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LEGIONELLA RISK ASSESSMENT

Vickers Business Park

RA Report:

Prepared on behalf of:
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Vickers Business Centre

Surveyed/Prepared by:

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Tamworth
Staffordshire
B77 5DQ

Date site assessed: 25 April 2017
Review by: 25 April 2019

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

RISK ASSESSMENT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

This is to certify that this Risk Assessment has been carried out in accordance with L8 (2013) Approved Code of Practice 'Legionnaires' Disease - The control of legionella bacteria in water systems', under the Health & Safety at Work etc. Act 1974 by a City and Guilds qualified risk assessor.

FOR WATER ENVIRONMENTAL TREATMENT LTD

NAME: Rob Parkinson

SIGNATURE:

Water Environmental Treatment Limited
PFG House, Claymore, Tame Valley Industrial Estate,
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Tel: 01827 288810 Fax: 01827 261390 www.wet-services.com
Directors: E. Parkinson, G.Parkinson | Registration No. 2685141

LEGIONELLA RISK ASSESSMENT

Vickers Business Park

This is a Legionella specific risk assessment as recommended in the Approved Code of Practice and Guidance for the control of Legionella bacteria in water systems referred to as the ACoP L8.

The ACoP L8 is a HSE (Health and Safety Executive) document with special legal status: 'If you are prosecuted for breach of health and safety law and it is proved you did not follow the relevant provisions of the Code, you will need to show you have complied in some other way or a court will find you at fault.'

Only water systems as identified in this report were assessed. The water systems identified which may have health related risks associated with Legionella were assessed in this report. The report provides information detailing identified risks and indicates recommendations for reducing risks. The Responsible person should implement recommendations to reduce the risks.

Site Description

Vickers Business Park is a is a site of commercial properties in Basingstoke

- There are approximately 115 members of staff over the 4 main buildings with a varied susceptibility to Legionella.
- The site is supplied by mains and tanked cold water
- The mains water enters via stop taps and meters located in the grass verge and woodland area outside. There are local stop taps located in each building.
- Cold water storage tanks are located in Century House, LADA and Vickers House.
- CWSTs feed domestic hot water and tanked cold water. CWST 3 feeds drinking water outlets.
- The site has hot and mains / tanked cold water services in a total of 42 rooms including; kitchens, toilets, engineering, and plant rooms..
- Hot water is provided by 2 calorifiers and 18 point of use water heaters.

Executive summary

- The site has a Legionella log book and water monitoring regime in place.
- Multiple deadlegs located throughout the site. Remedial action required to remove deadlegs.
- Cold water storage tanks 1 & 2 require some remedial actions to bring up to code.
- Century House site has an intermittent discolouration to the water supply.
- Hot water temperatures were recorded out of range in Century House, adjust and maintain hot water temperatures between 50 -60ºC.
- No backflow protection fitted to boiler feeds, F&E tanks, bib taps, and site machinery. Remedial action required to install non return valves.
- Please refer to sections 3.1, 3.2 & 3.3 for all findings and recommendations.

Central heating water system is not covered by this risk assessment. Follow manufacturer's maintenance instruction / schedules with regard to central heating equipment.

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SECTION 1

Lines of Communication/ Responsible Persons

Water Environmental Treatment Limited
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SECTION 1

LINES OF COMMUNICATION/ RESPONSIBLE PERSONS

SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

Tel: 01256 869 814

Overall responsible person: The Person with overall responsibility under the Health and Safety at work act for all safety matters within these premises.

Name: Alan J Saitch

Location: Vickers Business Park

Tel. number: 01256 869 814

Principal contact: The person responsible for implementing findings of the legionellosis risk assessment and the written control scheme.

Name: Alan J Saitch

Location: Vickers Business Park

Tel. number: 01256 869 814

Operational Contact(s): The person(s), Department(s) and/or company(s) responsible for the maintenance and safe operation of the hot and cold water systems.

Responsibility	Site contact / Company Name	Line of communication
Operation	Vickers Business Centre	John S
Maintenance	Vickers Business Centre	John S
Water Treatment	Water Environmental Treatment	01827 288810
Monitoring	Vickers Business Centre	John S
Cleaning and disinfection	Water Environmental Treatment	01827 288810
Legionella Positive	Vickers Business Centre	John S

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SECTION 2

Overall Risk and Executive Summary

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2.1 - OVERALL RISK RATING

From the information gathered during the Risk Assessment Survey, it is concluded that the risk of bacterial contamination, particularly of the Legionella species is considered to be:

MEDIUM

Total Risk Assessment Score	118

Numerical Value - Total	Overall Risk Assessment Rating
70 - 116	LOW
117 - 163	MEDIUM
164 - 220	HIGH

SYSTEM	COMPLIANCE	
	Rate	Scored
A. FORMATION OF AEROSOL/DROPLETS	30	18
B. WATER CONDITION	30	13
C. COLD WATER TEMPERATURE CONDITIONS AND	30	18
D. HOT AND BLENDED WATER TEMPERATURE CONDITIONS		
E. WATER TURNOVER	30	18
F. SUSCEPTIBILITY OF EXPOSED POPULATION	30	18
G. POPULATION DENSITY OF EXPOSED PERSONS	30	18
H. SYSTEM MANAGEMENT	30	15
I. LOG BOOK	10	0
OVERALL	**220**	**118**

The overall risk rating for each source must be evaluated in conjunction with other influences observed during the course of the survey and with consideration for the factors highlighted in ACoP L8.

i.e. system breakdowns, abnormal operations, commissioning and other unusual circumstances.

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2.3 - METHOD OF RISK ASSESSMENT

The method of risk assessment takes account of the principle parameters, which govern the risk associated with each water source in the building. Selective and planned water sampling may also be carried out in order to confirm absence of Legionella. The following assessment parameters and associated risk factors have been developed in order to derive a numerical risk value and overall risk rating:

	Risk Parameter	Risk Rating	Numerical Value
A)	**Formation of Droplets**		
	Still Water	LOW	10
	Droplets	MEDIUM	20
	Aerosol	HIGH	30
B)	**Water Condition**		
	Chemical Regime	LOW	10
	Clean	LOW	15
	Light Contamination	MEDIUM	20
	Moderate Contaminated	MEDIUM	25
	Heavily Contaminated	HIGH	30
C/D)	**Water Temperature**		
	Hot and Cold Temperatures		
	20 deg C and below	LOW	10
	20.1 deg C - 25.4 deg C	MEDIUM	20
	25.5 deg C - 45.4 deg C	HIGH	30
	45.5 deg C - 49.9 deg C	MEDIUM	20
	50 deg C and above	LOW	10
	Mixed Temperatures		
	Recommended range and pre-TMV hot at 50°C and above	MEDIUM	10
	Mixed &/or pre-TMV hot outside the recommended range	HIGH	20
E)	**Turnover Water**		
	Stagnant	HIGH	30
	Low Turnover	MEDIUM	20
	Moderate Turnover	MEDIUM	15
	High Turnover	LOW	10
F)	**Susceptibility of Exposed Persons**		
	Average Population	MEDIUM	20
	Susceptible Population	HIGH	30
G)	**Population Density of Exposed Persons**		
	Low Density	LOW	10
	Medium Density	MEDIUM	20
	High Density	HIGH	30
H)	**System Management**		
	Monitoring in Place	LOW	0 and minus 20% overall
	Partial Monitoring in Place	MEDIUM	15 and minus 10% overall
	Absent	HIGH	30
I)	**Risk Assessment / Log book**		
	In place	LOW	0
	Not in place	HIGH	10

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SECTION 3

Recommendations and Survey Information

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3.0 RECOMMENDATIONS

3.1 Hot and Cold Water Monitoring Recommendations

Item Ref	Findings	Risk	Recommended Action	Rating	Managed	Frequency	Action Completed
1	Infrequently used outlets on site including bib taps. Please refer to Section 8, Photo 8	Water may stagnate in the pipe work providing an environment for bacterial growth which may contaminate the mains supply.	Develop and log a flushing regime where all infrequently used outlets are flushed for 2 minutes on a weekly basis.	MEDIUM	YES	Weekly	Continue with monitoring
2	Hot and Cold sentinel outlets on site require monitoring.	Bacteria can readily multiply in water systems that are within a temperature range of between 20ºC and 50ºC, however should temperatures exceed 60ºC scalding may occur.	Check and record hot water temperatures at sentinel outlets or at input to TMVs on a sentinel basis. Temperatures should be between 50ºC - 55ºC. The outlet from a TMV must not exceed 43ºC. Carry out and log remedial action if temperatures outside of recommended range.	MEDIUM	YES	Monthly	Continue with monitoring
3	Remaining Hot and Cold outlets require monitoring.	Bacteria can readily multiply in water systems that are within a temperature range of between 20ºC and 50ºC, however should temperatures exceed 60ºC scalding may occur.	Check and record hot, cold and mains water temperatures at representative number of outlets on a rotational basis covering all outlets on site over a year. Cold water temperatures should not exceed 20ºC and hot water temperature should be in excess of 50ºC	MEDIUM	YES	Monthly	Continue with monitoring
4	Outlets showed signs of scale build up. Please refer to Section 8, Photo 35	Scale provides a growth medium for the proliferation of bacteria which may contaminate the water supply.	Monitor and log levels of scale and where necessary implement de-scaling and/ or replace outlets	LOW	NO	Monthly	

