WB  
 current values: 16.01.2014 19:26



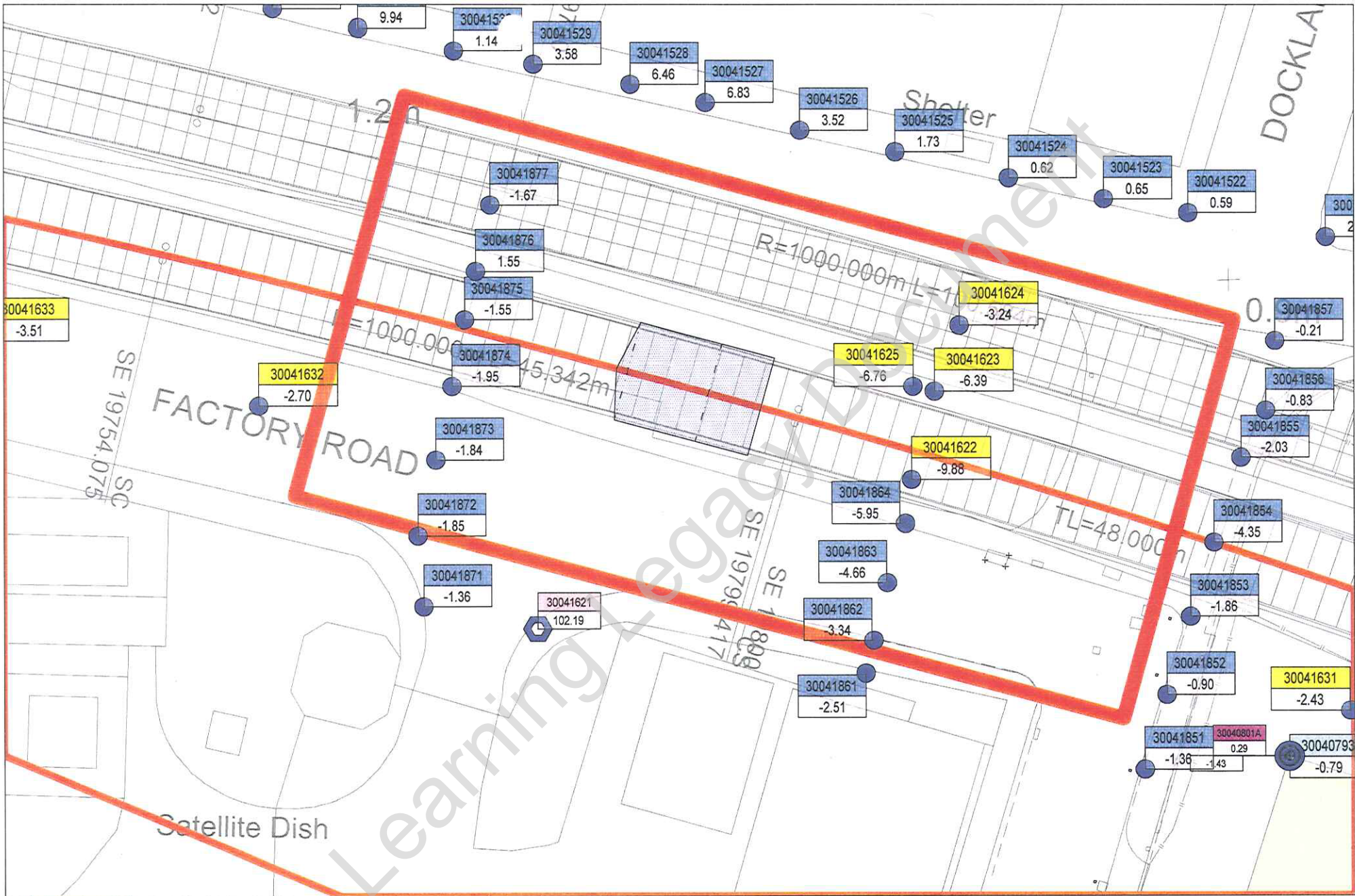




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: TBM drive WB  
 current values: 20.01.2014 09:00



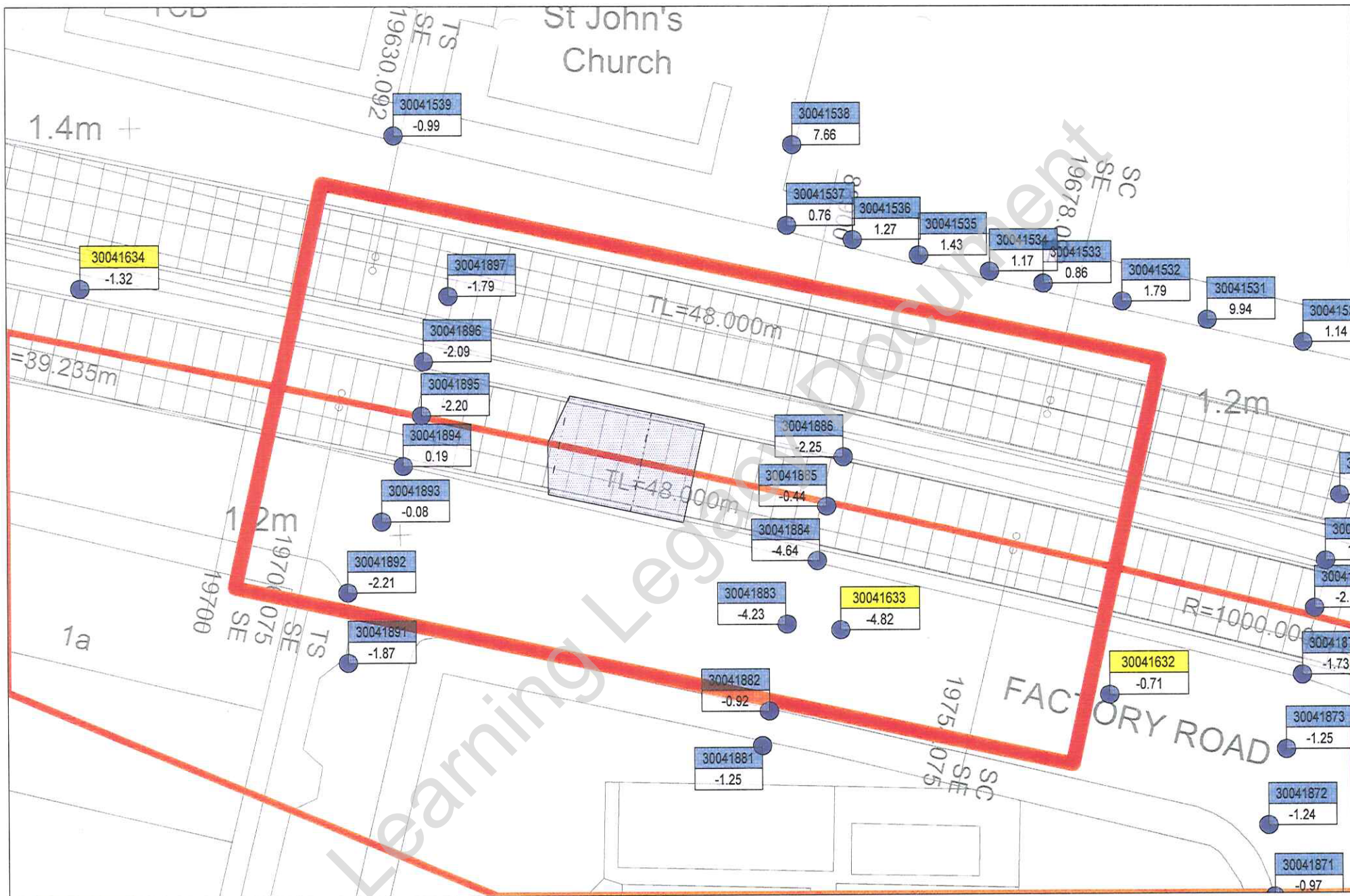




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: TBM drive WB  
 current values: 20.01.2014 17:43

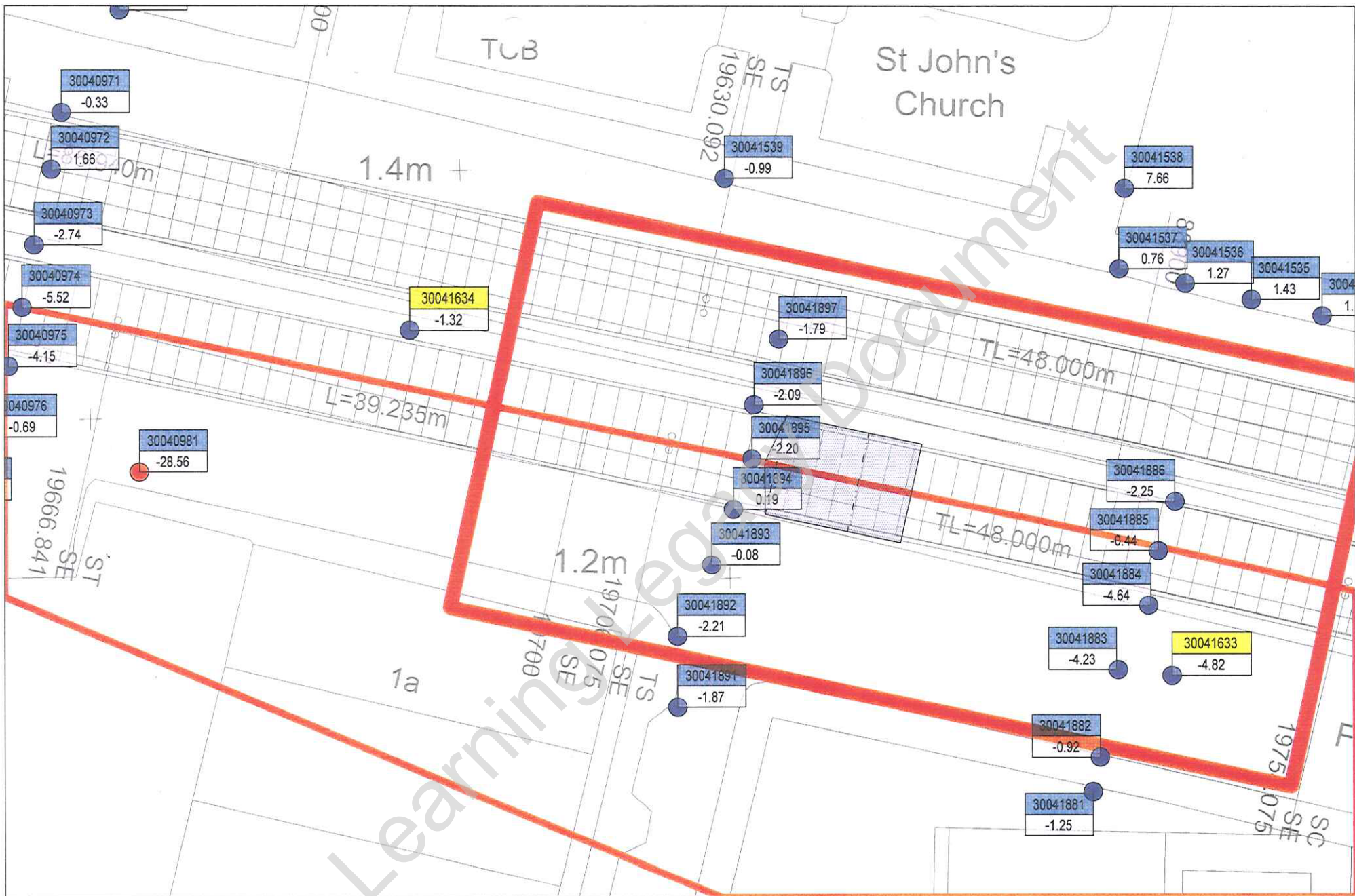






Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: TBM drive WB  
 current values: 24.01.2014 09:00

