

Thames Water Utilities Ltd
Developer Services
Asset Development



Second Floor West, Clearwater Court, Vastern Road, Reading RG1 8DB

Potable Water Capacity
Flow & Pressure Investigation

Location: Tybalds Estate, London WC1N 3JP

DATE	ISSUE	REFERENCE	AUTHOR	APPROVED
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CONTENTS

1. Introduction.....	3
2. Existing Network.....	4
3. Existing Demand Type	4
4. Domestic Demand.....	4
5. Test Location.....	4
6. Pressure Logger Locations.....	5
7. Induced Flows	5
8. Investigation Results	5
9. Conclusion.....	6
10. Budget Costs For Reinforcement.....	6
Appendix	7

1. INTRODUCTION

As per your request received 10 February 2016, this report is to evaluate the results of the flow and pressure test and to ascertain the availability of capacity within the existing local mains network and its ability to supply the proposed new domestic peak demand profile for the Tybalds Estate regeneration which will have an additional 93 residential dwellings made up of flats and houses with the refurbishment of existing properties.

The investigation will also determine whether or not any enhancement to the existing network is necessary to supply your requirement, while maintaining existing flows and pressures to our present customers.

Should your development proposal change, this report would become invalid and a further test would be required. If other developments are completed within the Water Pressure Zone before your development and depending on their size and location, this may also necessitate the test to be retaken. The findings of this report are valid for 18 months.

2. EXISTING NETWORK

The local mains network is hydraulically dominated by the Maiden Lane Reservoir to the north and is supplied by the Tunnel Water Ring Main.

The development lies within a larger pressure managed area between Tottenham Court Road and the River Thames. The distribution mains networks in the vicinity of the site is supplied through a number of District Metered inlets and around the existing estate are a mixture of 180mm HPPE and 125mm HPPE mains.

3. EXISTING DEMAND TYPE

The local demand type is a mix residential and residential amenities and a hospital which have an overall peak morning water demand profile from the distribution mains network.

4. DOMESTIC DEMAND

The redevelopment of the site consists of refurbishment of existing dwellings and the construction of an additional 93 residential flats and houses.

Based on empirical and historical data for this type of use, the additional properties will have a maximum daily consumption 27,580 litres. By applying diversity factors, this equates to a morning peak demand profile of 1.7 l/s. However, with storage proposed within blocks to supply both refurbished and new flats and with houses directly mains fed, this reduces to 1.4 l/s peak refill rate.

[Include any other flow rates advised/to be tested]

5. TEST LOCATION

It was essential to select a suitable washout to induce your flow requirements on our existing network. The following three criteria have determined the location of this washout:

- a) must be located on the main proposed to supply your domestic demand;
- b) must be closest to the point of entry of your connection; and
- c) located in such a manner that when the calibrated flow gauge is operated to induce the required flow rates, the discharged water will not cause flooding of existing properties.

The washout selected was on the 125mm diameter main in Orde Hall Street, London WC1N 3JW. Please refer to appendix for plan of the test location.

6. PRESSURE LOGGER LOCATIONS

Pressure Logger locations have been selected to comprehensively monitor the impact of the morning domestic peak demand profile on the existing mains network. Please refer to appendix for pressure logger location plans.

LOGGER 1. 125mm MAIN BLEMUNDSBURY, DOMBEY STREET, LONDON, WC1N 3PF
LOGGER 2. 180mm MAIN 27, GREAT ORMOND STREET, LONDON, WC1N 3JB
LOGGER 3. 180mm MAIN RICHBELL, BOSWELL STREET, LONDON, WC1N 3PZ
LOGGER 4. 90mm MAIN 52, LAMBS CONDUIT STREET, LONDON, WC1N 3LL
LOGGER 5. 180mm MAIN 126, SOUTHAMPTON ROW, LONDON, WC1B 5AD

See Appendix for the location of the site, test and pressure loggers.