3.0 RECOMMENDATIONS

3.1 Hot and Cold Water Monitoring Recommendations

Item Ref	Findings	Risk	Recommended Action	Rating	Managed	Frequency	Action Completed
5	The site has water heaters.	Bacteria can readily multiply in water systems that are within a temperature range of between 20ºC and 50ºC, however should temperatures exceed 60ºC scalding may occur.	**Monthly** check and record operating flow temperatures from water heaters (integral cold water storage or unvented types). All temperatures should be above 50ºC, carry out and log remedial action if below. **6 Monthly** inspect water heater for any defects, carry out and log remedial action if required.	MEDIUM	YES	Monthly 6 Monthly	Continue with monitoring
6	The site has calorifiers. Please refer to Section 8, Photo's 31 & 32	Regular monitoring and maintenance is required on calorifiers as sediment organic and mineral deposits which support bacterial growth, including legionella collect at the base of calorifiers which may be distributed throughout the water system and colonise its periphery.	Implement and log monitoring regime: **Monthly** ensure temperatures at the flow and return are at least 60ºC and 50ºC respectively. **Annually** drain off sludge using drain tap, inspect internals for scale and sludge and clean/ disinfect where necessary.	MEDIUM	YES	Monthly Annually	Continue with monitoring
7	Outlets with integrated thermostatic mixing vale in Millennium Disabled toilet.	The outlet temperature of the TMV should not exceed 43ºC falling within temperatures favourable for bacteria to proliferate and therefore if the TMV is not correctly maintained bacteria will have a nutrient rich environment. Regular monitoring and maintenance regime must be implemented and logged at least annually. The cold water failsafe should be tested and the strainers cleaned/ replaced.	Implement and log monitoring regime: **Monthly** check hot water inlet temperatures are greater than 50ºC, cold water inlet temperatures are less than 20ºC and blended outlet temperatures are within appropriate usage range (please see section 3.5 for guidance) **Annually** TMV maintenance regime where the cold water failsafe is checked, the strainers are cleaned/replaced.	MEDIUM	NO	Monthly Annually	

3.0 RECOMMENDATIONS

3.1 Hot and Cold Water Monitoring Recommendations

Item Ref	Findings	Risk	Recommended Action	Rating	Managed	Frequency	Action Completed
8	Outlets require appropriate labelling.	All outlets should be labelled to identify; drinking water, non drinking water and hot temperatures	Fit/ replace appropriate labels and log remedial action.	LOW	YES	Six monthly	Continue with monitoring
9	The site has a non potable cold water storage tank (CWST). Please refer to Section 8, Photo's 1 - 4	All CWSTs should be monitored regularly to ensure conditions for bacterial proliferation are not present and stored water does not become contaminated.	Implement and log annual monitoring of inlet and stored water temperatures, visual inspections of CWST and clean and disinfect where necessary.	HIGH	YES	Annually	Continue with monitoring

3.0 RECOMMENDATIONS

3.2 Remedial Recommendations

Priority Key: 1 - Immediate Threat to Health - requires immediate remedial action
2 - Legal Requirement / Potential Threat to Health - Requires remedial action within 3 months
3 - Legal Requirement / Potential Threat to Health - Requires remedial action within 6 months
4 - Best Practice Guidelines / Monitoring Guidelines - Continue / Implement & Inspect within 12 months

Item Ref	Findings	Risk	Recommended Action	Rating	Task Priority	Action Completed
1	Hot water temperatures were recorded below 50ºC in Century House.	Bacteria can readily multiply in water systems that are within a temperature range of between 20ºC and 50ºC.	Raise temperature to between 50ºC - 60ºC and log remedial action.	HIGH	2	
2	Deadlegs on site. Please refer to Section 8, Photo's 12 - 29	Deadlegs create areas of stagnation where bacteria may proliferate and contaminate the peripheral pipe work.	Cut pipe work back to source and log details.	HIGH	2	
3	Century House site has an intermittent discolouration to the water supply.	Contamination to the water supply may provide a nutrient rich harbour for microbiological growth.	Further investigation is needed to establish the cause and potential remedial action may be required. All remedial action should be logged.	HIGH	2	
4	Cold water storage tank 3 has 2 outlets, one feeding a redundant calorifier creating deadlegs in the system. Please refer to Section 8, Photo's 7 & 11	Deadlegs create areas of stagnation where bacteria may proliferate and contaminate the peripheral pipe work.	Cut redundant pipe work back to source and log details.	HIGH	2	
5	The cold water storage tank 2 (CWST) has a loose lid. Please refer to Section 8, Photo 4	An unsecure lid may allow insect and vermin ingress subsequently contaminating stored water.	Secure and fasten existing lid to tank and log details of all remedial action carried out.	HIGH	3	

3.0 RECOMMENDATIONS

3.2 Remedial Recommendations

Item Ref	Findings	Risk	Recommended Action	Rating	Task Priority	Action Completed
6	Cold water storage tank 2 (CWST) is poorly insulated. Please refer to Section 8, Photo 4	All CWSTs should be thermally insulated to prevent stored water temperatures rising above 20°C and into the bacterial proliferation zone.	Insulate CWST. Log all details of work and monitoring carried out.	HIGH	3	
7	Cold water storage tank 2 has the inlet and outlets on the same side Please refer to Section 8, Photo 4	Positioning the inlet and outlet closely together or on the same side does not allow good cross flow and creates pockets of stagnation where bacteria may proliferate.	Fit internal sparge pipe and log details of remedial action.	HIGH	2	
8	Access to cold water storage tank 2 (CWST) is difficult and intrusive for monitoring. Please refer to Section 8, Photo 4	All cold water storage tanks should be in a cool area with adequate access for appropriate monitoring. The CWST should be inspected visually, internally and externally and cleaned and disinfected where necessary.	Improve access and implement appropriate monitoring. All remedial action must be logged.	MEDIUM	3	
9	Cold water storage tank's 1 & 2 (CWST) have open vents from the calorifier. Please refer to Section 8, Photo 2 & 4	Calorifiers should not vent to a CWST as if the passes the stored cold water temperatures may rise into the bacterial proliferation zone.	Re-route open vent to a tundish. All details of remedial action must be logged.	MEDIUM	3	
10	No warning pipe fitted to cold water storage tank 1 (CWST) Please refer to Section 8, Photo 2	All CWSTs over a capacity of 1001 litres must have a warning pipe discharging to a conspicuous location to give an alert that water has reached a predetermined level and may overflow.	Install screened warning pipe and route pipe work to a location visible so that if levels rise warning is given to prevent the CWST overflowing.	MEDIUM	2	
11	No backflow protection on multiple bib taps and feeds to machinery in Lada.	Sub category 1 water may siphon and contaminate the mains supply.	Fit double non return valve and log details of remedial action.	MEDIUM	3	

3.0 RECOMMENDATIONS

3.2 Remedial Recommendations

Item Ref	Findings	Risk	Recommended Action	Rating	Task Priority	Action Completed
12	Feeds to boiler feed/ F&E tanks with no backflow protection at source.	Associated pipe work has a low turnover and therefore may stagnate providing an environment for bacterial growth which may contaminate the mains supply.	Fit double check valve to boiler feed as close to supply as possible. Log all work carried out.	MEDIUM	3	
13	Broken/ faulty outlets the canteen Kitchen. Please refer to Section 8, Photo 12	Water may stagnate in the pipe work providing an environment for bacterial growth which may contaminate the mains supply.	Carry out and log remedial work to fix outlets. Log all work carried out.	MEDIUM	2	
14	2 water heaters are out of use. Please refer to Section 8, Photo 9	Water may stagnate in the pipe work providing an environment for bacterial growth which may contaminate the mains supply.	Fix/ replace water heater and log details.	MEDIUM	3	
15	The expansion vessel on water heater 8 is incorrectly orientated. Please refer to Section 8, Photo 10	Water may not drain from the bladder and stagnate allowing microbiological growth contaminating supply.	Reorientate the vessel to sit vertically upward and log details of remedial action.	MEDIUM	3	

3.0 RECOMMENDATIONS

3.3 Management Recommendation

Priority Key: 1 - Immediate Threat to Health
2 - Legal Requirement/ Potential Threat to Health
3 - Best Practice Guidelines

Item Ref	Findings	Recommended Action	Rating	Task Priority	Action Completed
1	A suitable and sufficient risk assessment is required to identify and assess risk of exposure to legionella bacteria.	Risk assessment now completed	HIGH	2	✓
2	Risk Assessment must be regularly reviewed or when alterations have resulted in the RA not being valid. Alterations leading to a review include; - A change to the water system or its use - A change to the use of the building where the system is installed - New information available about risks or control measures - The results of checks indicate that control measures are no longer effective - Changes to key personnel (i.e. the responsible person) - A case of Legionnaires disease or legionellosis associated with the system	Reassess where necessary	HIGH	2	
3	Where the risk assessment identifies a risk of exposure to legionella bacteria a written scheme must be implemented for preventing or controlling the risks from Legionellosis – Refer to 7.4 in this risk assessment report.	Maintain	HIGH	2	
4	A logbook document for control and record keeping should be maintained for the premises. The logbook will best achieve guidance for maintaining records and implementation of precautionary measures. The control scheme contained within the logbook requires implementing and monitoring in order to meet the requirements under the ACoP L8.	Maintain	HIGH	2	
5	Logbook documentation should include: Contact details and Management responsibilities. Plans or schematic drawings of the system. A record of risk assessment. Operation of water systems relevant to controlling the risk. Precautions to be implemented. System inspection and check procedures. Periodically audit the systems condition, control procedures and record keeping processes. Site attendance log. Monitoring records to be completed and maintained. Also to ensure that the system conditions and precautionary procedures are being maintained and to verify the recorded documentation.	Maintain	HIGH	2	