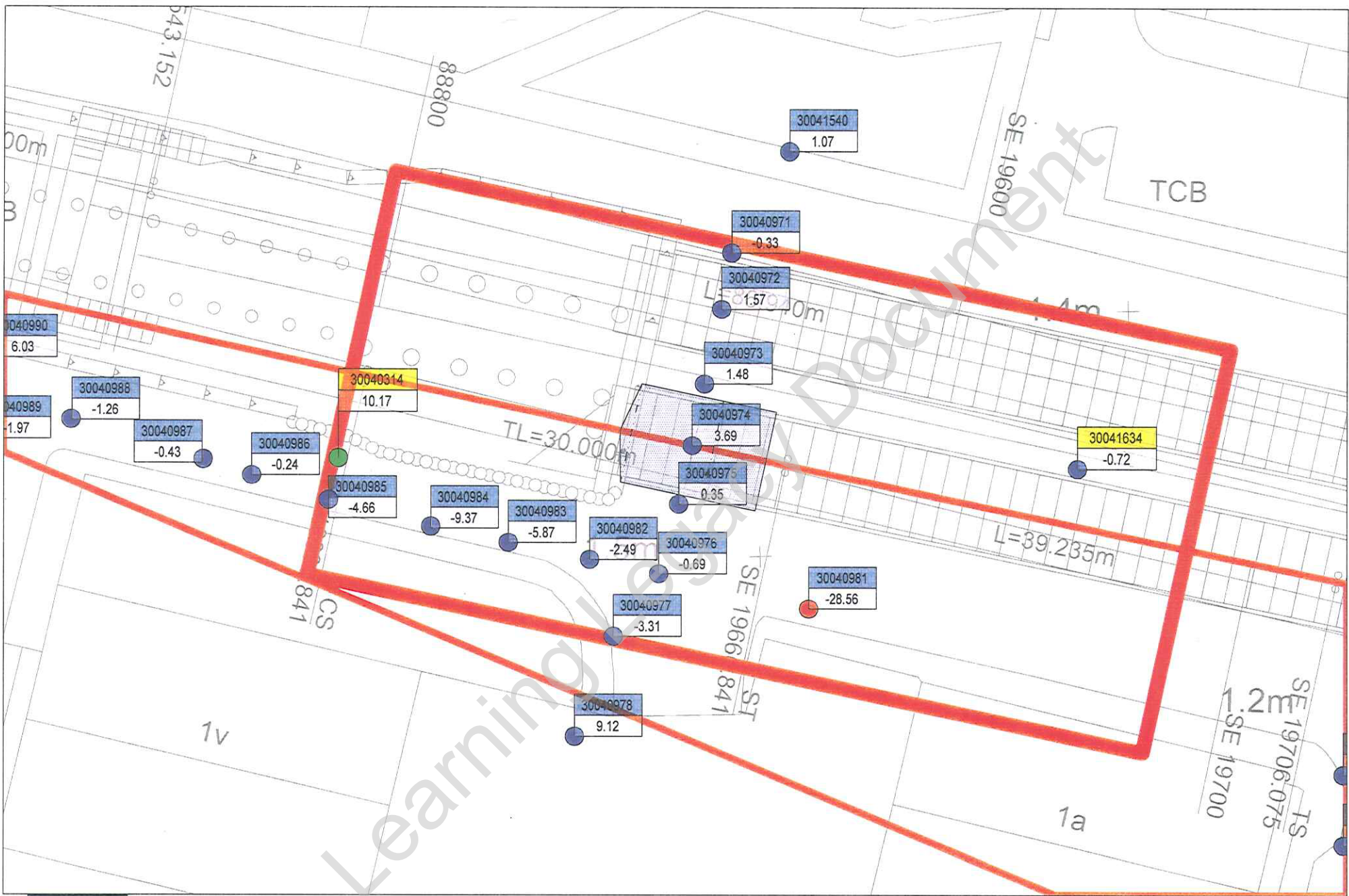




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: TBM drive WB  
 current values: 24.01.2014 19:18



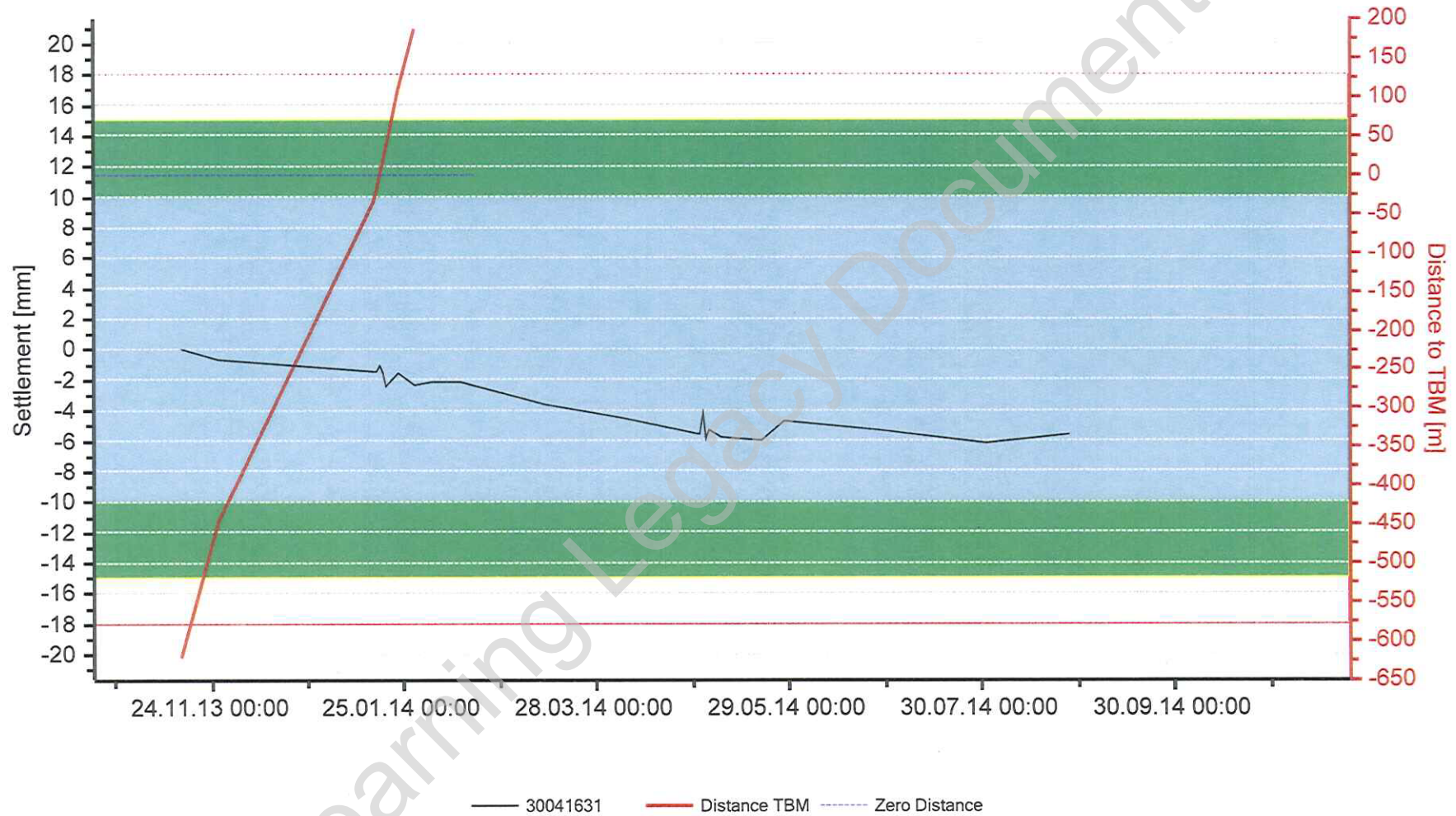




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: TBM drive WB  
 current values: 05.02.2014 10:11



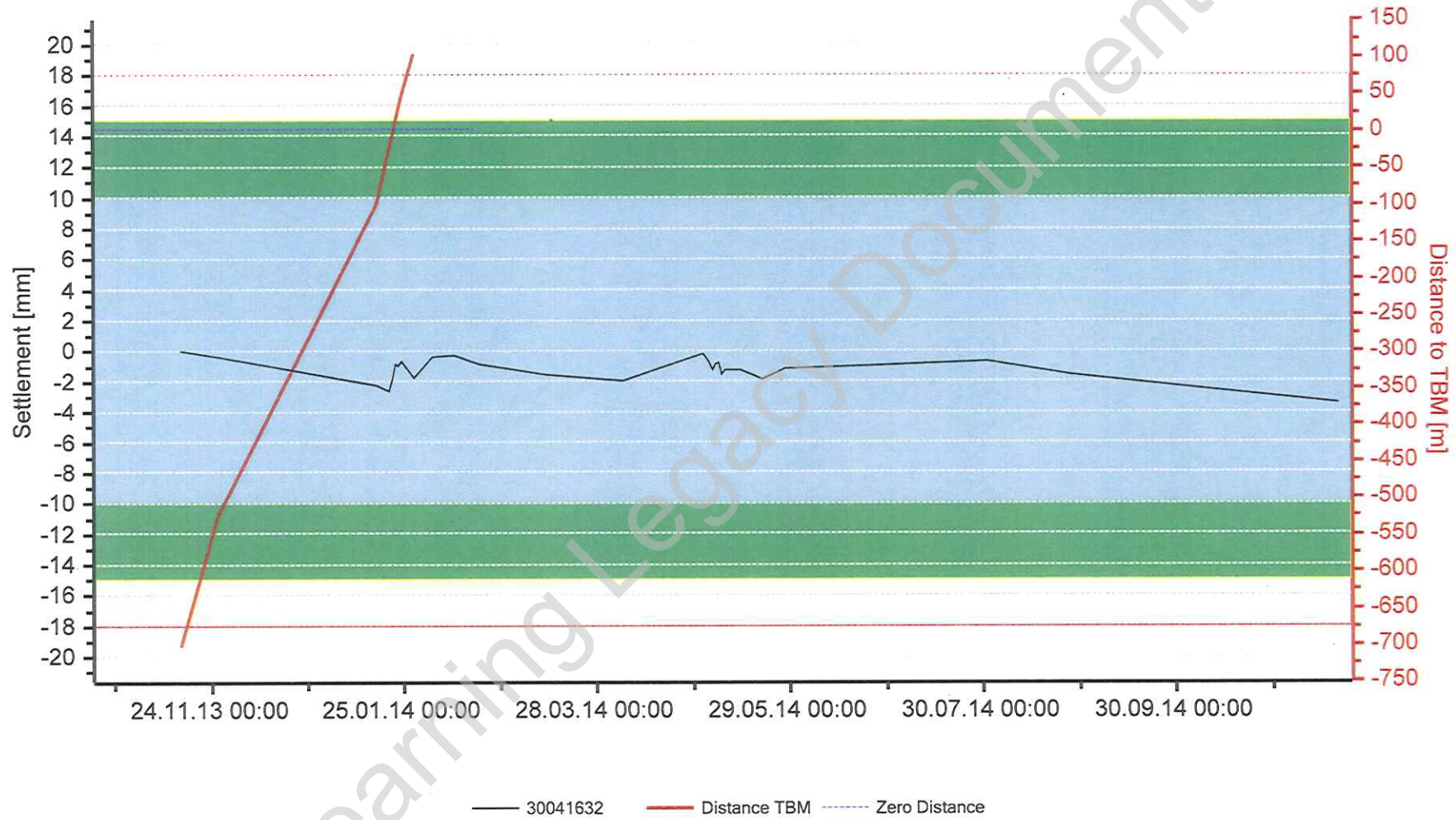
Point: 30041631



Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
Close Out Report: WB Tunnel - SD Factory Road - 17.10.2013 - 21.11.2014  
Date: 21.01.2015 10:14 Current Values: 21.01.2015 10:06



Point: 30041632



Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
Close Out Report: WB Tunnel - SD Factory Road - 17.10.2013 - 21.11.2014  
Date: 21.01.2015 10:13 Current Values: 21.01.2015 10:06