7. INDUCED FLOWS

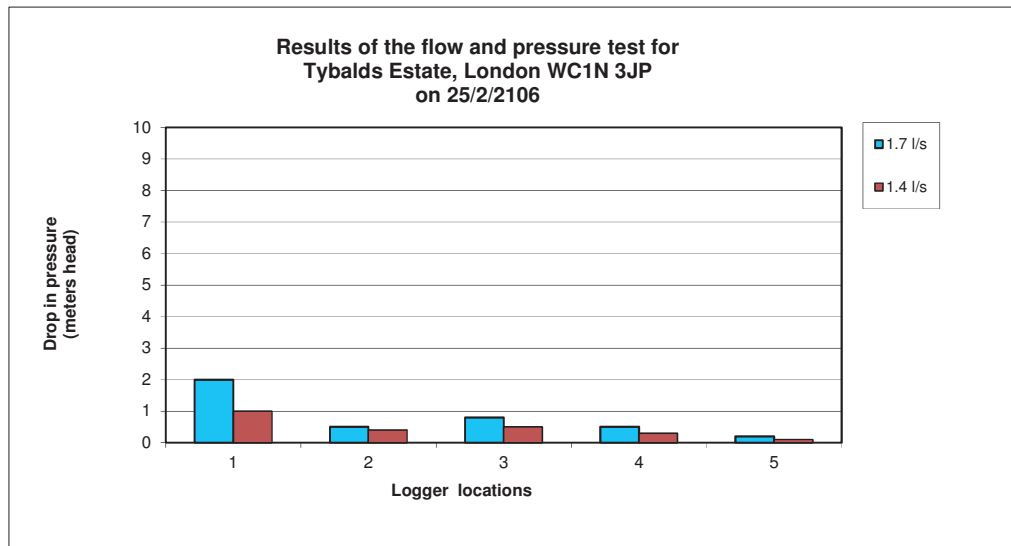
For the domestic demand, flow rates of 1.7 and 1.4 l/s were induced for 3 minute periods.

The flow rate was induced during the weekday peak morning demand period, Monday to Friday 07:00 - 08:30 inclusive. The pressure loggers monitoring the investigation will show a significant drop in pressure, if the network has insufficient spare capacity to supply the new peak demand.

8. INVESTIGATION RESULTS

The investigation was undertaken on 25 February 2016. All five pressure loggers provided the field data for the duration of the investigation. The drops in pressure recorded during the test are represented in the table and graph below.

Flow rates	1.7 l/s	1.4 l/s
Logger location 1	2	1
Logger location 2	0.5	0.4
Logger location 3	0.8	0.5
Logger location 4	0.5	0.3
Logger location 5	0.2	0.1



These are within acceptable levels and show that the mains network is capable of supplying your proposed development and no offsite mains reinforcement is required.

The result of the seven day pressure logger showed the minimum pressure available at the site was 29.50 meters head, (2.9 Bar). This occurs between 9:00-9:30am.

It is expected that on completion and occupation of the redevelopment, there would be a further reduction in pressure of approximately 1-2 meters head as shown in the flow test.

Please note that irrespective of the pressure which currently exists within the local mains network, Thames Water's minimum level of service is 10 metres head of pressure at the boundary stop valve.

See Appendix for the results graph of the 7 day pressure logger.

9. CONCLUSION

The result of the investigation has established the following: The network has sufficient spare capacity in the local distribution mains network to supply your domestic peak demand profile for the proposed refurbishment and additional 93 residential units at Tybalds Estate WC1N 3JP.