3.0 RECOMMENDATIONS

3.3 Management Recommendation

Item Ref	Findings	Recommended Action	Rating	Task Priority	Action Completed
6	The details of persons who are trained and competent to undertake the works should also be recorded in the log with details of the training undertaken. This also applies to specialist contractors who may undertake part of these duties. The precise procedures relating to the precautionary measures should be maintained within the log book system and updated as required.	Maintain	HIGH	2	
7	The legionella logbook should clearly define the details of the persons appointed as being responsible for the operational policy and management of precautions regarding control of Legionella bacteria on the site. The responsibilities should be clearly set out and lines of communication defined.	Maintain	HIGH	2	
8	The written scheme should give details on when and how to carry out emergency procedures should a Legionella positive sample been received. The emergency procedure should reflect Table 2.3 of HSG 274 Part 2.	Maintain	HIGH	2	
9	Any specialist water treatment company providing a service on site and persons responsible for any auditing of the system operation and documentation should also be defined within the structure. Precautionary measures and maintenance activities should be implemented and the measures should be reviewed on an ongoing basis dependant on feedback on systems conditions and updated knowledge on the control of Legionella bacteria.	Maintain	HIGH	2	
10	Consideration should be given to the inclusion of periodic water quality tests in order to monitor and record changes in local water conditions i.e. cold water from storage tanks, calorifiers and associated outlets.	Implement	HIGH	2	
11	Management reviews and site log book audits to be carried out on a six monthly basis to ensure all details, monitoring and records are in good order.	Implement	HIGH	2	

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3.4 ASSET REGISTRY

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

CENTURY HOUSE

LOCATION	OUTLET DESCRIPTION	SUPPLY
Ground floor		
Café Kitchen	2 SK 1 WB	MCW/ HW
Café Kitchen toilet	1 WB 1 WC	TCW/ HW
Boiler room	1 CAL (see CAL1)	MCW/ TCW/ HW
Female toilet	1 WB 1 WC	TCW/ HW
Disabled toilet	1 WB 1 WC 1 SK	TCW/ HW
Male toilet	1 WB 1 WC 1 UR	TCW/ HW
Workshop	1 SK	MCW/ HW
Outside	1 BT	MCW
1st floor		
Female toilet	2 WB 3 WC	TCW/ HW
Male toilet	2 WB 2 WC 2 UR	MCW/ TCW/ HW
Female toilet	1 WB 2 WC	TCW/ HW
Male toilet	1 WB 1 WC 1 UR	TCW/ HW
Kitchen	1 SK	MCW/ HW
Loft		
Loft	1 CWST (see CWST1)	MCW/ TCW/ HW

Notes: **BATH** – Bath **BT** – Bib Tap **BTCW** – Boosted tanked cold water **CAL** – Calorifier **CWST** – Cold water storage tank **DM** – Drinks machine **DW** - Dish Washer **DWD** - Drinking Water Dispenser **DWT** - Drinking Water Tap **FI** – Filter **HW** – Hot water **IFI** –Inline filter **IES** - Independent electric shower **IM** - Ice Machine **LM** – Laundry washing machine **MCW** - Mains cold water **MT** – Mixer **PRV** – Pressure reduction valve **RPZ** – Reduced pressure zone valve **SH** – Shower **SI** –Scale Inhibitor **SK** – Sink **SO** – Softener **TCW** - Tank Fed Cold Water **TMV** – Thermostatic mixing valve **UR** - Urinal Closet **WB** - Wash Hand Basin **WB (TMV)** - Wash Hand Basin with thermostatic mixer tap **WC** - Water Closet
WDU - Waste Disposal Unit **WH** - Hot Water Heater

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3.4 ASSET REGISTRY

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RG24 9NP

LADA ENGINEERING

LOCATION	OUTLET DESCRIPTION	SUPPLY
Ground floor		
Outside	1 BT	TCW
Office Male toilet	1 WB 1 WC 1 BT	TCW/ HW
Office Female toilet	1 WB 1 WC	TCW/ HW
Kitchen	1 SK 1 CAL (see CAL2)	MCW/ TCW/ HW
Canteen	1 DM	MCW
Canteen male toilet	6 WB 3 WC 3 UR 1 PRV 1 WH (see WH1)	MCW/ HW
Female toilet	1 WB 1 WC 1 WH (see WH2)	MCW/ HW
Male toilet	1 WB 1 WC 1 WH (see WH3)	MCW/ HW
Foyer	1 DM	MCW
Engineering toilets	3 WC 3 UR	MCW
Engineering wash room	3 WB 4 WH (see WH 4, 5, 6 & 7)	MCW/ HW
Factory	2 FHR	MCW
1st floor		
Office ceiling void	1 CWST (see CWST2)	MCW/ TCW/ HW
Kitchen	1 SK	MCW/ HW

Notes: **BATH** – Bath **BT** – Bib Tap **BTCW** – Boosted tanked cold water **CAL** – Calorifier **CWST** – Cold water storage tank **DM** – Drinks machine **DW** - Dish Washer **DWD** - Drinking Water Dispenser **DWT** - Drinking Water Tap **FI** – Filter **HW** – Hot water **IFI** –Inline filter **IES** - Independent electric shower **IM** - Ice Machine **LM** – Laundry washing machine **MCW** - Mains cold water **MT** – Mixer **PRV** – Pressure reduction valve **RPZ** – Reduced pressure zone valve **SH** – Shower **SI** –Scale Inhibitor **SK** – Sink **SO** – Softener **TCW** - Tank Fed Cold Water **TMV** – Thermostatic mixing valve **UR** - Urinal Closet **WB** - Wash Hand Basin **WB (TMV)** - Wash Hand Basin with thermostatic mixer tap **WC** - Water Closet
WDU - Waste Disposal Unit **WH** - Hot Water Heater

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3.4 ASSET REGISTRY

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VICKERS HOUSE

LOCATION	OUTLET DESCRIPTION	SUPPLY
Ground floor		
Cleaners	2 SK 1 WH (see WH8)	MCW/ HW
Female toilet	2 WB 2 WC 1 WH (see WH9)	TCW/ HW
Male toilet	2 WB 1 WC 2 UR 1 WH (see WH10)	MCW/ HW
Kitchen	1 SK 1 WH (see WH11)	MCW/ HW
Outside	1 BT	MCW
1st floor		
Female toilet	2 WB 2 WC 1 WH (see WH12)	TCW/ HW
Male toilet	2 WB 1 WC 2 UR 1 WH (see WH13)	TCW/ HW
Kitchen	1 SK 1 WH (see WH14)	TCW/ HW
Stairs foyer	1 BT	MCW
2nd floor		
Female toilet	2 WB 2 WC 1 WH (see WH15)	MCW/ TCW/ HW
Male toilet	2 WB 1 WC 2 UR 1 WH (see WH16)	MCW/ TCW/ HW
Kitchen	1 SK 1 WH (see WH17)	MCW/ TCW/ HW
Kitchen 2	1 SK 1 DW 1 WH (see WH18)	MCW/ TCW/ HW
Stairs foyer	1 BT	MCW
Roof		
Tank housing	1 CWST (see CWST1)	MCW/ HW

Notes: **BATH** – Bath **BT** – Bib Tap **BTCW** – Boosted tanked cold water **CAL** – Calorifier **CWST** – Cold water storage tank **DM** – Drinks machine **DW** - Dish Washer **DWD** - Drinking Water Dispenser **DWT** - Drinking Water Tap **FI** – Filter **HW** – Hot water **IFI** –Inline filter **IES** - Independent electric shower **IM** - Ice Machine **LM** – Laundry washing machine **MCW** - Mains cold water **MT** – Mixer **PRV** – Pressure reduction valve **RPZ** – Reduced pressure zone valve **SH** – Shower **SI** –Scale Inhibitor **SK** – Sink **SO** – Softener **TCW** - Tank Fed Cold Water **TMV** – Thermostatic mixing valve **UR** - Urinal Closet **WB** - Wash Hand Basin **WB (TMV)** - Wash Hand Basin with thermostatic mixer tap **WC** - Water Closet
WDU - Waste Disposal Unit **WH** - Hot Water Heater

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3.4 ASSET REGISTRY

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MILLENNIUM HOUSE

LOCATION	OUTLET DESCRIPTION	SUPPLY
Ground floor		
Female toilet	1 WB 1 WC	MCW/ HW
Disabled toilet	1 WB(TMV) 1 WC 1 PRV 2 IFI 1 WH (see WH19)	MCW/ HW
Male toilet	1 WB 1 WC	MCW/ HW
1st floor		
Female toilet	1 WB 1 WC 1 PRV 1 WH (see WH20)	MCW/ HW
Male toilet	1 WB 1 WC	MCW/ HW

Notes: **BATH** – Bath **BT** – Bib Tap **BTCW** – Boosted tanked cold water **CAL** – Calorifier **CWST** – Cold water storage tank **DM** – Drinks machine **DW** - Dish Washer **DWD** - Drinking Water Dispenser **DWT** - Drinking Water Tap **FI** – Filter **HW** – Hot water **IFI** –Inline filter **IES** - Independent electric shower **IM** - Ice Machine **LM** – Laundry washing machine **MCW** - Mains cold water **MT** – Mixer **PRV** – Pressure reduction valve **RPZ** – Reduced pressure zone valve **SH** – Shower **SI** –Scale Inhibitor **SK** – Sink **SO** – Softener **TCW** - Tank Fed Cold Water **TMV** – Thermostatic mixing valve **UR** - Urinal Closet **WB** - Wash Hand Basin **WB (TMV)** - Wash Hand Basin with thermostatic mixer tap **WC** - Water Closet
WDU - Waste Disposal Unit **WH** - Hot Water Heater

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3.5 - TEMPERATURE MONITORING

The following temperature reports provide a list of rooms and the temperatures recorded during the Risk Assessment. The hot and cold outlet temperatures are also highlighted as a risk rating based on the temperature keys below.