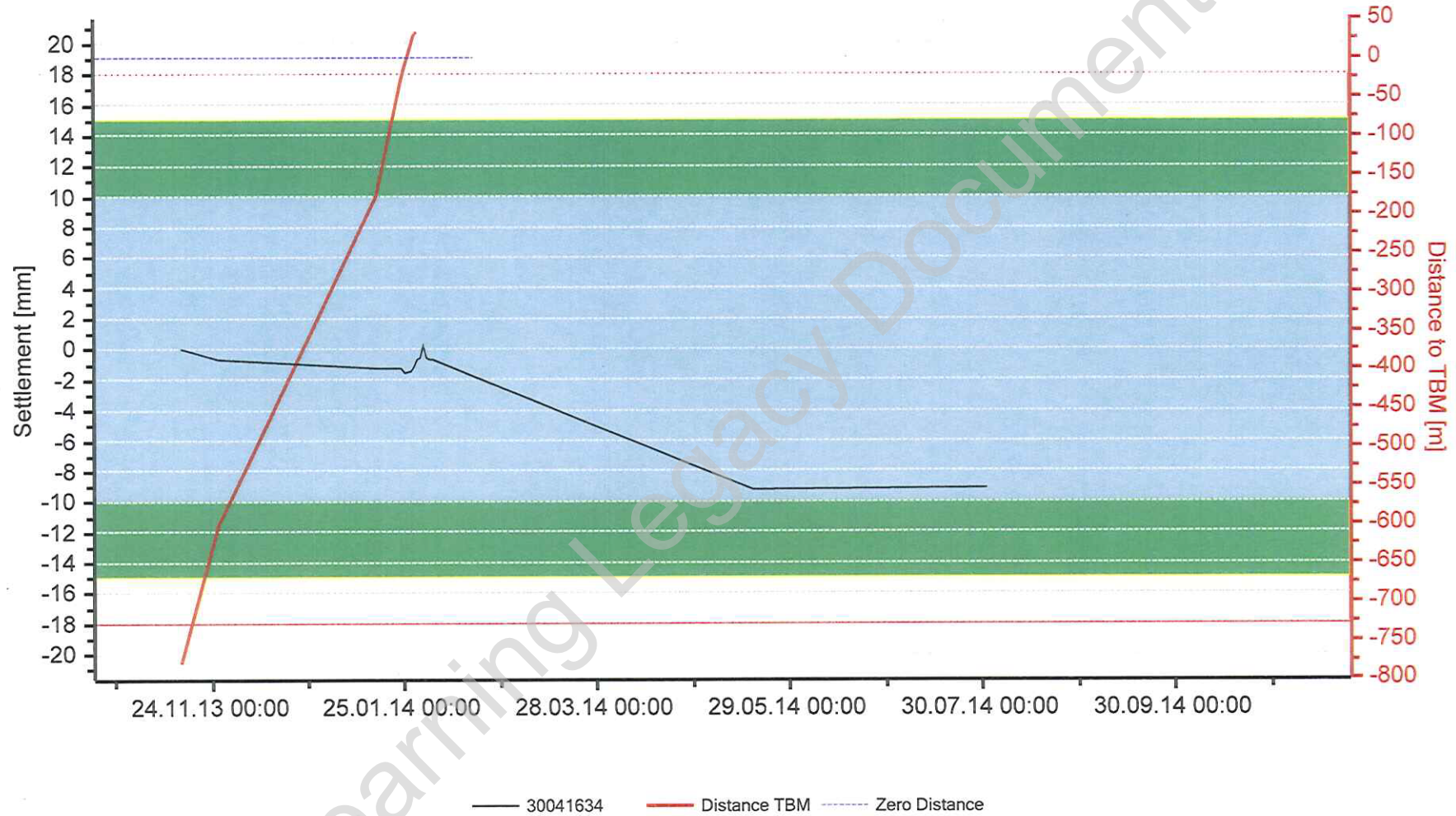
Point: 30041633



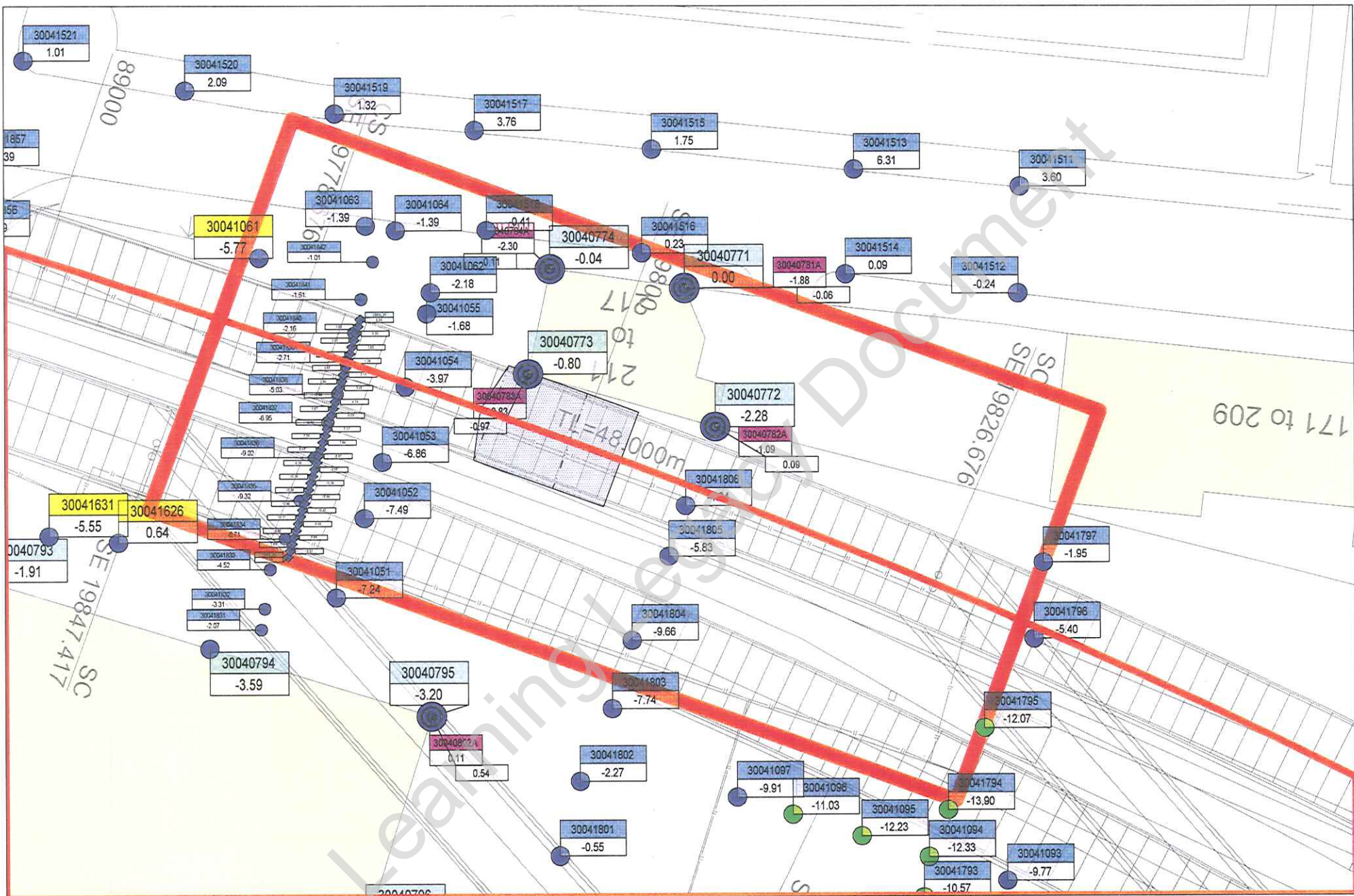
Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
Close Out Report: WB Tunnel - SD Factory Road - 17.10.2013 - 21.11.2014  
Date: 21.01.2015 10:11 Current Values: 21.01.2015 10:06



Point: 30041634



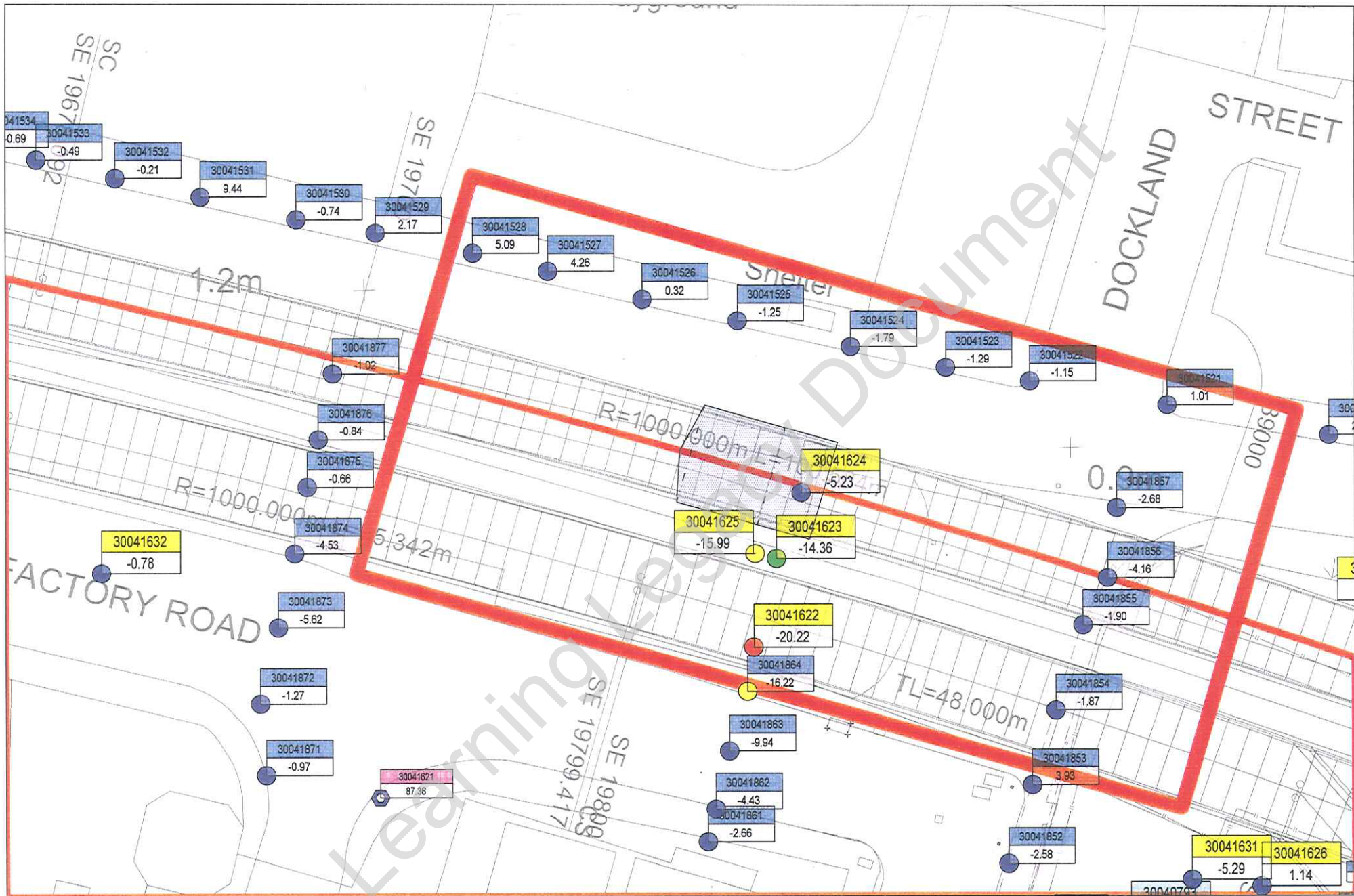
Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
Close Out Report: WB Tunnel - SD Factory Road - 17.10.2013 - 21.11.2014  
Date: 21.01.2015 10:09 Current Values: 21.01.2015 09:51



Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: C310 EB tunnel drive; NWP: portal excavation, construction base slab  
 current values: 30.04.2014 09:00



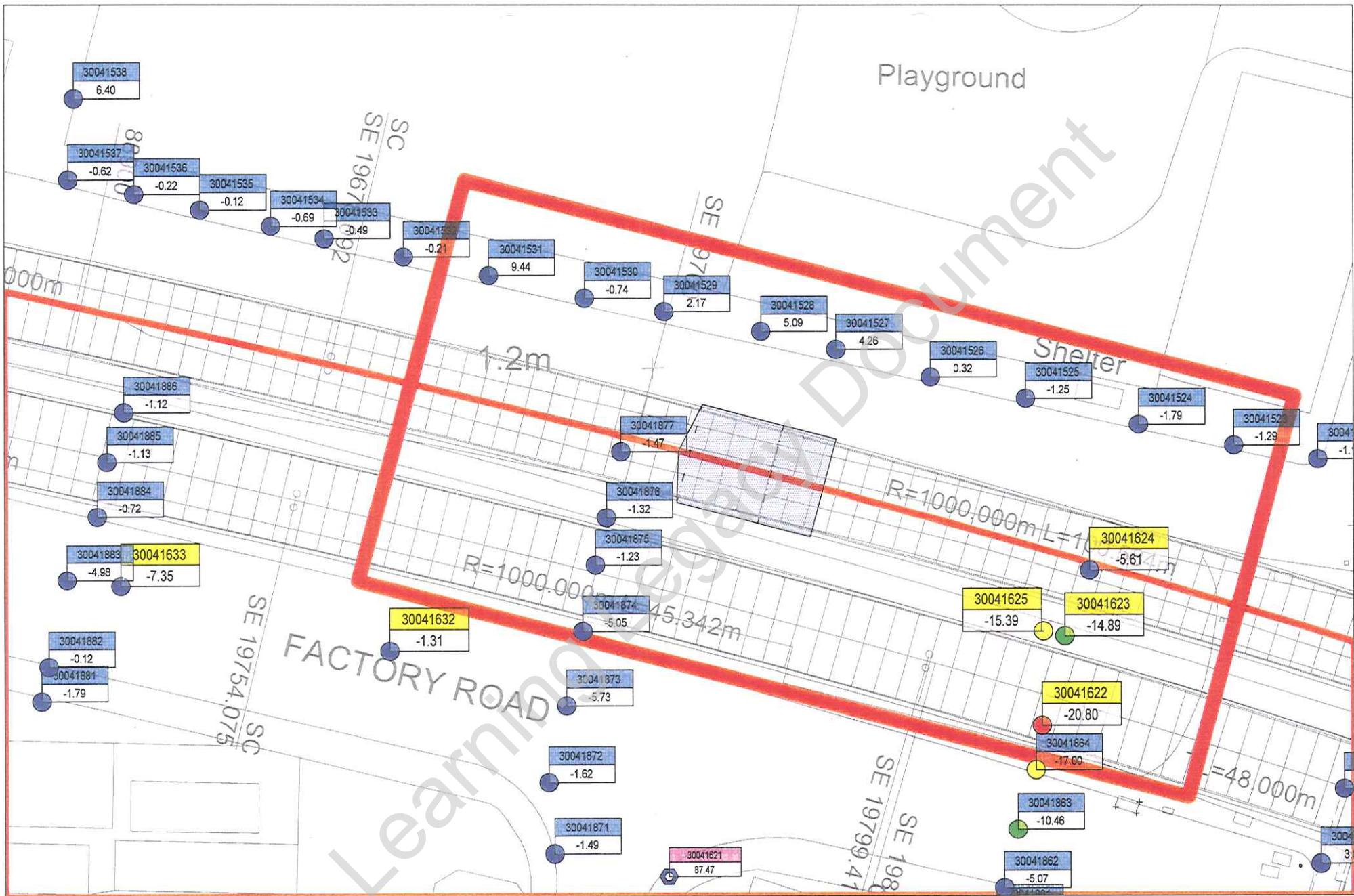




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: C310 EB tunnel drive; NWP: portal excavation, construction base slab  
 current values: 03.05.2014 09:00