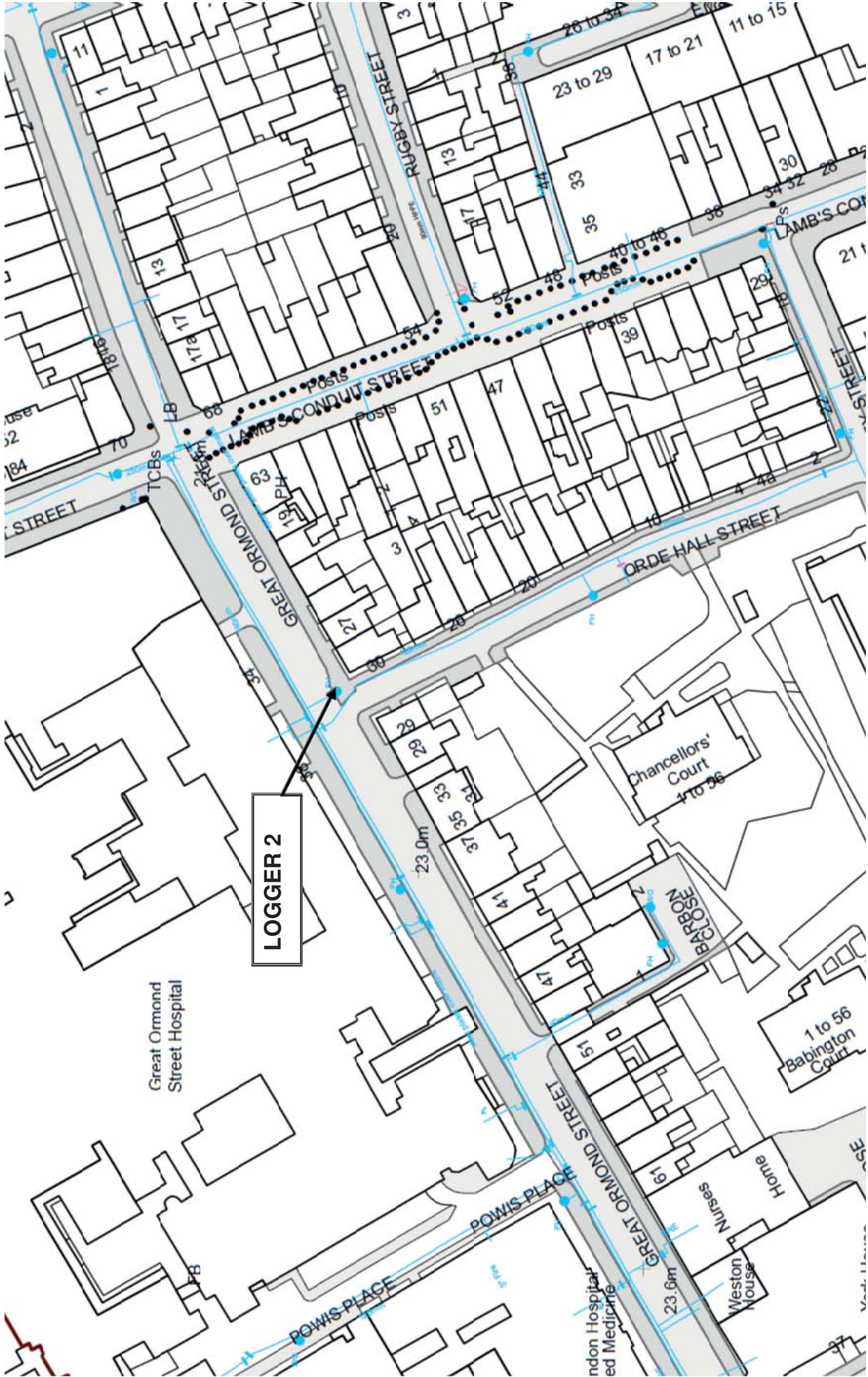
10. BUDGET COSTS FOR REINFORCEMENT

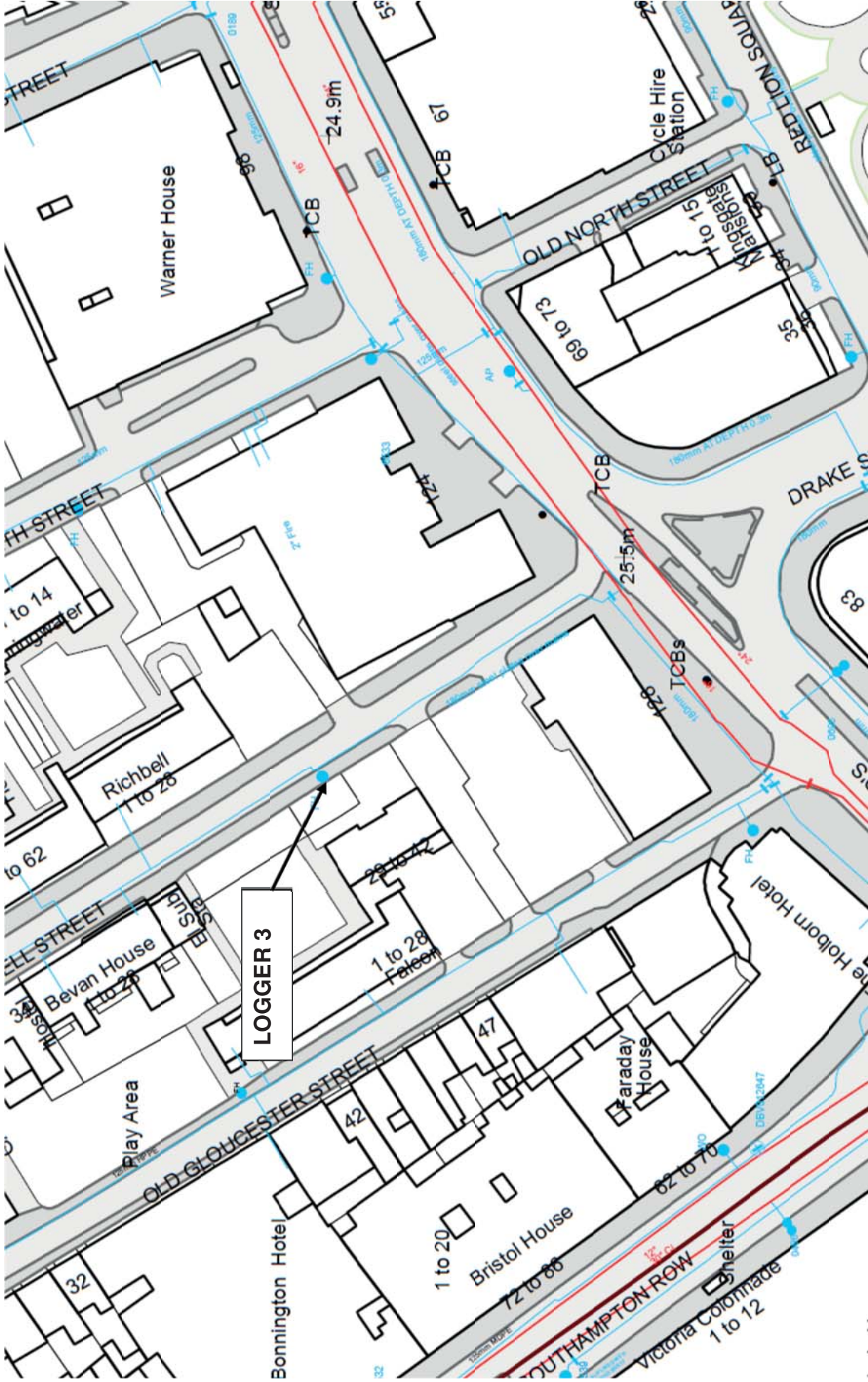
APPENDIX

SITE LOCATION