Hot and Cold outlet temperatures

20 deg C and below	LOW
20.1 deg C - 25.4 deg C	MEDIUM
25.5 deg C - 45.4 deg C	HIGH
45.5 deg C - 49.9 deg C	MEDIUM
50 deg C and above	LOW

Where the Hot outlet is providing mixed water, where access is available, a pre-mixed water temperature will be recorded, by using a surface temperature probe on the hot water inlet to the valve.

The mixed outlet temperature will follow a alterative risk rating based on the use of the outlet.

Recommended range and pre-TMV hot at 50°C and above	MEDIUM
Mixed &/or pre-TMV hot outside the recommended range	HIGH

Outlets providing mixed water are classified as a risk rating of Medium due to the outlet water temperature falling between the high risk of Bacterial proliferation range of 25.5°C and 45.4°C,

The control of legionella requires that the nearest and furthest outlets be sampled for temperature within one minute of running hot water and two minutes of running cold water however, more outlets should be tested to obtain a more representative survey for risk assessment purposes.

Any temperature found to be below 50°C within 1 minute of operation is regarded as a failure for the hot water and above 20°C after two minutes of operation for the cold water.

The water supply to the Thermostatic Mixing Valve (TMV) temperature should be at least 50°C within a minute of running the water.

The TMV supplying mixed water to outlets for specific uses for 'at risk' people should be set to a maximum of;

Paediatric Baths	40°C
General Baths	43°C
Assisted baths	46°C
Sink within an office or staff only area	43°C
Sink within a ward or communal areas	41°C
Showers	41°C

All TMV's work to a +/- 2°C tolerance.

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3.5 - TEMPERATURE MONITORING

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

CENTURY HOUSE

LOCATION	OUTLET DESCRIPTION	MAINS COLD ºC	TANKED COLD ºC	PRE MIX ºC	HOT ºC	Risk Assessment Rating		RECOMMENDATIONS/COMMENTS
						COLD	HOT	
Ground floor								
Café Kitchen	SK	13.1			46.9	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Café Kitchen toilet	WB		X		X			UNDER RENOVATION
Female toilet	WB		19.7		44.1	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Disabled toilet	WB		19.5		46.4	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Male toilet	WB		19.7		45.7	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Workshop	SK	17.3				LOW		
1st floor								
Female toilet	WB		19.1		48.1	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Male toilet	WB		19.5		47.9	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Female toilet	WB		19.9		47.1	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Male toilet	WB		19.1		46.1	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE
Kitchen	SK	13.9			45.6	LOW	MEDIUM	INCREASE HOT WATER TEMPERATURE

Notes: DM - Drinks machine DW - Drinking water DWD - Drinking water dispenser LHS - Left hand side RHS - Right hand side RBP - Redundant branch pipe POU - Point of use heater TMV - Thermostatic mixing valve WH- Water heater WM - Washing Machine WB- Wash hand basin DW - Dish washer CW - Cold Water HW - Hot Water DSK - Double Sink SK - Sink SH - Shower

1. The control of legionella requires that the nearest and furthest outlets be sampled for temperature after one minute of running hot water and two minutes of running cold water however, more outlets should be tested to obtain a more representative survey for risk assessment purposes.
2. A separate form should be completed for any outlets not associated with this system as referenced above.
3. Any temperature found to be below 50°C within 1 minute of operation is regarded as a failure for the hot water and above 20°C within two minutes of operation for the cold water.
4. The water supply to the Thermostatic Mixing Valve (TMV) temperature should be at least 50 °C within a minute of running the water.
One way of measuring this is to use a surface temperature probe on the hot water inlet to the valve.

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3.5 - TEMPERATURE MONITORING

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

LADA ENGINEERING

LOCATION	OUTLET DESCRIPTION	MAINS COLD ºC	TANKED COLD ºC	PRE MIX ºC	HOT ºC	Risk Assessment Rating		RECOMMENDATIONS/COMMENTS
						COLD	HOT	
Ground floor								
Office Male toilet	WB		20.6		60.5	LOW	LOW	
Office Female toilet	WB		20.5		60.4	LOW	LOW	
Kitchen	SK	12.5			60.4	LOW	LOW	
Canteen male toilet	WB	12.6			55.3	LOW	LOW	
Female toilet	WB	13			51.2	LOW	LOW	
Male toilet	WB	12.3			51.9	LOW	LOW	
Engineering wash	WB	13.9			50.9	LOW	LOW	
1st floor								
Kitchen	SK	16.3			50.2	LOW	LOW	

Notes: DM - Drinks machine DW - Drinking water DWD - Drinking water dispenser LHS - Left hand side RHS - Right hand side RBP - Redundant branch pipe POU - Point of use heater TMV - Thermostatic mixing valve WH- Water heater WM - Washing Machine WB- Wash hand basin DW - Dish washer CW - Cold Water HW - Hot Water DSK - Double Sink SK - Sink SH - Shower

1. The control of legionella requires that the nearest and furthest outlets be sampled for temperature after one minute of running hot water and two minutes of running cold water however, more outlets should be tested to obtain a more representative survey for risk assessment purposes.
2. A separate form should be completed for any outlets not associated with this system as referenced above.
3. Any temperature found to be below 50°C within 1 minute of operation is regarded as a failure for the hot water and above 20°C within two minutes of operation for the cold water.
4. The water supply to the Thermostatic Mixing Valve (TMV) temperature should be at least 50 °C within a minute of running the water.
One way of measuring this is to use a surface temperature probe on the hot water inlet to the valve.

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ASSESSMENT DATE: 25/04/2017

3.5 - TEMPERATURE MONITORING

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

VICKERS HOUSE

LOCATION	OUTLET DESCRIPTION	MAINS COLD ºC	TANKED COLD ºC	PRE MIX ºC	HOT ºC	Risk Assessment Rating		RECOMMENDATIONS/COMMENTS
						COLD	HOT	
Ground floor								
Female toilet	WB		13.3		51.9	LOW	LOW	
Male toilet	WB	12			51.5	LOW	LOW	
Kitchen	SK	12			55.6	LOW	LOW	
Cleaners	SK	11.9			51.6	LOW	LOW	
1st floor								
Female toilet	WB		13.1		54.6	LOW	LOW	
Male toilet	WB		13.3		53.6	LOW	LOW	
Kitchen	SK		13.3			LOW		**REPAIR/ REPLACE HEATER**
2nd floor								
Female toilet	WB	12.1	13.3		53.9	LOW	LOW	
Male toilet	WB	12.2	13.2		15.1	LOW	LOW	
Kitchen	SK	11.9			59.1	LOW	LOW	
Kitchen	SK	13.1			53.9	LOW	LOW	

Notes: DM - Drinks machine DW - Drinking water DWD - Drinking water dispenser LHS - Left hand side RHS - Right hand side RBP - Redundant branch pipe POU - Point of use heater TMV - Thermostatic mixing valve WH- Water heater WM - Washing Machine WB- Wash hand basin DW - Dish washer CW - Cold Water HW - Hot Water DSK - Double Sink SK - Sink SH - Shower

1. The control of legionella requires that the nearest and furthest outlets be sampled for temperature after one minute of running hot water and two minutes of running cold water however, more outlets should be tested to obtain a more representative survey for risk assessment purposes.
2. A separate form should be completed for any outlets not associated with this system as referenced above.
3. Any temperature found to be below 50°C within 1 minute of operation is regarded as a failure for the hot water and above 20°C within two minutes of operation for the cold water.
4. The water supply to the Thermostatic Mixing Valve (TMV) temperature should be at least 50 °C within a minute of running the water.
One way of measuring this is to use a surface temperature probe on the hot water inlet to the valve.

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3.5 - TEMPERATURE MONITORING

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

MILLENNIUM HOUSE

LOCATION	OUTLET DESCRIPTION	MAINS COLD ºC	TANKED COLD ºC	PRE MIX ºC	HOT ºC	Risk Assessment Rating		RECOMMENDATIONS/COMMENTS
						COLD	HOT	
Ground floor								
Female toilet	WB	13.3			52.9	LOW	LOW	
Disabled toilet	WB (TMV)	13.1		53.5	39.1	LOW	MEDIUM	TMV MIXER TAP FITTED
Male toilet	WB	13.3			54.1	LOW	LOW	
1st floor								
Female toilet	WB	13.2			56.2	LOW	LOW	
Male toilet	WB	12.9			56.1	LOW	LOW	

Notes: DM - Drinks machine DW - Drinking water DWD - Drinking water dispenser LHS - Left hand side RHS - Right hand side RBP - Redundant branch pipe POU - Point of use heater TMV - Thermostatic mixing valve WH- Water heater WM - Washing Machine WB- Wash hand basin DW - Dish washer CW - Cold Water HW - Hot Water DSK - Double Sink SK - Sink SH - Shower

1. The control of legionella requires that the nearest and furthest outlets be sampled for temperature after one minute of running hot water and two minutes of running cold water however, more outlets should be tested to obtain a more representative survey for risk assessment purposes.
2. A separate form should be completed for any outlets not associated with this system as referenced above.
3. Any temperature found to be below 50°C within 1 minute of operation is regarded as a failure for the hot water and above 20°C within two minutes of operation for the cold water.
4. The water supply to the Thermostatic Mixing Valve (TMV) temperature should be at least 50 °C within a minute of running the water.
One way of measuring this is to use a surface temperature probe on the hot water inlet to the valve.