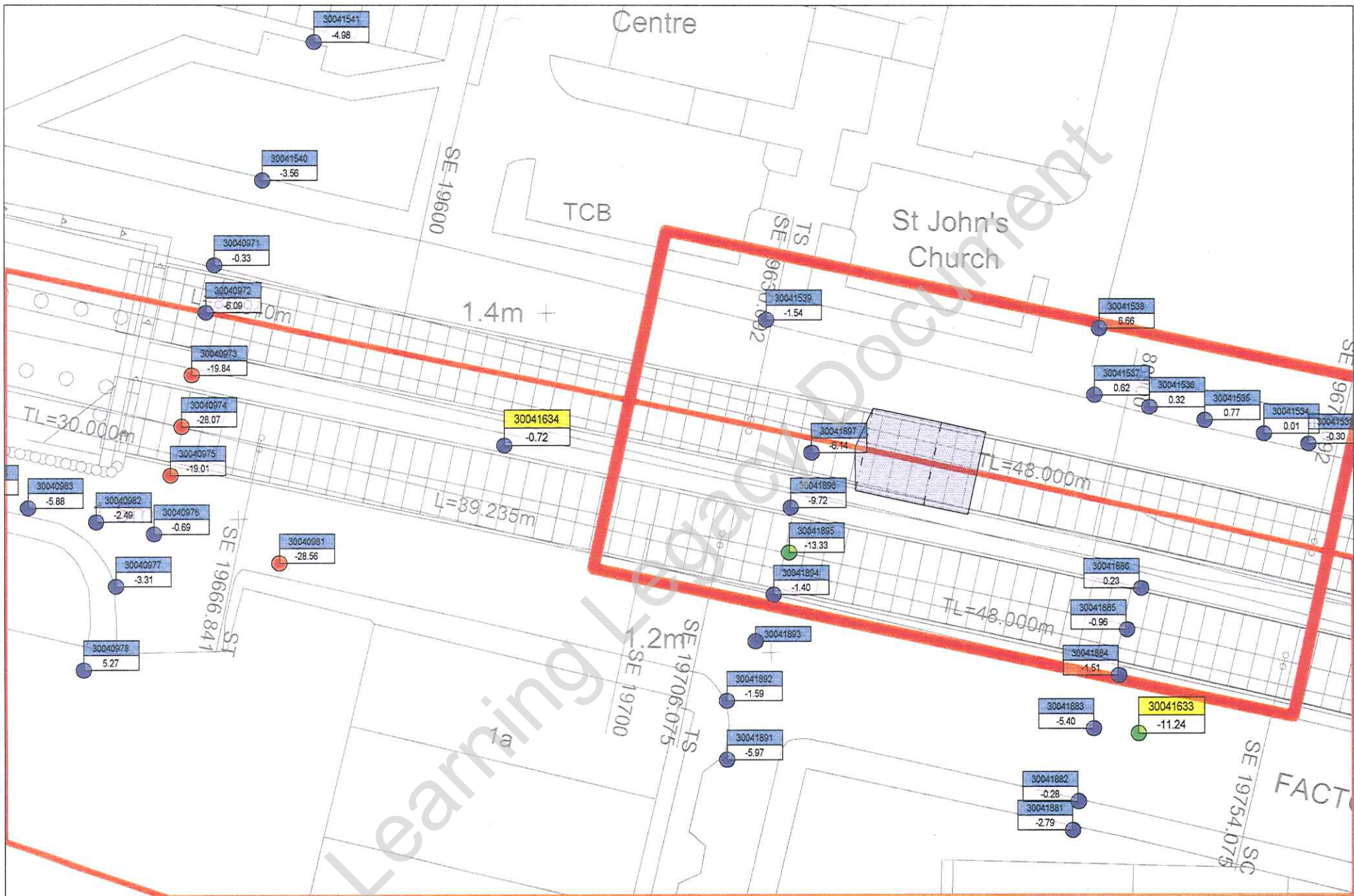


Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: C310 EB tunnel drive; NWP: portal excavation, construction base slab  
 current values: 04.05.2014 09:00





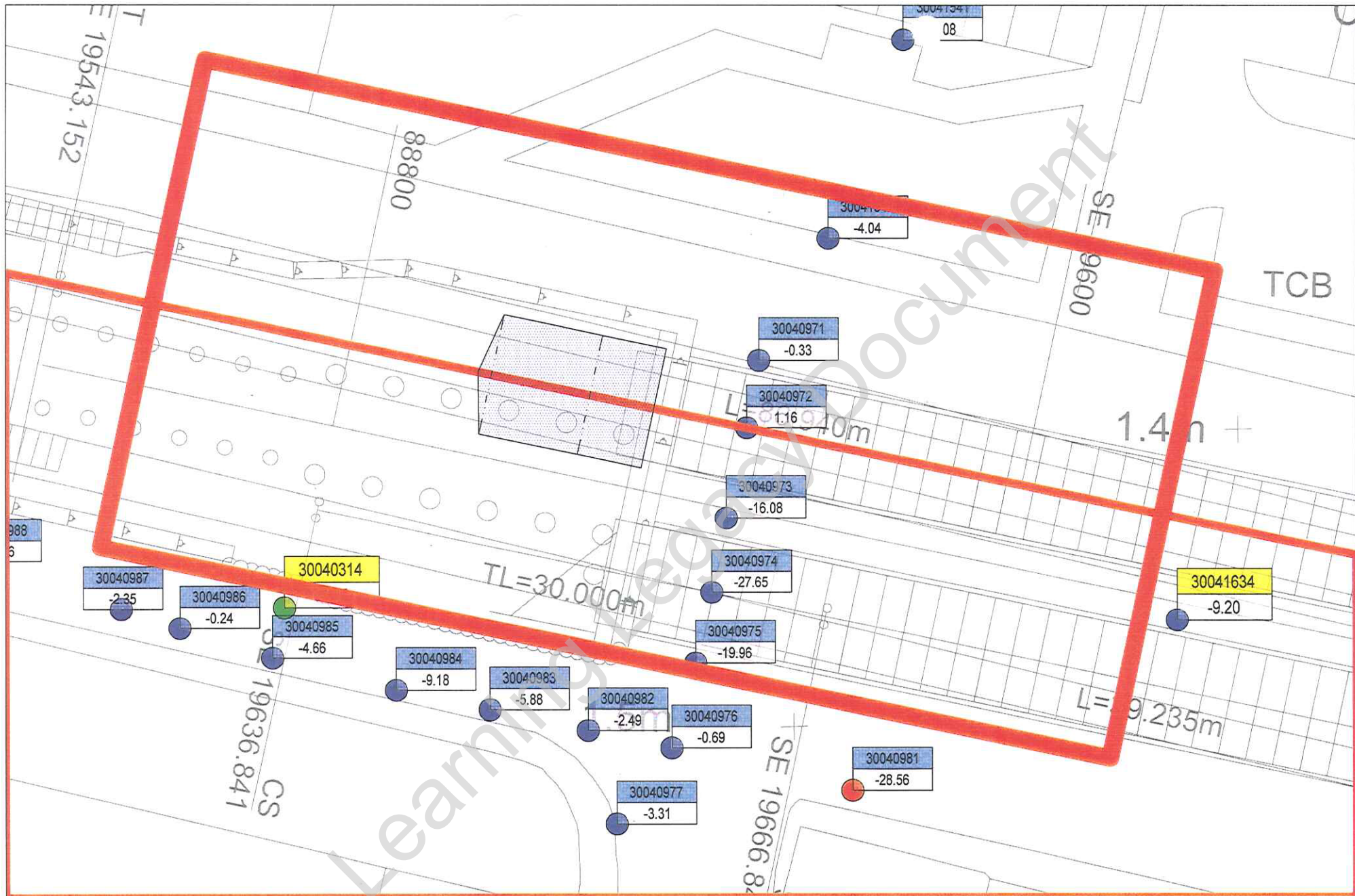




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: C310 EB tunnel drive; NWP: portal excavation, construction base slab  
 current values: 07.05.2014 17:35



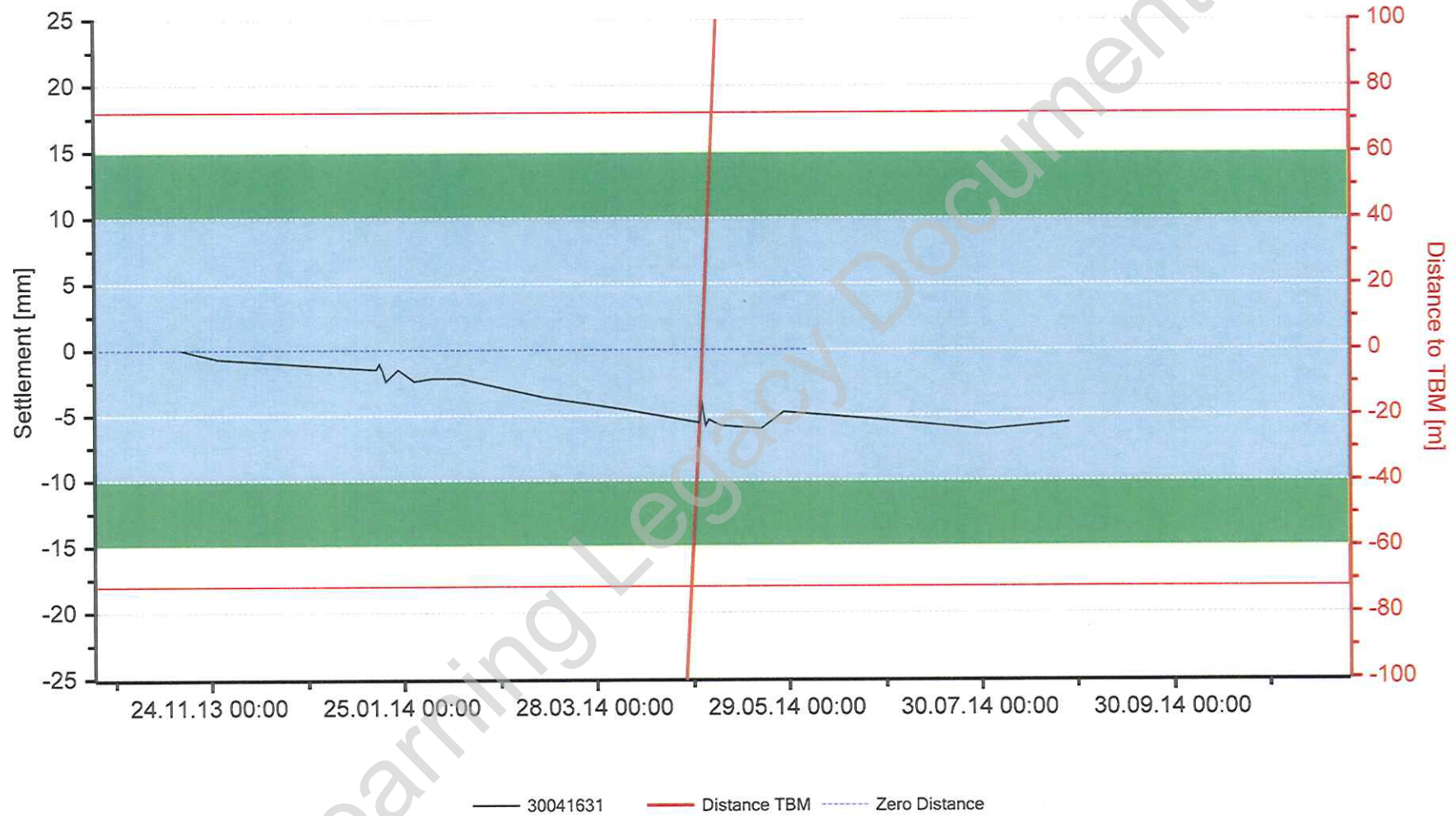




Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal  
 working activities: C310 EB tunnel drive; NWP: portal excavation, construction base slab  
 current values: 22.05.2014 17:49



Point: 30041631



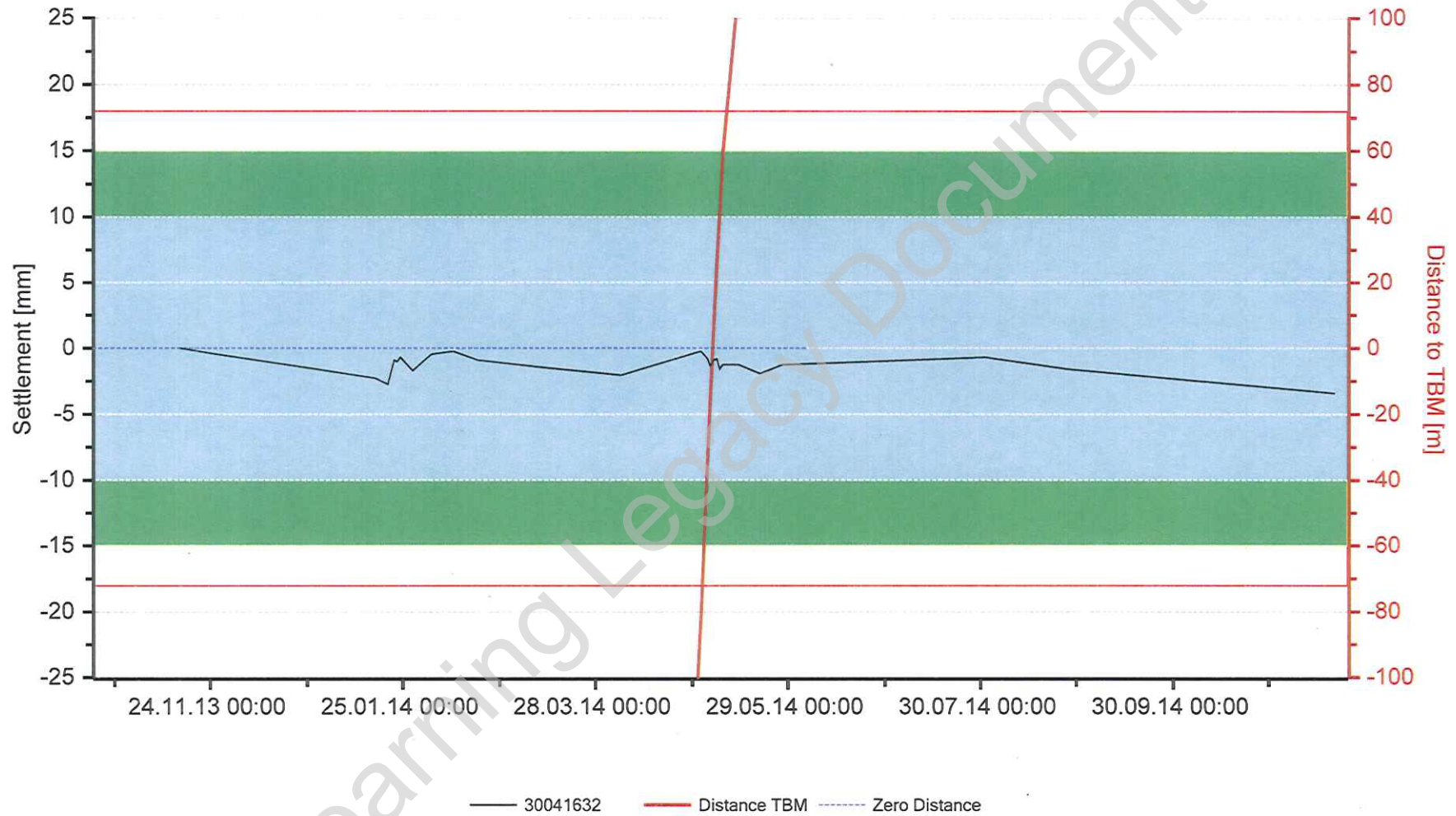
Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal

Close Out Report: SD Factory Road 1 - 17.10.2013 - 21.11.2014

date: 21.01.2015 11:18 current values: 21.01.2015 11:06



Point: 30041632



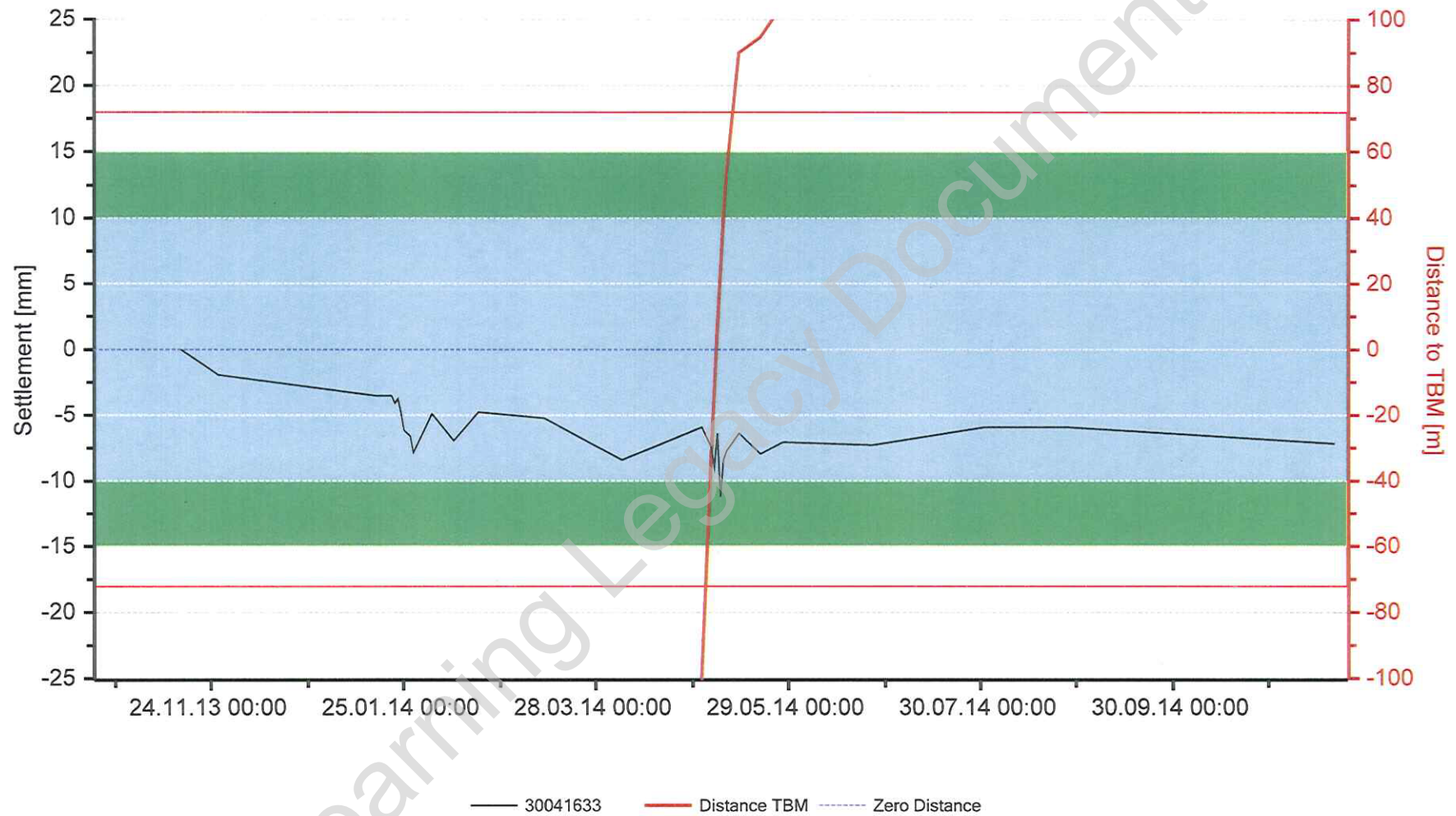
Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal

Close Out Report: SD Factory Road - 17.10.2013 - 21.11.2014

date: 21.01.2015 11:20 current values: 21.01.2015 11:06



Point: 30041633

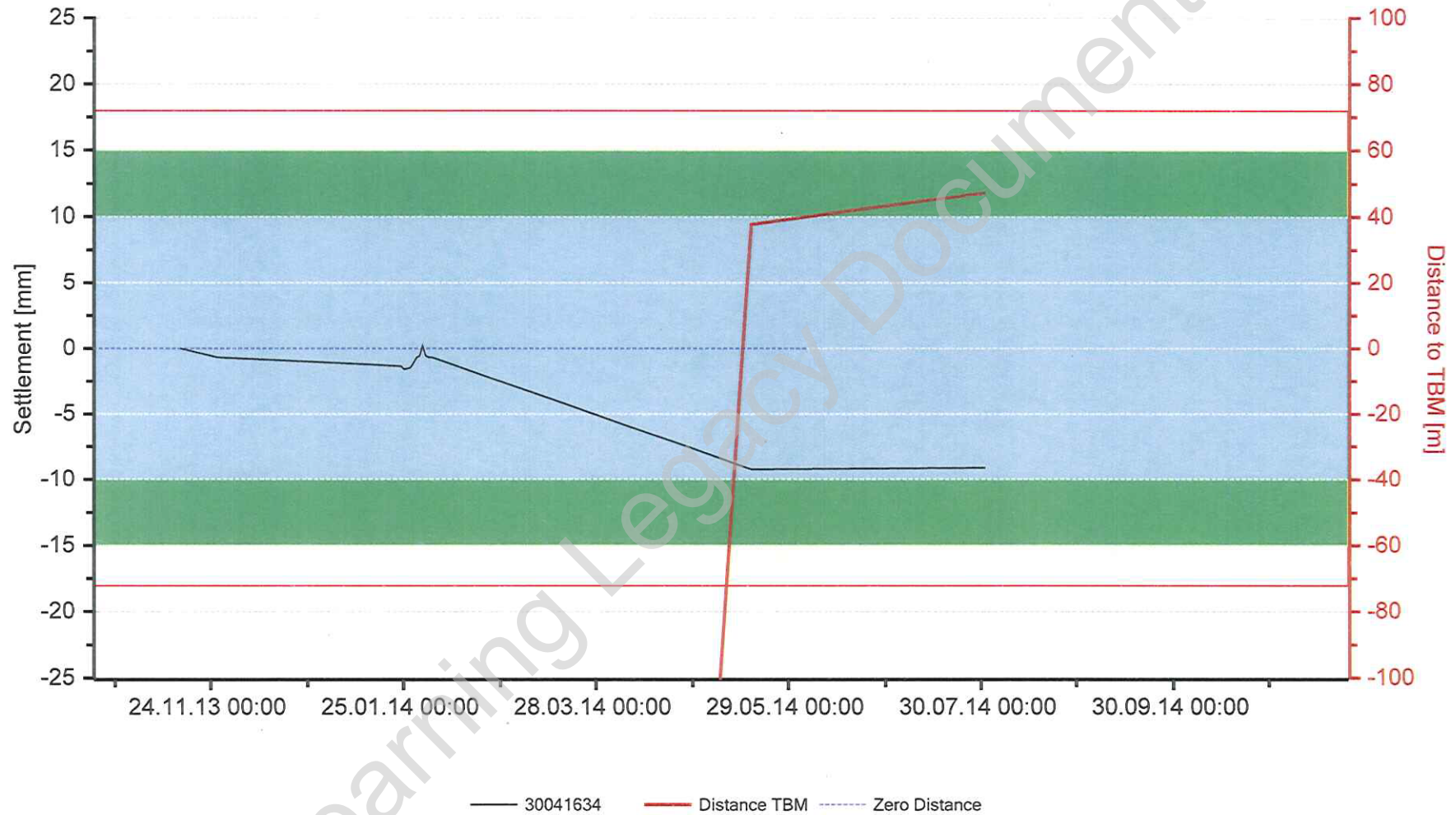


Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal

Close Out Report: SD Factory Road - 17.10.2013 - 21.11.2014

date: 21.01.2015 11:21 current values: 21.01.2015 11:06

Point: 30041634



Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal

Close Out Report: SD Factory Road - 17.10.2013 - 21.11.2014

date: 21.01.2015 11:23 current values: 21.01.2015 11:06



# monitoring table



Joint Venture

project: C310 Thames Tunnel

structure: Shallow Datums, Factory Road

No. of reading	baseline	1. following		2. following		3. following		4. following		5. following		6. following							
date	14/11/13	26/11/2013		15/01/2014		16/01/2014		16/01/2014		17/01/2014		17/01/2014							
No.	elevation	elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline							
30041631	101.169	101.168	-1	-1	101.167	-1	-1	101.167	0	-2	101.167	0	-1	101.168	0	-1	101.167	0	-1
30041632	101.257	101.256	0	0				101.254	-2	-2									
30041633	101.120	101.118	-2	-2				101.116	-2	-4									
30041634	101.549	101.548	-1	-1				101.547	-1	-1									
30041631(1)	96.087	96.086	-1	-1	96.085	-1	-1	96.084	-1	-2	96.085	0	-2						
30041631(2)	91.086	91.085	-1	-1	91.083	-2	-2	91.083	0	-3	91.083	0	-3						
30041631(3)	83.084	83.083	-1	-1	83.082	-1	-2	83.087	4	3	83.087	0	3						
30041632(1)	96.163	96.163	0	0				96.160	-3	-3									
30041632(2)	91.169	91.169	0	0				91.166	-3	-3									
30041632(3)	83.180	83.180	0	0				83.177	-2	-3									
30041633(1)	96.036	96.034	-2	-2				96.031	-3	-5									
30041633(2)	91.034	91.032	-2	-2				91.030	-2	-4									
30041633(3)	83.039	83.038	-2	-2				83.035	-3	-5									
30041634(1)	96.464	96.463	-1	-1				96.460	-2	-3									
30041634(2)	91.468	91.467	-1	-1				91.465	-2	-3									
30041634(3)	83.465	83.464	-1	-1				83.462	-2	-3									

# monitoring table



Joint Venture

project: C310 Thames Tunnel

structure: Shallow Datums, Factory Road

No. of reading	baseline	7. following				8. following				9. following				10. following				11. following				12. following			
date	14/11/13	18/01/2014				19/01/2014				20/01/2014				21/01/2014				22/01/2014				23/01/2014			
No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline				
30041631	101.169	101.167	0	-2	101.166	-1	-2										101.167	1	-2						
30041632	101.257							101.254	0	-3	101.255	1	-2	101.256	1	-1	101.256	0	-1						
30041633	101.120										101.116	0	-3	101.116	-1	-4	101.116	0	-4						
30041634	101.549																								
30041631(1)	96.087	96.085	0	-2	96.084	-1	-3										96.085	1	-2						
30041631(2)	91.086	91.083	0	-3	91.082	-1	-4										91.084	1	-2						
30041631(3)	83.084	83.083	-4	-1	83.081	-2	-2										83.083	1	-1						
30041632(1)	96.163							96.159	-1	-4	96.160	1	-3	96.161	1	-2	96.160	0	-3						
30041632(2)	91.169							91.166	0	-3	91.167	1	-2	91.168	1	-1	91.167	-1	-2						
30041632(3)	83.180							83.177	0	-3	83.178	1	-2	83.179	1	-1	83.178	-1	-2						
30041633(1)	96.036										96.032	0	-4	96.031	-1	-5	96.031	1	-5						
30041633(2)	91.034										91.030	0	-4	91.030	-1	-4	91.030	1	-4						
30041633(3)	83.039										83.035	0	-4	83.034	-1	-5	83.035	0	-5						
30041634(1)	96.464																								
30041634(2)	91.468																								
30041634(3)	83.465																								