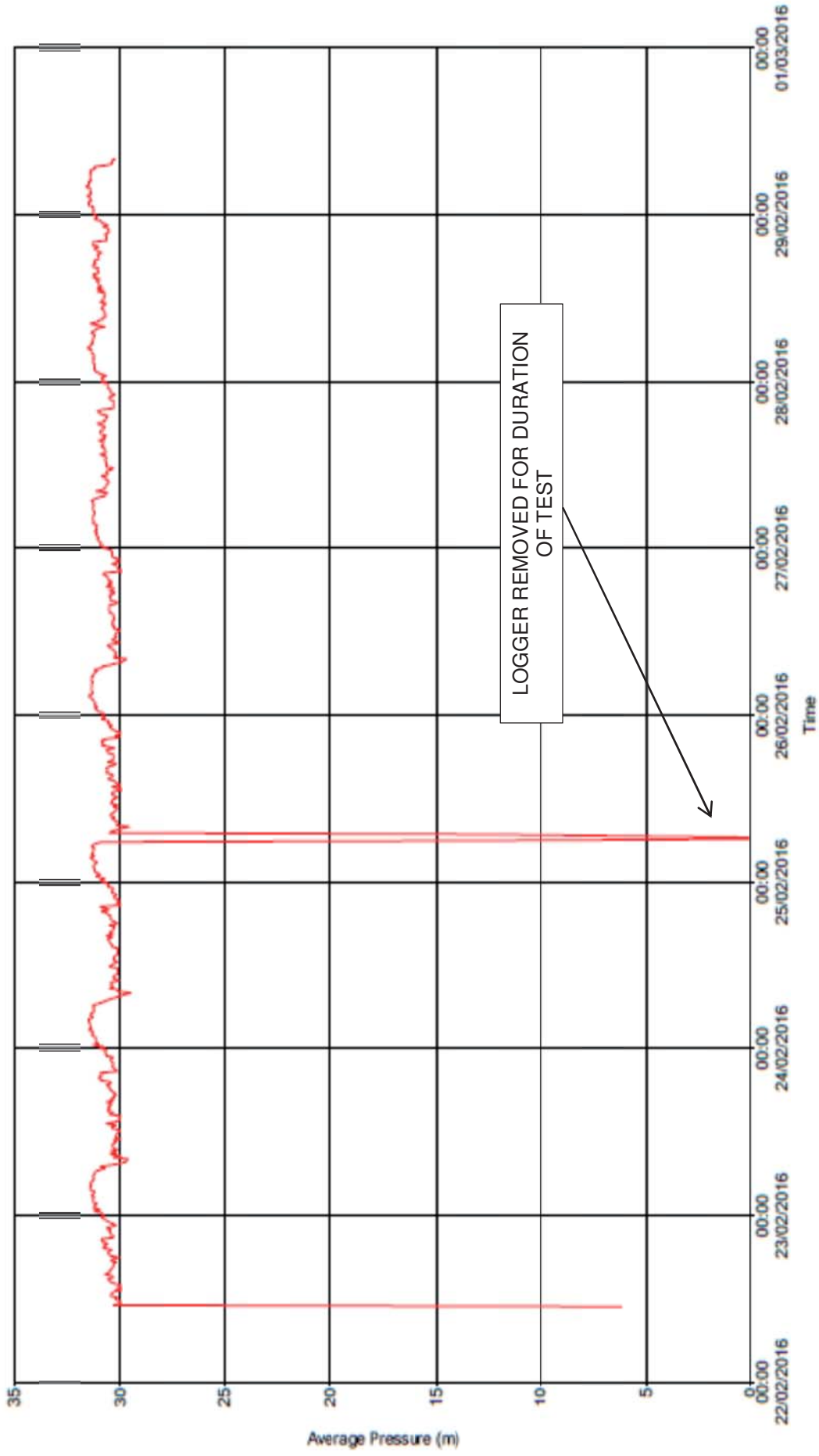








7 DAY PRESSURE TREND FOR TYBALDS ESTATE, LONDON WC1N 3JP
MINIMUM PRESSURE 29.50 M HEAD
MAXIMUM PRESSURE 31.62 M HEAD



PLEASE NOTE, THAMES WATER'S MINIMUM LEVEL OF SERVICE IS 10M HEAD AT THE PROPERTY BOUNDARY VALVE