W.E.T

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.6 - SITE INSPECTION SUMMARY

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

Location of mains stop cock	Century boiler room	Lada engineering factory
Size of stop cock	1 ½"	1 "
Location of mains stop cock	Vickers boiler room	Millennium House Male toilet
Size of stop cock	1 "	22mm

No. of Rooms with Water Services	Qty	48
Domestic Water Storage Tanks	Qty	3
Calorifiers	Qty	2
Water heaters	Qty	20
Water Boilers	Qty	
Plumbed Drinking Water Dispensers	Qty	
Plumbed Drinks Machines	Qty	1
Cold water outlets	Qty	59
Hot water outlets	Qty	45
Mixed water outlets	Qty	1
Gents Urinals	Qty	16
Toilets	Qty	36
Shower outlets	Qty	
Laundry machines	Qty	
Dish washing machines	Qty	1

Only water systems in areas accessible and surveyed during the site visit are detailed above.

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3.7 DOMESTIC WATER STORAGE CISTERN 1

CUSTOMER: Barbara Stringer
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park, Priestley Road, Basingstoke, RG24 9NP

Detailed tank location:	Century House, Tank housing on roof											
Distance To Power:	15m			Distance to Drain			10m					
Access type (i.e. loft hatch, door etc.):	Loft hatch			Access dims (mm):			500 x 500					
Access Conditions:	EASY	✓	DIFFICULT		SAFE	✓	DANGEROUS		LIGHT	✓	NO LIGHT	
Access To Tank:	Ladder Present (Length)		Fixed		Ladder Required (Length)		N/A					
Access Into Tank:	Ladder Present (Length)		N/A		Ladder Required (Length)		N/A					

Internal Cistern dimensions (mm):	L x W x H		Tank manufacturer:	Aqua tanks
	1900 x 1300 x 1000		Water-line from top of tank (mm):	230
Cistern volume (litres):	Nominal:	2470	Actual:	1902
Nº of compartments:	1		Nº of inlet valves supplying them:	1
Head room above cistern (mm):	800		Can water be left on during C&D:	No
If linked, to which tanks:	N/A		Does tank feed drinking water:	YES		NO	✓
Tank serves:	Tanked Cold Water Services & Domestic Hot Water Services			

Tank base:	PIERS	✓	FLAT											
Material / Type of tank:	STEEL		GRP	✓	GALV		PLASTIC		ONE - PIECE	✓	SECTIONAL			
Condition of Lid:	GOOD	✓	POOR		FIXED	✓	LOOSE		REPLACE		NO LID			
Condition of Insulation:	GOOD	✓	FAIR		POOR		NOT PRESENT							
Internal Strut Type	HOLLOW		SOLID		NOT PRESENT	✓								
Type AB airgap (raised chamber):	YES		NO	✓										
Service valve fitted to inlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	32mm GALV						
Service valve fitted to outlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	42mm GALV						
Service valve fitted to outlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	42mm GALV						
Service valve fitted to drain:	YES		NO		N/A	✓	SIZE & MATERIAL:							
Is Overflow screened:	YES	✓	NO		N/A		SIZE & MATERIAL:	32mm Plastic						
Is Warning pipe screened:	YES		NO		N/A	✓	SIZE & MATERIAL:							
Is airvent screened:	YES	✓	NO		N/A									
Open vent return to tank:	YES	✓	NO		N/A		SIZE & MATERIAL:							
Is make up insulated:	YES	✓	NO											
Are outlets insulated:	YES		NO	✓										

Internal surface condition:	GOOD	✓	FAIR		POOR		ADVISE REPLACEMENT					
Water Tank Condition:	BIOFILM / WATERLINE FILM		SEDIMENT LEVEL	Clean			OTHER					
Adequate circulation within tank:	YES	✓	NO									
Float valve operation:	GOOD	✓	POOR		REPLACE							
Low level switches	YES		NO	✓	CONDITION							
Inlet water temperature	Compartment 1				13 °C		Compartment 2				°C	
Tank water temperature					16.1 °C						°C	

Additional comments:	

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3.7 DOMESTIC WATER STORAGE CISTERN 2

CUSTOMER: Barbara Stringer
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park, Priestley Road, Basingstoke, RG24 9NP

Detailed tank location:	LADA engineering 1st floor office (next to kitchenette) above ceiling tile										
Distance To Power:	5m				Distance to Drain				20m		
Access type (i.e. loft hatch, door etc.):	Door & Ceiling tiles				Access dims (mm):				1190 x 500		
Access Conditions:	EASY		DIFFICULT	✓	SAFE		DANGEROUS	✓	LIGHT		NO LIGHT	✓
Access To Tank:	Ladder Present (Length)		N/A				Ladder Required (Length)		2m		
Access Into Tank:	Ladder Present (Length)		N/A				Ladder Required (Length)		N/A		

Internal Cistern dimensions (mm):	L x W x H		Tank manufacturer:	
	1160 x 880 x 880		Water-line from top of tank (mm):	150
Cistern volume (litres):	Nominal:	898	Actual:	745
Nº of compartments:	1		Nº of inlet valves supplying them:	1
Head room above cistern (mm):	1500		Can water be left on during C&D:	No
If linked, to which tanks:	N/A		Does tank feed drinking water:	YES ☐ NO ✓
Tank serves:	Tanked Cold Water Services & Domestic Hot Water Services			

Tank base:	PIERS		FLAT	✓											
Material / Type of tank:	STEEL		GRP	✓	GALV		PLASTIC		ONE - PIECE	✓	SECTIONAL				
Condition of Lid:	GOOD		POOR	✓	FIXED		LOOSE	✓	REPLACE		NO LID				
Condition of Insulation:	GOOD		FAIR		POOR	✓	NOT PRESENT								
Internal Strut Type	HOLLOW		SOLID		NOT PRESENT	✓									
Type AB airgap (raised chamber):	YES		NO	✓											
Service valve fitted to inlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	22mm Copper							
Service valve fitted to outlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	22mm Copper							
Service valve fitted to outlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	22mm Copper							
Service valve fitted to drain:	YES		NO		N/A	✓	SIZE & MATERIAL:								
Is Overflow screened:	YES		NO	✓	N/A		SIZE & MATERIAL:	1 ¼" Plastic							
Is Warning pipe screened:	YES		NO		N/A	✓	SIZE & MATERIAL:								
Is airvent screened:	YES		NO	✓	N/A										
Open vent return to tank:	YES	✓	NO		N/A		SIZE & MATERIAL:	22mm Copper							
Is make up insulated:	YES	✓	NO												
Are outlets insulated:	YES	✓	NO												

Internal surface condition:	GOOD	✓	FAIR		POOR		ADVISE REPLACEMENT								
Water Tank Condition:	BIOFILM / WATERLINE FILM		SEDIMENT LEVEL	Clean			OTHER								
Adequate circulation within tank:	YES		NO	✓											
Float valve operation:	GOOD	✓	POOR		REPLACE										
Low level switches	YES		NO	✓	CONDITION										
Inlet water temperature	Compartment 1				16.9 °C		Compartment 2						°C		
Tank water temperature					19.4 °C								°C		

Additional comments:	

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DATE: 25/04/2017

3.7 DOMESTIC WATER STORAGE CISTERN 3

CUSTOMER: Barbara Stringer
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park, Priestley Road, Basingstoke, RG24 9NP

Detailed tank location:	Vickers House, tank housing on roof											
Distance To Power:	75m			Distance to Drain			5m					
Access type (i.e. loft hatch, door etc.):	Door			Access dims (mm):			1800 x 1600					
Access Conditions:	EASY	✓	DIFFICULT		SAFE	✓	DANGEROUS		LIGHT	✓	NO LIGHT	
Access To Tank:	Ladder Present (Length)		Loft ladder		Ladder Required (Length)		N/A					
Access Into Tank:	Ladder Present (Length)		N/A		Ladder Required (Length)		N/A					

Internal Cistern dimensions (mm):	L x W x H		Tank manufacturer:	PFG
	1000 x 1000 x 1000		Water-line from top of tank (mm):	200
Cistern volume (litres):	Nominal:	1000	Actual:	800
Nº of compartments:	1		Nº of inlet valves supplying them:	1
Head room above cistern (mm):	1500		Can water be left on during C&D:	No
If linked, to which tanks:	N/A		Does tank feed drinking water:	YES ✓ NO
Tank serves:	Tanked Cold Water Services			

Tank base:	PIERS		FLAT	✓														
Material / Type of tank:	STEEL		GRP	✓														
Condition of Lid:	GOOD	✓	POOR		GALV		PLASTIC		ONE - PIECE	✓	SECTIONAL							
Condition of Insulation:	GOOD	✓	FAIR		FIXED	✓	LOOSE		REPLACE		NO LID							
Internal Strut Type	HOLLOW		SOLID		POOR		NOT PRESENT											
Type AB airgap (raised chamber):	YES		NO	✓	NOT PRESENT	✓												
Service valve fitted to inlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	28mm Copper										
Service valve fitted to outlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	28mm Copper										
Service valve fitted to outlet:	YES	✓	NO		N/A		SIZE & MATERIAL:	42mm Copper										
Service valve fitted to drain:	YES		NO		N/A	✓	SIZE & MATERIAL:											
Is Overflow screened:	YES	✓	NO		N/A		SIZE & MATERIAL:											
Is Warning pipe screened:	YES		NO		N/A	✓	SIZE & MATERIAL:											
Is airvent screened:	YES	✓	NO		N/A													
Open vent return to tank:	YES		NO		N/A	✓	SIZE & MATERIAL:											
Is make up insulated:	YES	✓	NO															
Are outlets insulated:	YES	✓	NO															