# monitoring table



Joint Venture

project: C310 Thames Tunnel

structure: Shallow Datums, Factory Road

No. of reading	baseline	13. following			14. following			15. following			16. following			17. following			18. following		
date	14/11/13	24/01/2014			25/01/2014			27/01/2014			28/01/2014			28/01/2014			29/01/2014		
No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline	
30041631	101.169													101.166	-1	-2			
30041632	101.257	101.256	0	-1							101.255	-1	-2						
30041633	101.120	101.115	-1	-5	101.114	-1	-6	101.113	-1	-7	101.112	-1	-8						
30041634	101.549	101.547	0	-1	101.547	0	-2	101.547	0	-1	101.548	0	-1				101.548	0	-1
30041631(1)	96.087													96.084	-1	-3			
30041631(2)	91.086													91.083	-1	-3			
30041631(3)	83.084													83.082	-1	-2			
30041632(1)	96.163	96.160	0	-3							96.159	-1	-4						
30041632(2)	91.169	91.167	0	-2							91.166	-1	-3						
30041632(3)	83.180	83.178	0	-2							83.177	-1	-3						
30041633(1)	96.036	96.031	-1	-6	96.031	0	-5	96.028	-2	-8	96.027	-1	-9						
30041633(2)	91.034	91.030	0	-4	91.030	0	-4	91.028	-2	-6	91.027	-1	-7						
30041633(3)	83.039	83.034	0	-5	83.034	0	-5	83.033	-2	-7	83.031	-1	-8						
30041634(1)	96.464	96.461	0	-3	96.462	1	-2	96.460	-2	-4	96.460	0	-4				96.460	1	-3
30041634(2)	91.468	91.466	0	-2	91.467	1	-1	91.465	-2	-3	91.464	0	-3				91.465	1	-3
30041634(3)	83.465	83.463	1	-2	83.463	1	-2	83.462	-2	-3	83.462	0	-3				83.463	1	-2

# monitoring table



project: C310 Thames Tunnel

Joint Venture

structure: Shallow Datums, Factory Road

No. of reading	baseline	19. following			20. following			21. following			22. following			23. following			24. following		
date	14/11/13	30/01/2014			31/01/2014			01/02/2014			02/02/2014			03/02/2014			10/02/2014		
No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline	
30041631	101.169													101.166	0	-2			
30041632	101.257													101.256	1	0	101.256	0	0
30041633	101.120													101.115	3	-5	101.113	-2	-7
30041634	101.549	101.548	0	-1	101.549	1	0	101.548	-1	-1	101.548	0	-1	101.548	0	-1	covered		
30041631(1)	96.087													96.085	0	-2			
30041631(2)	91.086													91.083	0	-2			
30041631(3)	83.084													83.083	1	-1			
30041632(1)	96.163													96.159	0	-4	96.160	0	-3
30041632(2)	91.169													91.168	1	-2	91.168	0	-2
30041632(3)	83.180													83.179	1	-1	83.179	0	-1
30041633(1)	96.036													96.030	3	-6	96.028	-2	-8
30041633(2)	91.034													91.030	3	-4	91.028	-2	-6
30041633(3)	83.039													83.036	4	-4	83.034	-2	-6
30041634(1)	96.464	96.461	0	-3	96.461	0	-2	96.461	-1	-3	96.460	0	-3	96.461	0	-3			
30041634(2)	91.468	91.464	-1	-3	91.466	1	-2	91.465	-1	-3	91.465	0	-3	91.465	0	-3			
30041634(3)	83.465	83.463	0	-3	83.463	1	-2	83.463	-1	-2	83.463	0	-2	83.463	0	-2			



# monitoring table



project: C310 Thames Tunnel

Joint Venture

structure: Shallow Datums, Factory Road

No. of reading	baseline	25. following			26. following			27. following			28. following			29. following			30. following		
date	14/11/13	12/02/2014			18/02/2014			11/03/2014			07/04/2014			30/04/2014			01/05/2014		
No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline	
30041631	101.169	101.166	0	-2				101.165	-1	-4	101.164	-1	-5	101.163	-1	-6	101.164	1	-4
30041632	101.257				101.256	-1	-1	101.255	-1	-2	101.255	0	-2				101.256	2	0
30041633	101.120				101.115	2	-5	101.115	0	-5	101.111	-3	-8				101.114	2	-6
30041634	101.549	covered			covered			covered			covered			covered			covered		
30041631(1)	96.087	96.085	1	-2				96.084	-1	-3	96.083	-1	-4	96.083	0	-4	96.084	1	-3
30041631(2)	91.086	91.083	0	-2				91.083	0	-2	91.082	-1	-3	91.081	-1	-4	91.083	2	-3
30041631(3)	83.084	83.083	0	-1				83.083	0	-1	83.082	-1	-2	83.081	-1	-3	83.082	1	-2
30041632(1)	96.163				96.159	-1	-4	96.165	7	2	96.155	-10	-8						
30041632(2)	91.169				91.168	0	-2	91.175	7	5	91.167	-8	-3						
30041632(3)	83.180				83.179	0	-1	83.176	-3	-4	83.177	1	-3						
30041633(1)	96.036				96.031	2	-6	96.039	8	3	96.026	-13	-10						
30041633(2)	91.034				91.030	2	-4	91.038	8	4	91.028	-10	-6						
30041633(3)	83.039				83.036	2	-3	83.038	2	-2	83.033	-4	-6						
30041634(1)	96.464																		
30041634(2)	91.468																		
30041634(3)	83.465																		

monitoring table



project: C310 Thames Tunnel

Joint Venture

structure: Shallow Datums, Factory Road

No. of reading	baseline	31. following			32. following			33. following			34. following			35. following			36. following		
date	14/11/13	02/05/2014			03/05/2014			04/05/2014			05/05/2014			06/05/2014			07/05/2014		
No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline	
30041631	101.169	101.163	-2	-6	101.163	1	-5										101.163	0	-6
30041632	101.257				101.256	-1	-1	101.255	-1	-1	101.256	0	-1	101.256	0	-1	101.255	-1	-2
30041633	101.120							101.113	-1	-7	101.111	-2	-9	101.113	3	-6	101.109	-5	-11
30041634	101.549	covered			covered			covered			covered			covered			covered		
30041631(1)	96.087	96.082	-2	-4	96.085	3	-2										96.083	-2	-4
30041631(2)	91.086	91.081	-2	-4	91.082	1	-4										91.081	-1	-4
30041631(3)	83.084	83.081	-1	-3	83.082	1	-2										83.081	-1	-3
30041632(1)	96.163				96.156	0	-7	96.155	-1	-8	96.155	0	-8	96.155	0	-8	96.154	-1	-9
30041632(2)	91.169				91.167	1	-2	91.166	-1	-3	91.167	0	-3	91.167	0	-3	91.165	-1	-4
30041632(3)	83.180				83.178	1	-2	83.177	-1	-3	83.178	1	-2	83.177	-1	-3	83.177	-1	-3
30041633(1)	96.036							96.029	3	-7	96.027	-2	-9	96.029	2	-7	96.025	-4	-11
30041633(2)	91.034							91.029	1	-5	91.027	-2	-7	91.029	3	-5	91.025	-5	-10
30041633(3)	83.039							83.035	1	-5	83.033	-2	-6	83.035	3	-4	83.031	-4	-8
30041634(1)	96.464																		
30041634(2)	91.468																		
30041634(3)	83.465																		



# monitoring table



project: C310 Thames Tunnel

Joint Venture

structure: Shallow Datums, Factory Road

No. of reading	baseline	37. following			38. following			39. following			40. following			41. following			42. following		
date	14/11/13	08/05/2014			09/05/2014			13/05/2014			17/05/2014			20/05/2014			27/05/2014		
No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline		elevation	deviation from last/baseline	
30041631	101.169							101.163	0	-6				101.163	0	-6	101.164	1	-5
30041632	101.257	101.255	0	-1				101.255	0	-1				101.255	-1	-2	101.255	1	-1
30041633	101.120	101.111	3	-8	101.112	1	-8	101.114	1	-6				101.112	-2	-8	101.113	1	-7
30041634	101.549	covered			covered			covered			101.540	-8	-9	covered			covered		
30041631(1)	96.087							96.083	0	-4				96.082	0	-5	96.083	1	-4
30041631(2)	91.086							91.081	0	-4				91.081	0	-4	91.081	0	-4
30041631(3)	83.084							83.081	0	-3				83.082	1	-2	83.080	-2	-4
30041632(1)	96.163	96.154	0	-9				96.154	0	-9				96.153	-1	-10	96.154	1	-9
30041632(2)	91.169	91.166	1	-4				91.166	0	-4				91.165	-1	-4	91.164	-1	-5
30041632(3)	83.180	83.177	0	-3				83.177	0	-3				83.176	-1	-4	83.176	-1	-4
30041633(1)	96.036	96.028	3	-8	96.028	0	-8	96.030	2	-6				96.028	-2	-8	96.028	0	-8
30041633(2)	91.034	91.027	3	-7	91.028	1	-6	91.029	1	-5				91.027	-2	-7	91.026	-1	-8
30041633(3)	83.039	83.033	2	-6	83.034	1	-6	83.035	1	-4				83.034	-1	-5	83.033	-1	-7
30041634(1)	96.464										96.459	-2	-5						
30041634(2)	91.468										91.461	-4	-7						
30041634(3)	83.465										83.461	-2	-4						

# monitoring table



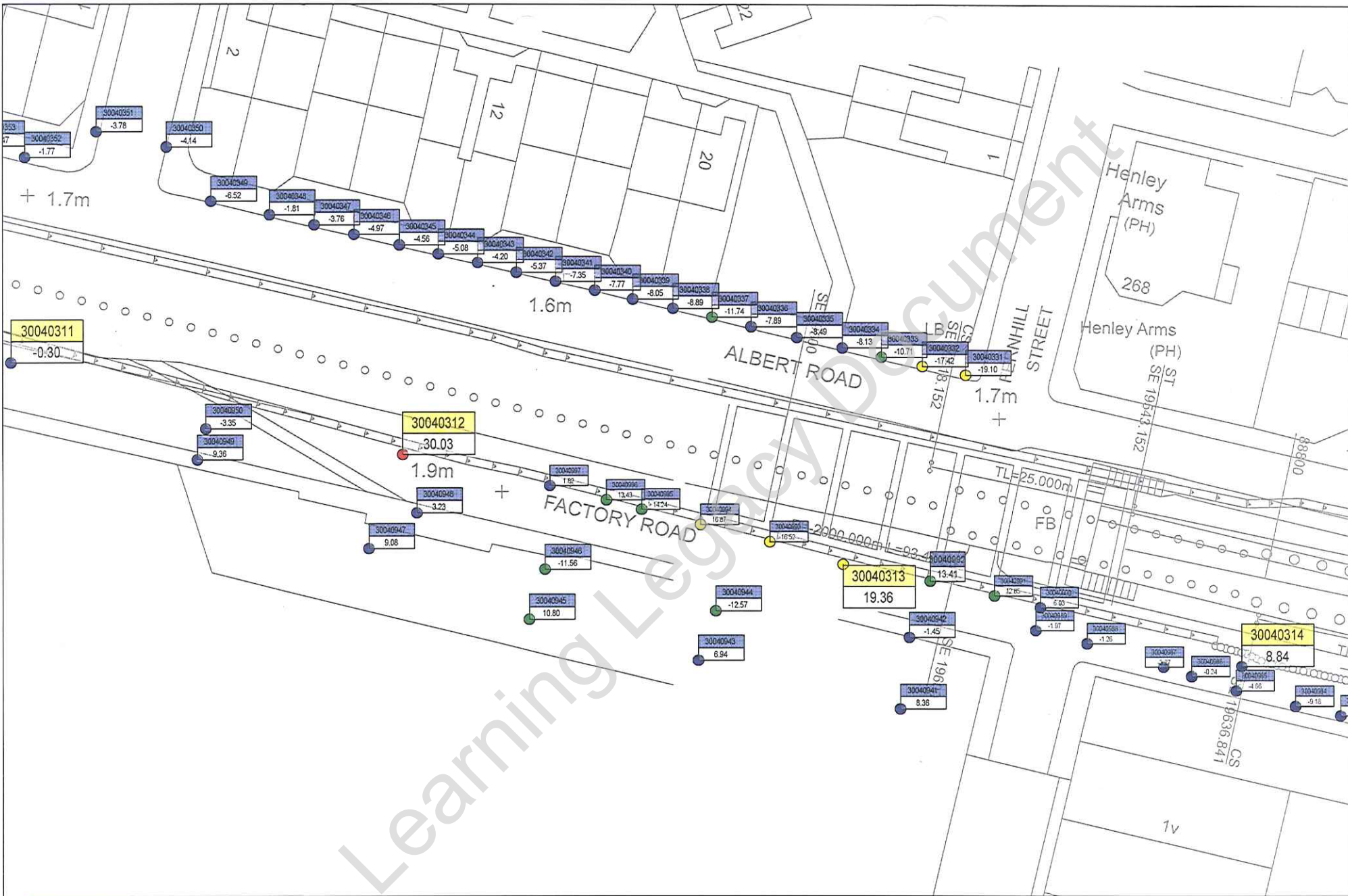
project: C310 Thames Tunnel

Joint Venture

structure: Shallow Datums, Factory Road

No. of reading	baseline	43. following			44. following			45. following			46. following			47. following			48. following		
date	14/11/13	28/05/2014			25/06/2014			26/06/2014			31/07/2014			27/08/2014			21/11/2014		
No.	elevation	elevation	deviation from last/ baseline	elevation	deviation from last/baseline	elevation	deviation from last/baseline	elevation	deviation from last/baseline	elevation	deviation from last/baseline	elevation	deviation from last/baseline	elevation	deviation from last/baseline	elevation	deviation from last/baseline		
30041631	101.169			covered (see 25/06/14)			101.163	-1	-5	101.162	-1	-6	101.163	1	-6	destroyed			
30041632	101.257			101.256	0	-1	(see 25/06/14)			101.256	0	-1	101.255	-1	-2	101.253	-2	-3	
30041633	101.120			101.113	0	-7	(see 25/06/14)			101.114	1	-6	101.114	0	-6	101.113	-1	-7	
30041634	101.549	covered			covered			covered			101.540	0	-9	covered			covered		
30041631(1)	96.087						96.083	0	-4	96.080	-3	-7	96.080	0	-7				
30041631(2)	91.086						91.081	0	-5	91.077	-4	-8	91.077	0	-8				
30041631(3)	83.084						83.080	0	-4	83.076	-3	-7	83.076	0	-8				
30041632(1)	96.163			96.154	0	-9				96.154	0	-9	96.153	-1	-10	96.153	-1	-10	
30041632(2)	91.169			91.164	-1	-6				91.164	0	-6	91.163	0	-6	91.163	-1	-7	
30041632(3)	83.180			83.175	-1	-5				83.175	0	-5	83.174	0	-6	83.174	0	-6	
30041633(1)	96.036			96.028	-1	-9				96.030	3	-6	96.030	0	-6	96.031	1	-5	
30041633(2)	91.034			91.025	-1	-9				91.027	2	-7	91.027	0	-7	91.028	1	-6	
30041633(3)	83.039			83.031	-1	-8				83.031	0	-9	83.031	0	-8	83.032	1	-7	
30041634(1)	96.464									96.455	-3	-8							
30041634(2)	91.468									91.456	-4	-11							
30041634(3)	83.465									83.458	-3	-7							





Project: C310 Thames Tunnel - Plumstead Portal to North Woolwich Portal

Working activities: PP, WSB, NWP portal construction

current values: 15.04.2015 14:13



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	1. following			2. following			3. following			4. following			5. following			6. following		
date	17/9/12	18/09/2012			21/09/2012			02/10/2012			04/10/2012			10/10/2012			16/10/2012		
Point No.	elevation	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		
30040311	85.221	85.221	0	85.220	-1	-1	85.220	1	-1	85.221	1	0	85.220	-2	-1	85.220	0	-2	
30040312																			
30040313																			
30040314																			

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	7. following			8. following			9. following			10. following			11. following			12. following		
date	17/9/12	25/10/2012			31/10/2012			06/11/2012			12/11/2012			20/11/2012			26/11/2012		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.220	0	-2	85.220	1	-1	85.221	0	-1	85.222	1	0	85.223	1	1	85.222	-1	0
30040312																			
30040313																			
30040314																			

Learning Legacy Document

# monitoring table



Joint Venture

project: C310 Thames Tunnel

structure: Extensometer North Woolwich portal

No. of reading	baseline		13. following		14. following		15. following		16. following		17. following		18. following				
date	17/9/12		04/12/2012		11/12/2012		18/12/2012		10/01/2013		16/05/2013		17/05/2013				
Point No.	elevation	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline				
30040311	85.221	85.179	New Baseline	85.180		2	85.178	-3	-1	85.179	1	0	85.075	New Baseline	85.075	0	0
30040312													83.297	Baseline	83.297	0	0
30040313													83.174	Baseline	83.174	0	0
30040314													83.074	Baseline	83.074	0	0

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	19. following			20. following			21. following			22. following			23. following			24. following		
date	17/9/12	20/05/2013			21/05/2013			30/05/2013			04/06/2013			07/06/2013			11/06/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.075	0	0				85.076	0	1	85.076	0	1	85.076	0	1	85.076	1	2
30040312		83.297	0	0				83.298	1	1	83.299	1	2	83.298	-1	1	83.297	0	1
30040313		83.173	-1	-1				83.174	1	1	83.175	1	2	83.175	-1	1	83.175	1	2
30040314					83.074	0	0	destroyed	during excavation										

Learning Legacy Document



# monitoring table



Joint Venture

project: C310 Thames Tunnel

structure: Extensometer North Woolwich portal

No. of reading	baseline	25. following			26. following			27. following			28. following			29. following			30. following		
date	17/9/12	19/06/2013			21/06/2013			24/06/2013			25/06/2013			26/06/2013			27/06/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.077	1	3	85.077	0	3	85.078	1	4	85.079	1	4	85.078	-1	3	85.078	0	3
30040312		83.298	0	1	83.298	0	1	83.299	1	3	83.302	2	5	83.300	-1	4	83.300	0	4
30040313		83.175	0	1	83.175	0	2	83.175	-1	1	83.177	2	3	83.175	-2	2	83.176	1	2
30040314														83.058	new baseline		83.058	0	0

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	31. following			32. following			33. following			34. following			35. following			36. following		
date	17/9/12	28/06/2013			29/06/2013			01/07/2013			02/07/2013			03/07/2013			04/07/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.079	1	4	85.079	0	4				85.079	0	4	85.079	0	4	85.079	0	4
30040312		83.301	1	5	83.302	1	5	83.302	1	6	83.302	0	6	83.302	0	6	83.304	2	7
30040313		83.176	1	3	83.177	1	4	83.177	1	3	83.177	0	3	83.177	0	3	83.177	1	4
30040314		83.058	0	0	83.058	0	1	83.059	1	2	83.059	-1	1	83.059	0	1	83.058	-1	0

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	37. following			38. following			39. following			40. following			41. following			42. following		
date	17/9/12	05/07/2013			06/07/2013			08/07/2013			09/07/2013			10/07/2013			11/07/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.079	0	4	85.078	0	3				85.078	0	3	85.078	0	3	85.078	0	3
30040312		83.305	1	8	83.303	-2	7				83.304	1	7	83.303	-1	6	83.303	0	7
30040313		83.179	1	5	83.178	-1	5	83.178	-1	4	83.176	-2	3	83.177	1	3	83.177	0	3
30040314		83.058	0	0	83.058	0	0	83.058	1	1	83.056	-2	-1	83.054	-2	-3	83.056	1	-2

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	43. following			44. following			45. following			46. following			47. following			48. following		
date	17/9/12	12/07/2013			15/07/2013			16/07/2013			17/07/2013			18/07/2013			19/07/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.077	-1	2				85.078	1	3				85.079	2	5	85.080	1	5
30040312		83.303	0	6				83.303	1	7				83.304	1	8	83.306	1	9
30040313		83.177	0	3	83.176	-1	2	83.178	2	5	83.179	1	6	83.178	-1	5			
30040314		83.054	-1	-3	83.056	2	-1	83.056	0	-1	83.056	-1	-2	83.057	1	-1	83.056	-1	-2

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	49. following			50. following			51. following			52. following			53. following			54. following		
date	17/9/12	20/07/2013			22/07/2013			23/07/2013			24/07/2013			25/07/2013			26/07/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.078	-2	3	85.078	1	4	covered			covered			covered			covered		
30040312		83.304	-2	7	83.306	2	9	covered			covered			covered			covered		
30040313		83.182	3	8	83.183	1	10	83.183	0	9	83.183	0	10	83.183	0	9	83.183	1	10
30040314		83.055	-1	-3	83.057	2	0	83.058	1	1	83.057	-2	-1	83.053	-3	-4	83.055	2	-2

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	55. following			56. following			57. following			58. following			59. following			60. following		
date	17/9/12	29/07/2013			30/07/2013			31/07/2013			01/08/2013			02/08/2013			03/08/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.082	3	7															
30040312		83.304	-2	8															
30040313		83.184	1	10	83.183	-1	9	83.183	1	10	83.184	1	10	83.184	0	11	83.187	3	14
30040314		83.056	1	-1	83.055	-1	-2	83.056	0	-2	83.056	1	-1	83.057	0	-1	83.056	-1	-1

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: Extensometer North Woolwich portal																			
No. of reading	baseline	61. following			62. following			63. following			64. following			65. following			66. following		
date	17/9/12	05/08/2013			06/08/2013			07/08/2013			08/08/2013			09/08/2013			10/08/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.084	2	9			
30040312														83.309	4	12			
30040313		83.187	0	14	83.187	0	13	83.185	-1	12	83.186	1	13	83.187	1	14	83.187	0	14
30040314		83.057	1	0	83.057	0	0	83.058	0	0	83.058	0	1	83.059	1	2	83.058	-2	0

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	67. following			68. following			69. following			70. following			71. following			72. following		
date	17/9/12	12/08/2013			13/08/2013			14/08/2013			15/08/2013			16/08/2013			17/08/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.085	1	10			
30040312														83.313	4	16	83.312	-1	16
30040313		83.188	0	14	83.188	0	14	83.190	3	17	83.188	-2	14	83.188	1	15	83.189	0	15
30040314		83.058	0	1	83.058	0	0	83.057	-1	0	83.060	3	2	83.059	-1	1	83.060	2	3

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	73. following			74. following			75. following			76. following			77. following			78. following		
date	17/9/12	19/08/2013			20/08/2013			21/08/2013			22/08/2013			23/08/2013			27/08/2013		
Point No.	elevation	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline	elevation	deviation from last/ baseline		
30040311	85.221			85.085	0	10										85.086	1	11	
30040312				83.309	-3	12	83.309	0	12	83.308	0	12				83.310	1	13	
30040313		83.188	0	15	83.188	0	15	83.189	1	15	83.189	0	15	83.189	0	15	83.190	2	17
30040314		83.057	-3	0	83.061	4	4	83.061	0	4	83.061	-1	3	83.062	1	4	83.061	-1	3

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: Extensometer North Woolwich portal																			
No. of reading	baseline	79. following			80. following			81. following			82. following			83. following			84. following		
date	17/9/12	28/08/2013			29/08/2013			30/08/2013			31/08/2013			02/09/2013			03/09/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.087	2	12															
30040312		83.309	0	13	83.311	2	14	83.311	0	15				83.312	0	15	83.313	1	16
30040313		83.190	-1	16	83.191	1	17	83.191	0	17	83.189	-1	16	83.190	0	16	83.190	1	17
30040314		83.058	-3	0	83.061	3	4	83.060	-1	2	83.061	1	4	83.063	2	5	83.062	-1	4

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	85. following			86. following			87. following			88. following			89. following			90. following		
date	17/9/12	04/09/2013			05/09/2013			06/09/2013			07/09/2013			09/09/2013			10/09/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312		83.313	0	16	83.312	-1	15	83.312	1	16	83.313	0	16				83.313	0	16
30040313		83.192	1	18	83.191	-1	17	83.193	2	19	83.192	-1	18	83.192	0	18	83.192	0	18
30040314		83.061	-1	4	83.063	2	5	83.062	0	5	83.062	0	4	83.061	-1	4	83.062	1	4

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	91. following			92. following			93. following			94. following			95. following			96. following		
date	17/9/12	11/09/2013			12/09/2013			13/09/2013			14/09/2013			16/09/2013			17/09/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221				85.087	0	13												
30040312		83.314	2	18	83.315	1	18	83.313	-2	17	83.313	0	17				83.312	-2	15
30040313		83.192	0	19	83.192	0	18	83.192	0	18	83.193	1	20	83.193	0	20	83.193	-1	19
30040314		83.063	1	5	83.065	2	7	83.064	-1	6	83.062	-1	5	83.061	-2	3	83.061	0	4

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: Extensometer North Woolwich portal																			
No. of reading	baseline	97. following			98. following			99. following			100. following			101. following			102. following		
date	17/9/12	18/09/2013			19/09/2013			20/09/2013			21/09/2013			23/09/2013			24/09/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.089	1	14			
30040312		83.312	0	15	83.314	2	18	83.313	-1	16				83.313	0	16	83.314	1	17
30040313		83.192	-1	18	83.193	1	19	83.192	0	19	83.194	1	20	83.193	-1	19	83.194	1	20
30040314		83.060	-1	3	83.062	1	4	83.062	0	4	83.062	1	5	83.063	1	5	83.063	0	6

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	103. following			104. following			105. following			106. following			107. following			108. following		
date	17/9/12	25/09/2013			26/09/2013			27/09/2013			28/09/2013			30/09/2013			01/10/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312		83.314	0	17	83.314	0	17	83.314	0	17	83.314	1	18				83.314	0	18
30040313		83.193	0	20	83.194	1	20	83.194	1	21	83.195	0	21	83.193	-2	20	83.194	1	20
30040314		83.061	-3	3	83.061	1	4	83.063	1	5	83.064	1	6	83.060	-4	2	83.060	0	3

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	109. following			110. following			111. following			112. following			113. following			114. following		
date	17/9/12	02/10/2013			03/10/2013			04/10/2013			05/10/2013			07/10/2013			08/10/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221							85.091	2	16									
30040312		83.315	0	18	covered			83.316	1	19	83.315	0	19	83.317	1	20	83.317	0	20
30040313		83.194	0	21	83.195	1	22	83.194	-1	21	83.196	1	22	83.192	-3	19	83.192	0	19
30040314		83.065	4	7	83.062	-2	5	83.064	2	7	83.064	0	7	83.061	-3	4	83.061	0	4