Internal surface condition:	GOOD	✓	FAIR		POOR		ADVISE REPLACEMENT											
Water Tank Condition:	BIOFILM / WATERLINE FILM		SEDIMENT LEVEL	Clean			OTHER											
Adequate circulation within tank:	YES	✓	NO															
Float valve operation:	GOOD	✓	POOR		REPLACE													
Low level switches	YES		NO	✓	CONDITION													
Inlet water temperature	Compartment 1				12.2 °C		Compartment 2										°C	
Tank water temperature					13.1 °C												°C	

Additional comments:	

ASSESSMENT NO: 6372
ASSESSMENT DATE: 25/04/2017

3.8 - CALORIFIER INSPECTION REPORT

CUSTOMER: Barbara Stringer
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	Calorifier 1				Calorifier 2			
Location	Century House boiler room				LADA engineering canteen Kitchen			
Make	RM Cylinders				Hercal			
Model	Indirect							
Height (mm)	1050				900			
Diameter (mm)	450				450			
Estimated Capacity	145 Litres				117 Litres			
Horizontal / Vertical	Horztl		Vert	✓	Horztl		Vert	✓
Is Calorifier Insulated	Yes	✓	No		Yes	✓	No	
Does it have access/inspection hatch	Yes		No	✓	Yes		No	✓
Service Valve on inlet	Yes	✓	No		Yes		No	✓
Pipe work Size (mm)	22mm				22mm			
Service Valve on flow	Yes	✓	No		Yes		No	✓
Pipe work Size (mm)	22mm				22mm			
Service Valve on return	Yes	✓	No		Yes		No	
Pipe work Size (mm)	22mm							
Is a de-stratification pump fitted	Yes		No	✓	Yes		No	
If not is one required	Yes		No	✓	Yes		No	
Temperature at inlet	18.9	°C			20.5	°C		
Temperature at return	51.1	°C				°C		
Temperature at flow	50.3	°C			60.2	°C		

Comments:	

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ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 1				WH 2			
Location	LADA Above toilet (in canteen)				LADA Factory Female toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Redring				Wash			
Model	MWSS 75							
Tank construction	Stainless Steel				Instantaneous			
Storage capacity	75 Litres				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow	15mm blow off valve							
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm blow off valve				15mm			
Service valve on outlet	Yes	✓	No		Yes		No	✓
Size of outlet	15mm blow off valve				Spout			
Water heater type	Vented		Un-vented	✓	Vented		Un-vented	
	Cistern		Instant		Cistern		Instant	✓

Comments:	

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ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 3				WH 4			
Location	LADA Factory Male toilet				LADA Factory toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Redring				Wash			
Model	Vortex							
Tank construction	Instantaneous				Instantaneous			
Storage capacity	Instantaneous				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes		No	✓	Yes		No	✓
Size of outlet	Spout				Spout			
Water heater type	Vented		Un-vented		Vented		Un-vented	
	Cistern		Instant	✓	Cistern		Instant	✓

Comments:	

W.E.T

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 5				WH 6			
Location	LADA Factory toilet				LADA Factory toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Wash				Wash			
Model								
Tank construction	Instantaneous				Instantaneous			
Storage capacity	Instantaneous				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes		No	✓	Yes		No	✓
Size of outlet	Spout				Spout			
Water heater type	Vented		Un-vented		Vented		Un-vented	
	Cistern		Instant	✓	Cistern		Instant	✓

Comments:	

W.E.T

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 7				WH 8			
Location	LADA Factory toilet				Vickers ground Cleaners			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Heatrae Sadia				Ariston			
Model	Hotflo 10				EP15UR			
Tank construction	Copper				Stainless Steel			
Storage capacity	10 Litres				15 Litres			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow	15mm blow off valve				15mm blow off valve			
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes		No	✓	Yes		No	✓
Size of outlet	15mm				15mm			
Water heater type	Vented		Un-vented	✓	Vented		Un-vented	✓
	Cistern		Instant		Cistern		Instant	

Comments:	

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 9				WH 10			
Location	Vickers House Ground floor Female toilet				Vickers House Ground floor Male toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Triton				Santon			
Model	T30I				PC2008			
Tank construction	Instantaneous				Instantaneous			
Storage capacity	Instantaneous				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes	✓	No		Yes	✓	No	
Size of outlet	Spout				15mm			
Water heater type	Vented		Un-vented		Vented		Un-vented	
	Cistern		Instant	✓	Cistern		Instant	✓

Comments:	

W.E.T

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 11				WH 12			
Location	Vickers House Ground floor Kitchen				Vickers House 1st floor Female toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Santon				Triton			
Model	Aquarius				T30i			
Tank construction	Copper				Instantaneous			
Storage capacity	7 Litres				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes	✓	No		Yes	✓	No	
Size of outlet	Spout				Spout			
Water heater type	Vented	✓	Un-vented		Vented		Un-vented	
	Cistern		Instant		Cistern		Instant	✓

Comments:	

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 13				WH 14			
Location	Vickers House 1st floor Male toilet				Vickers House 1st floor Kitchen			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Triton				Santon			
Model	T30i				EV2001			
Tank construction	Instantaneous				Instantaneous			
Storage capacity	Instantaneous				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes	✓	No		Yes	✓	No	
Size of outlet	Spout				Spout			
Water heater type	Vented		Un-vented		Vented		Un-vented	
	Cistern		Instant	✓	Cistern		Instant	✓

Comments:	

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 15				WH 16			
Location	Vickers House 2nd floor Female toilet				Vickers House 1st floor Male toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Triton				Triton			
Model	T30i				T30i			
Tank construction	Instantaneous				Instantaneous			
Storage capacity	Instantaneous				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes	✓	No		Yes	✓	No	
Size of outlet	Spout				Spout			
Water heater type	Vented		Un-vented		Vented		Un-vented	
	Cistern		Instant	✓	Cistern		Instant	✓

Comments:	

W.E.T

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 17				WH 18			
Location	Vickers House 2nd floor Kitchen				Vickers House 2nd floor Kitchen			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Santon				Triton			
Model	Aquarius				T30i			
Tank construction	Copper				Instantaneous			
Storage capacity	7 Litres				Instantaneous			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow								
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes	✓	No		Yes		No	✓
Size of outlet	Spout				Spout			
Water heater type	Vented	✓	Un-vented		Vented		Un-vented	
	Cistern		Instant		Cistern		Instant	✓

Comments:	

W.E.T

ASSESSMENT NO.: 6372
ASSESSMENT DATE: 25/04/2017

3.9 - WATER HEATER INSPECTION REPORT

CUSTOMER: Vickers Business Centre
SITE CONTACT: Alan J Saitch
SITE ADDRESS: Vickers Business Park
Priestley Road
Basingstoke
RG24 9NP

	WH 19				WH20			
Location	Millennium House Ground floor Disabled toilet				Millennium House 1st floor Female toilet			
	Boiler		Heater	✓	Boiler		Heater	✓
Make	Zip				Zip			
Model	Aquapoint III				Aquapoint III			
Tank construction	Stainless Steel				Stainless Steel			
Storage capacity	15 Litres				15 Litres			
Requires cleaning?	Yes		No	✓	Yes		No	✓
Requires disinfection?	Yes		No	✓	Yes		No	✓
Does lid have air vent?	Yes		No	✓	Yes		No	✓
Does overflow have screen?	Yes		No	✓	Yes		No	✓
Size of overflow	15mmm blow off valve				15mmm blow off valve			
Service valve on feed	Yes	✓	No		Yes	✓	No	
Size of feed	15mm				15mm			
Service valve on outlet	Yes		No	✓	Yes		No	✓
Size of outlet	15mm				15mm			
Water heater type	Vented		Un-vented	✓	Vented		Un-vented	✓
	Cistern		Instant		Cistern		Instant	

Comments:	

W.E.T

SECTION 4

Background to Legionella

Water Environmental Treatment Limited
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Tel: 01827 288810 Fax: 01827 261390 www.wet-services.com
Directors: E. Parkinson, G.Parkinson | Registration No. 2685141

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4.0 BACKGROUND TO LEGIONELLA

The Legionella Risk Assessment is undertaken to enable the person responsible for the control of the premises to comply with the guidance in the HSE document ACoP L8. Survey of the water system condition and other factors applicable to the requirements of the ACoP (L8) have been recorded and recommendations are made in the report with reference to the relevant sections in the ACoP L8.

Implementation of recommendations as identified in the survey places a responsibility on employers and persons responsible for health and safety on premises to prepare a scheme for preventing or controlling the risk from Legionella bacteria. These requirements can be achieved by adopting a scheme of monitoring in conjunction with a regime of preventative maintenance records of all activities relating to the control regime must be kept.

Purpose of the risk assessment

To identify and evaluate areas of concern and thereby enable a decision to be made with regard to the Health and Safety risks associated with water systems within this building.

Legionella and conditions condusive to bacterial proliferation

Legionnaires disease is the most well known and serious form of the group of diseases known as legionellosis. Legionnaires disease is a potentially fatal form of pneumonia (infection of the lower respiratory tract) caused by the legionella bacteria. Legionnaires disease is normally contracted by inhaling water aerosol/droplets contaminated with legionella bacteria. Legionella pneumophila is one species and is commonly associated with disease outbreaks. Legionella pneumophila can also cause short feverish illnesses without pneumonia known as Pontiac Fever and Lochgoilhead Fever.