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	115. following			116. following			117. following			118. following			119. following			120. following		
date	17/9/12	09/10/2013			10/10/2013			11/10/2013			12/10/2013			14/10/2013			15/10/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.094	3	19			
30040312		83.316	0	20	83.314	-2	18	83.316	1	19				83.316	1	20	83.315	-1	19
30040313		83.194	2	20	83.194	0	20	83.195	1	21	83.195	0	21	83.195	0	21	83.194	0	21
30040314		83.064	2	6	83.063	0	6	83.065	2	8	83.065	0	8	83.064	-1	6	83.065	1	8

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	121. following			122. following			123. following			124. following			125. following			126. following		
date	17/9/12	16/10/2013			17/10/2013			18/10/2013			19/10/2013			21/10/2013			22/10/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312		83.317	2	21	83.315	-2	19	83.317	2	20	83.315	-2	19	83.316	-1	19	83.316	0	19
30040313		83.194	0	21	83.193	-1	20	83.194	1	21	83.193	-1	20	83.195	1	21	83.195	1	22
30040314		83.065	0	7	83.063	-1	6	83.063	-1	5	83.063	1	6	83.063	0	6	83.062	-1	5

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	127. following			128. following			129. following			130. following			131. following			132. following		
date	17/9/12	23/10/2013			24/10/2013			25/10/2013			29/10/2013			30/10/2013			31/10/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.095	1	20			
30040312		83.315	-1	19	83.315	0	19							83.316	1	20	83.316	-1	19
30040313		83.194	-1	21	83.194	-1	20	83.195	1	21	83.196	1	22	83.194	-2	20	83.195	1	21
30040314		83.065	2	7	83.065	0	7	83.065	0	7	83.064	-1	7	83.064	0	7	83.063	-1	6

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	133. following			134. following			135. following			136. following			137. following			138. following		
date	17/9/12	01/11/2013			02/11/2013			04/11/2013			05/11/2013			06/11/2013			07/11/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221							85.093	-2	18	85.092	-2	17						
30040312								83.316	1	20	83.317	0	20				83.316	-1	20
30040313		83.193	-1	20	83.191	-2	18	83.192	0	18	83.192	0	18	83.193	1	19	83.193	0	20
30040314		83.065	2	8	83.063	-3	5	83.064	1	7	83.063	-1	6	83.064	1	6	83.063	-1	6

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	139. following			140. following			141. following			142. following			143. following			144. following		
date	17/9/12	08/11/2013			09/11/2013			11/11/2013			12/11/2013			13/11/2013			14/11/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312		83.317	1	21	83.317	-1	20	83.318	1	21	83.319	1	22						
30040313		83.194	1	20	83.193	-1	20	83.194	0	20	83.194	0	21	83.195	1	21	83.194	0	21
30040314		83.064	1	7	83.063	-1	5	83.063	0	5	83.065	2	7	83.065	0	8	83.064	-1	6

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: Extensometer North Woolwich portal																			
No. of reading	baseline	145. following			146. following			147. following			148. following			149. following			150. following		
date	17/9/12	15/11/2013			18/11/2013			19/11/2013			20/11/2013			21/11/2013			22/11/2013		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312																			
30040313		83.194	0	21	83.195	0	21	83.194	-1	20	83.193	-1	20	83.195	2	22	83.194	-1	21
30040314		83.063	0	6	83.062	-2	4	83.065	3	7	83.064	-1	6	83.065	1	8	83.064	-1	7

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	151. following			152. following			153. following			154. following			155. following			156. following		
date	17/9/12	05/12/2013			12/12/2013			19/12/2013			13/01/2014			20/01/2014			21/01/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221							85.091	-1	16									
30040312		83.318	-1	21	83.316	-1	20	83.316	0	19	83.320	4	23	83.348			83.371		23
30040313		83.194	0	20	83.194	0	21	83.195	1	21	83.199	4	25	83.225			83.249		25
30040314		83.061	-3	4	83.060	-2	2	83.061	1	3	83.067	6	10	83.109			83.118		10

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	157. following			158. following			159. following			160. following			161. following			162. following		
date	17/9/12	27/01/2014			29/01/2014			30/01/2014			31/01/2014			01/02/2014			02/02/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312		83.371	0	23															
30040313		83.249	0	24															
30040314		83.119	1	11	83.120	1	12	83.120	0	11	83.118	-2	9	83.121	3	13	83.118	-3	9

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	163. following			164. following			165. following			166. following			167. following			168. following		
date	17/9/12	03/02/2014			04/02/2014			05/02/2014			06/02/2014			07/02/2014			08/02/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312											no access	excavation area							
30040313											no access	excavation area							
30040314		83.119	1	10	83.119	0	10	83.119	0	10	83.120	1	11	83.117	-3	9	83.118	1	9

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	169. following			170. following			171. following			172. following			173. following			174. following		
date	17/9/12	10/02/2014			11/02/2014			12/02/2014			13/02/2014			14/02/2014			18/02/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312																			
30040313																			
30040314		83.119	2	11	83.119	0	11	83.120	1	11	83.120	0	12	83.120	0	12	83.122	1	13

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	175. following			176. following			177. following			178. following			179. following			180. following		
date	17/9/12	19/02/2014			19/02/2014			20/02/2014			21/02/2014			22/02/2014			24/02/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221										New Baseline			85.148					
30040312					83.371	0	23	no access	excavation area					83.370	-1	22			
30040313					83.250	1	25	no access	excavation area		83.249	-1	25	83.249	0	25	83.249	0	25
30040314		83.120	-2	11	83.120	0	11	83.121	1	13	83.119	-2	11	83.120	1	11	83.120	0	12

Learning Legacy Document

# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: Extensometer North Woolwich portal																			
No. of reading	baseline	181. following			182. following			183. following			184. following			185. following			186. following		
date	17/9/12	25/02/2014			26/02/2014			27/02/2014			28/02/2014			01/03/2014			03/03/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221							no access			no access			85.147		-2	no access		
30040312								no access	excavation area		no access	excavation area		83.371	1	24	no access	excavation area	
30040313		83.249	-1	24	83.249	1	25	no access	excavation area		no access	excavation area		83.250	1	26	no access	excavation area	
30040314		83.120	0	12	83.121	1	13	83.119	-2	11	83.120	1	12	83.118	-2	10	83.119	1	10

Learning Legacy Document



# monitoring table



project: **C310 Thames Tunnel**

Joint Venture

structure: <b>Extensometer North Woolwich portal</b>																			
No. of reading	baseline	187. following			188. following			189. following			190. following			191. following			192. following		
date	17/9/12	04/03/2014			05/03/2014			06/03/2014			07/03/2014			08/03/2014			10/03/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	85.148	2	0	no access														
30040312		83.371	0	23	no access	excavation area		83.372	1	24	83.371	0	24	83.371	0	24	83.372	1	25
30040313		83.249	-2	24	83.250	1	25	83.250	0	25	83.249	0	25	83.250	1	25	83.251	1	26
30040314		83.120	1	12	83.121	1	12	83.120	-1	11	83.121	2	13	83.121	0	12	83.121	0	13

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	193. following			194. following			195. following			196. following			197. following			198. following		
date	17/9/12	11/03/2014			12/03/2014			13/03/2014			14/03/2014			15/03/2014			17/03/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.148	0	0			
30040312		83.372	-1	24	83.372	1	25							83.372	0	25	83.372	0	25
30040313		83.250	-1	25	83.250	0	26	83.251	0	26	83.250	-1	25	83.250	0	25	83.251	1	26
30040314		83.121	0	12	83.122	2	14	83.122	-1	13	83.122	1	14	83.121	-1	12	83.121	0	12

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	199. following			200. following			201. following			202. following			203. following			204. following		
date	17/9/12	18/03/2014			19/03/2014			20/03/2014			21/03/2014			24/03/2014			25/03/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221																		
30040312		83.372	0	25							83.372	0	24				83.372	0	25
30040313		83.250	-1	25	83.251	1	26	83.251	0	26	83.249	-2	24	83.250	1	25	83.251	1	26
30040314		83.121	0	12	83.122	1	13	83.121	-1	12	83.120	-1	11	83.121	1	12	83.122	1	13

Learning Legacy Document



# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	205. following			206. following			207. following			208. following			209. following			210. following		
date	17/9/12	26/03/2014			28/03/2014			31/03/2014			07/04/2014			10/04/2014			14/04/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221													85.148	0	0			
30040312		83.372	0	25										83.372	0	25	83.370	-2	23
30040313		83.251	1	27	83.251	0	27	83.251	0	27	83.249	-3	24	83.250	1	25	83.250	0	26
30040314		83.121	-1	12	83.123	2	14	83.123	1	15	83.119	-4	11	83.121	2	12	83.121	0	12

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	211. following			212. following			213. following			214. following			215. following			216. following		
date	17/9/12	24/04/2014			07/05/2014			14/05/2014			21/05/2014			29/05/2014			04/06/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221				85.148	0	-1	85.148	0	0	85.148	0	0				85.148	0	0
30040312					83.368	-2	20	83.369	2	22	83.370	1	23				83.371	1	23
30040313		83.250	-1	25	83.248	-1	24	83.249	1	25	83.248	-1	24	83.249	1	25	83.249	0	25
30040314		83.120	-1	12	83.119	-1	11	83.121	2	13	83.120	-1	11	83.120	0	11	83.118	-1	10

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	217. following			218. following			219. following			220. following			221. following			222. following		
date	17/9/12	11/06/2014			18/06/2014			27/06/2014			03/07/2014			09/07/2014			16/07/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	destroyed			decomm.			decomm.			decomm.			decomm.			decomm.		
30040312		83.373	2	26	83.372	-1	24	83.370	-2	22	83.370	0	23	83.372	2	24	83.371	0	24
30040313		83.248	-1	24	83.248	0	24	83.246	-3	21	83.247	1	22	83.248	1	24	Covered		
30040314		83.119	0	10	83.119	0	10	83.117	-2	9	83.118	0	9	83.119	2	11	83.119	-1	10

Learning Legacy Document



# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	223. following			224. following			225. following			226. following			227. following			228. following		
date	17/9/12	23/07/2014			30/07/2014			07/08/2014			14/08/2014			21/08/2014			28/08/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	decomm.			decomm.			decomm.			decomm.			decomm.			decomm.		
30040312		83.373	2	26	83.378	4	30	83.378	0	30	destroyed			destroyed			destroyed		
30040313		Covered			83.249	0	24	83.247	-2	23				83.246	-1	22	83.246	0	21
30040314		83.121	2	12	83.120	-1	11	83.120	0	11	83.119	0	11	83.119	-1	10	83.118	-1	9

Learning Legacy Document

# monitoring table



Joint Venture

project: **C310 Thames Tunnel**

structure: **Extensometer North Woolwich portal**

No. of reading	baseline	229. following			230. following			231. following			232. following			233. following			234. following		
date	17/9/12	04/09/2014			10/09/2014			18/09/2014			23/09/2014			02/10/2014			08/10/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	decomm.			decomm.			decomm.			decomm.			decomm.			decomm.		
30040312		destroyed			destroyed			destroyed			destroyed			destroyed			destroyed		
30040313		83.246	0	22	83.246	0	22	83.243	-3	19	83.242	-1	17	83.242	0	18	covered		
30040314		83.120	2	11	83.122	2	13	83.119	-3	10	83.115	-3	7	83.115	0	6	83.117	2	8

Learning Legacy Document

# monitoring table



Joint Venture

project: C310 Thames Tunnel

structure: Extensometer North Woolwich portal

No. of reading	baseline	235. following			236. following			237. following			238. following			239. following			240. following		
date	17/9/12	15/10/2014			22/10/2014			29/10/2014			04/11/2014			11/11/2014			18/11/2014		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	decomm.			decomm.			decomm.			decomm.			decomm.			decomm.		
30040312		destroyed			destroyed			destroyed			destroyed			destroyed			destroyed		
30040313		covered			covered			covered			covered			covered			83.244	2	19
30040314		83.116	0	8	83.116	0	8	83.116	0	7	83.117	2	9	83.118	0	9	83.116	-1	8

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# monitoring table



project: C310 Thames Tunnel

Joint Venture

No. of reading	baseline	241. following			242. following			243. following			244. following			245. following			246. following		
date	17/9/12	25/11/2014			02/12/2014			09/12/2014			16/12/2014			06/01/2015			13/01/2015		
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		deviation from last/ baseline		elevation	deviation from last/ baseline		
30040311	85.221	decomm.			decomm.			decomm.			decomm.			decomm.			decomm.		
30040312		destroyed			destroyed			destroyed			destroyed			destroyed			destroyed		
30040313		83.243	-1	19	83.244	1	19	destroyed			destroyed			destroyed			destroyed		
30040314		83.117	1	8	83.117	0	8	83.116	0	8	83.116	0	8	83.115	-1	7	83.117	2	8

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# monitoring table



project: **C310 Thames Tunnel**

**Joint Venture**

No. of reading	baseline	247. following			248. following			249. following			250. following			251. following			252. following		
date	17/9/12	21/01/2015			28/01/2015			05/02/2015			12/02/2015								
Point No.	elevation	elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline		elevation	deviation from last/ baseline	
30040311	85.221	decomm.			decomm.			decomm.			decomm.								
30040312		destroyed			destroyed			destroyed			destroyed								
30040313		destroyed			destroyed			destroyed			destroyed								
30040314		83.115	-2	6	83.117	2	9	83.117	0	9	destroyed								

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