Legionella bacteria are common and be found in environmental water sources. Legionella bacteria in water provided with an ideal temperature range 20ºC – 45ºC and nutrients are most likely to proliferarate. Legionella will survive at temperatures below 20ºC but is considered to be in a dormant state with no growth activity. The bacterium does not survive temperatures maintained consistently at 60ºC or above.

Research and investigations indicate that the occurrence of Legionella contamination is greatest in manufactured water systems such as water cooling towers, evaporative condensers, hot and cold water services, water spray humidifiers, air washers, spa baths and pools etc. Sediment, scale, and organic materials present in water systems, can provide nutrients and give protection for Legionella.

Legionella have been shown to colonise certain types of water fittings, pipe work and materials used in the construction of water systems. The presence of these materials may provide nutrients for Legionella and make eradication difficult. Other organisms in water systems such as bacteria, amoeba and algae can provide a suitable nutrient and habitat in which Legionella can survive and multiply.

The formation of biofilms within a water system is undesirable and may provide a protective harbor and favourable conditions for Legionella proliferation. Incorporation of Legionella in biofilms and in enclosures within protozoa can protect the organisms freely suspended in water.

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SECTION 5

General Assessment of Risk

Water Environmental Treatment Limited
PFG House, Claymore, Tame Valley Industrial Estate,
Tamworth, Staffordshire. B77 5DQ
Tel: 01827 288810 Fax: 01827 261390 www.wet-services.com
Directors: E. Parkinson, G.Parkinson | Registration No. 2685141

W.E.T

5.0 GENERAL ASSESSMENT OF RISK

Legionnaires' disease is caused by the inhalation or aspiration of water aerosol contaminated with the Legionella bacteria. During the risk assessment survey it is therefore paramount that systems which have a potential means of disseminating water droplets/aerosol and which are susceptible to colonisation by Legionella bacteria must be assessed.

Routine system operation and use and also circumstances such as breakdown, abnormal operation, commissioning or other unusual circumstances must be considered during evaluation of the water systems. The ACoP L8 guideline recommends this method of risk identification and assessment.
Once the assessment has been completed a strategy can be prepared for preventing or controlling the risk. The strategy will be based on a sound knowledge of the varying levels of attention required by the differing risk sources within the building.

The assessment takes account of:

A) Potential for the formation of aerosol/droplets.
B) The condition of the water.
C) Hot water temperature.
D) Cold water temperature.
E) The water turnover rate.
F) The susceptibility of persons exposed to droplets.
G) The population density exposed to droplets.
H) Written scheme / log book / risk assessment

Water droplets are created in various ways such as by spraying, bubbling and following impact onto hard surfaces. Large drops may be reduced to respirable size (3 micron and less) by further impact or evaporation. The smaller aerosols can persist for long periods and will be carried on air currents.

In undertaking the risk assessment and drawing up precautions particular attention must be paid to situations where:

The population exposed contains a relatively high number of people susceptible to Legionella, for example in Hospitals and Nursing Homes.
The density of population is high, and therefore the number of people at potential risk is high.

The risk assessment should be reviewed whenever there is reason to believe that the original assessment may no longer be valid and ideally an annual review of all sources should be undertaken. The original assessment may be compromised if:

- Changes are made to plant or water systems or its use.
- Changes are made to building use in which the water system is installed.
- New information about risks or control measures becomes available.

Once a risk has been identified and assessed, a scheme should be prepared for preventing or controlling it. The risk is heightened when conditions are not monitored and controlled and Legionella is allowed to proliferate.

The scheme should be implemented together with planned preventative maintenance in line with that contained within the general recommendations section of this report. This will meet the requirements of ACoP L8, and 'prepare a scheme for preventing or controlling the risk.

SECTION 6

Risk Assessment Objectives

6.0 RISK ASSESSMENT OBJECTIVES

The survey and investigation was commissioned in order to identify and assess the risk of Legionellosis from the water sources on the premises. General and specific observations on the systems made during the course of the survey are also recorded and the more general requirements of ACoP L8 are also commented on where applicable. Although references are made to compliance with the requirements ACoP L8 the survey cannot be considered to have addressed all aspects of the guidance note.

The specific observations made in this report should be read in conjunction with the practices and procedures detailed in the recommendations section and also with the documents the ACoP L8.

Compliance and may be classified into two distinct categories:

- Management Procedures - The management procedures which have been implemented to ensure that all control measures, record keeping and monitoring are adequate and effective.
- Systems Conditions and Description - The physical conditions and description of the water systems in the building must be considered when assessing the risk from Legionellosis.

This report therefore addresses the above categories. A general overview of existing Management Procedures is included and followed by observations of the Systems Conditions and Systems Description as seen during the course of the survey.

General Management Compliance

- The survey was commissioned in order to identify and assess sources of risk from the water storage and distribution systems.
- The assessments are detailed in the relevant sections of this report.
- The assessments of risk must be used as guidance for the preparation and implementation of an ongoing scheme for control of Legionella bacteria.
- **The assessments must be reviewed every two years** or whenever there is a reason to believe that the original assessment may no longer be valid due to circumstances such as systems physical changes, failure of control measures etc.
- A review of the assessment should be undertaken where there has been a change to any of the systems originally assessed to pose a risk and to other water systems, which may cause them to pose a higher risk.
- A review should also be undertaken if there is change in the use of the premises or activities undertaken which may have a bearing on systems operations and occupant's susceptibility or there are changes in persons responsible. A review should also be considered when new information becomes available and if monitoring checks indicate that control regimes may no longer be effective.

Depending on the level of change the review of assessment may be more specific than general and whichever is the case, the findings should be recorded formally and any changes to existing practices and control measures should be undertaken if appropriate.

Responsibility for deciding whether it may be appropriate to review an assessment will normally be the decision of the person appointed managerially responsible for Legionella precautions. If the ongoing auditing and monitoring of the systems conditions and operation of control procedures is undertaken by an independent body, any situation requiring re assessment should be reported to the responsible person by them.

SECTION 7

General Requirements

Water Environmental Treatment Limited
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Tamworth, Staffordshire. B77 5DQ
Tel: 01827 288810 Fax: 01827 261390 www.wet-services.com
Directors: E. Parkinson, G.Parkinson | Registration No. 2685141

7.0 GENERAL REQUIREMENTS

The hot and cold-water services and systems must be operated and maintained in a correct and safe manner and adequate precautionary measures must be taken against the risk from Legionellosis.
The following general recommendations should be read in conjunction with the observations of systems conditions, system description, specific recommendations sections and the advice and guidance should be followed where appropriate.

7.1 Basic Requirements

The available guidance regarding the design and maintenance of hot and cold-water services systems is widely available and comprehensive.
Through all aspects of the available guidance it is good policy to fall back on four basic principles when assessing the requirements for system operation:

- Maintain cold water at a sufficiently low temperature.
- Maintain hot water at a sufficiently high temperature.
- Keep water on the move (prevent stagnation)
- Keep the water and the storage and distribution systems clean.

7.2 Cold Water Storage

Location

The water supply regulations state that:

- Water storage cisterns shall be installed in a place or position such that the inside may be readily inspected and cleansed.
- Any float operated valve or other device used for controlling of the inflow of water can be readily installed repaired, renewed or adjusted. The storage cistern must be located for satisfactory access by maintenance personnel.
- If the storage cistern has more than 1,000 litres operating capacity then it should be provided with an access hatch so that maintenance can be carried out without having to remove the complete lid. The lid should also be fitted with a suitable vent, which should be screened against ingress of insects etc. – BS 8558.

Heat Gain

The normal location for cold-water storage cisterns in roof spaces and roof top plant rooms makes them liable to extraneous heat gain. In order to minimise heat gain the use of natural ventilation should be considered or mechanical ventilation under exceptional circumstances. If the storage cisterns are installed in warm areas they should be fitted with adequate thermal insulation in order to reduce heat gain. – BS 8558 - To restrict microbiological growth it is important that stored water is kept at the lowest practicable temperature and (ACoP L8) specifies that cold water storage and distribution should be maintained at 20ºC or below.

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7.3 Domestic Hot Water Storage Calorifiers and Cylinders

Fittings

For hot water storage calorifiers and cylinders the flow to the hot water distribution system is normally taken from the top vessel together with the open vent. The cold feed make-up is usually taken in towards the bottom of the vessel and the secondary hot water return is normally taken in approximately 1/3 of the height on more modern vessels and in older installations 1/3 from the top.

Storage calorifiers and cylinders must be suitably arranged for isolation and they should incorporate drain connections at the lowest points, which are large enough to permit the removal of sludge and to drain the plant quickly. The drain valve size should ideally allow drainage within 30 minutes and for the large installations drain off should not take more that 1-hour. The drains must be positioned to ensure adequate access and this is particularly important in the case of vertical storage calorifiers.

Operating Temperature

ACoP L8 requires that the operating temperatures for the hot water storage calorifiers and cylinders etc. should be a minimum of 60^{0}C and that this temperature should be evident throughout the storage vessel. The temperature on the return should not be less than 50°C.

Temperature Gauge

A suitable temperature gauge should be sited near to the calorifier / cylinder water supply outlet so that a quick visual indication can be made of the operating temperature. The temperature gauges should be checked and re-calibrated on a periodic basis.

Stratification and Stagnation

Stratification and stagnation must be reduced to a minimum. Stagnation in calorifiers may result from a number of causes, including the location of the cold feed and re-circulation tappings and possibly the capacity and general design. Stagnation can be minimised by modification of circulation arrangements within the calorifier. Stratification can occur in any calorifier or cylinder and there will be some temperature gradient across the vessel depending on the heat input and rate of draw.

To prevent stagnation where the cold feed and/or the return water connections are incorrectly sited, the modification of tappings or installation of sparge pipes can be employed.

Temperature stratification can be overcome by the use of small pump units, which can circulate water from the top to the bottom of the calorifier. The direction of flow is important in order to prevent redistribution of sludge, which may accumulate in the base sections. The pumps should be run from a timer at periods of low draw-off. The running time should be sufficient to eliminate the temperature gradient and frequency of operation and run time may be established from experience of the particular installation involved.

Another means of reducing possible stratification is by the repositioning of the hot water circulation return pipe to the base of the calorifier either by direct fitting or by use of an internal sparge pipe correctly sized and positioned. It may be possible to re-site the position of the cold feed also. By undertaking these measures they should ensure that during a significant period of the operating day, the total contents of the heating vessel would be raised to 60ºC.

7.4 Hot and Cold Water Distribution Systems

ACoP L8 states that water services should operate at temperatures that prevent the proliferation of Legionella. Hot water distribution should be maintained at a temperature of at least 50ºC obtainable at the taps within 1 minute of running.

Cold water storage and distribution should be at a temperature of 20ºC or below after 2 minutes.

Hot Water Distribution

The design of the hot water distribution systems and blended water (TMV) systems should be such as to minimise the length of any dead leg. The hot water service return connection should be taken as close as is practical to any draw-off as stated under BS8558. Secondary circulation must extend to the service point from the supply. Care should be taken when hot water services are run in the same service ducts and void as the cold-water services. Heat transfer can occur and the cold services may be warmed up to an unacceptable level. Insulation must be adequate and maintained in good order.

Cold Water Distribution

All cold water distribution pipe work, mains and cold water down feeds should be installed as far as is practicable to minimise heat gains from the environment. All pipe work should be insulated and arranged to eliminate or minimise dead legs. The cold water should be distributed at a temperature of 20ºC or below.

7.5 Routine Inspection and Maintenance

ACoP L8 requires that the water services shall be routinely checked and inspected and that they should be well maintained. Maintenance of the hot and cold-water distribution system should indicate a regime of cleaning at the water outlets, i.e. taps, showers, etc. in order to reduce any build-up of scale or any other contamination, which may provide a nutrient for bacteria.

The temperatures of the distribution systems and temperatures at outlet positions must be checked on occasions in order to ensure that temperatures are correct. As a minimum precaution the temperature at all outlets should be checked at least once a year and a representative number, which would normally be the outlets nearest and furthest from the hot water or cold water source, should be checked on a more frequent, monthly basis. Tests may also be carried out on the cold water systems in order to determine the bacterial quality. This measure will assist in determining the requirement for cleaning and disinfection procedures for the storage and distribution services.

WET

7.6 Thermostatic mixing valves

There are many types of TMV's but they all must follow the NHS D08 guidance note of regarding the prevention of scalding of people and to this end the following protocol has been laid out.

Using a calibrated digital thermometer the following tests must be carried out on TMV's at least once per year or more often if required.

1. Note should be made on record/log sheet to identify the valve type and
2. Check the temperature of the hot water going into the valve with a surface probe and it must be between 50-60°C within one minute.
3. Check the temperature of the cold water going into the valve with a surface probe and it must be below 20°C within two minutes.
4. Check the mixed water temperature from the blended outlet and this must **NOT** be more than 43°C.
5. ***NOTE:*** There are different temperatures for the blended water temperature. E.g.. Assisted and unassisted baths, bidets and children's crèches.
6. The cold valve to the TMV **MUST** be turned off to ensure the TMV assembly shuts off completely. i.e.. fail - safe to cold – off
7. The non-return valves checked for correct operation.
8. The strainers cleaned out and/ or replaced.

All actions must be noted on a record log sheet and filed in the log book.

W.E.T

SECTION 8

Report Photographs

Water Environmental Treatment Limited
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W.E.T

SECTION 9

Schematic Drawing

Water Environmental Treatment Limited
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ASSESSMENT NO: 6372
ASSESSMENT DATE: 25/04/2017

8.0 REPORT PHOTOGRAPHS

Photo 1:
Incoming mains and stop tap

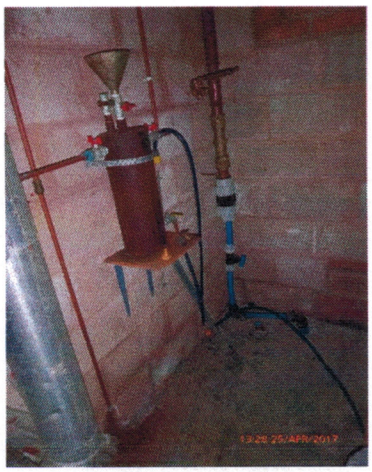

Photo 2:
CWST 1 in Century house, Open vent from the calorifier and no warning pipe

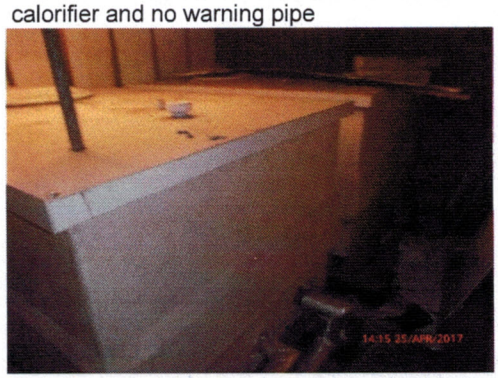

Photo 3:
Internal surfaces of CWST 2

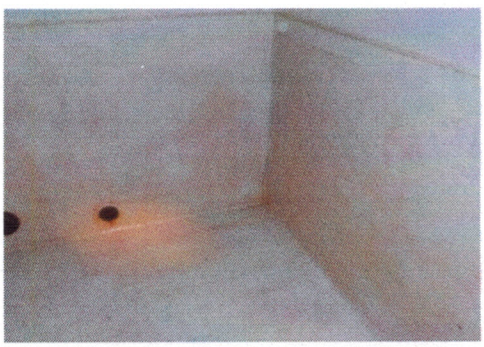

Photo 4:
CWST 2 in Lada with open vent, inlets & outlets on the same side and a loose lid.

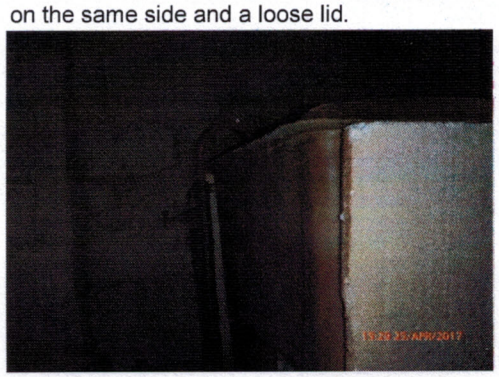

Photo 5:
Internal surface of CWST 2

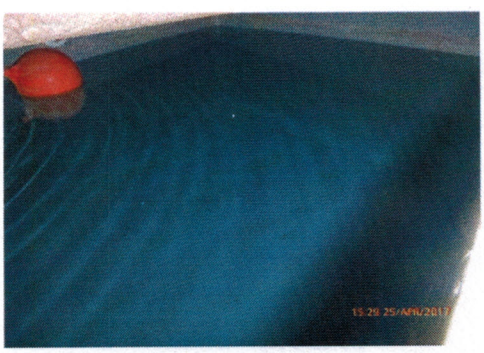

Photo 6:
CWST 3 in Vickers House with 1 redundant outlet feeding a decommissioned calorifier

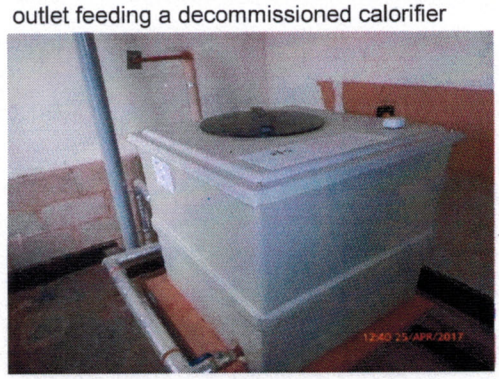

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Photo 7:
Internal surfaces of CWST 3

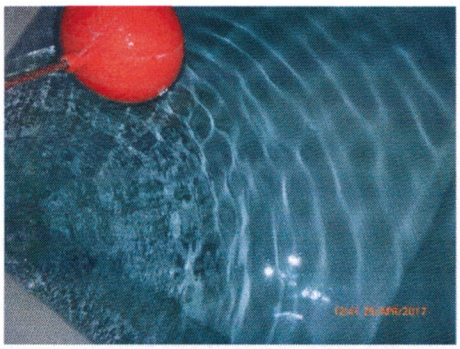

Photo 8:
Example of infrequently used bib tap.

Photo 9:
Broken water heater in Vickers 1st floor Kitchen

Photo 10:
Water heater in Vickers ground floor Cleaners with a sideways orientated expansion vessel

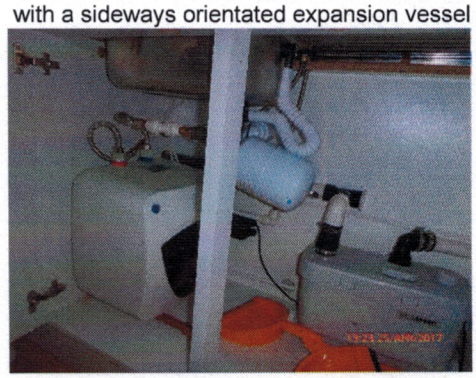

Photo 11:
Redundant calorifier in Vickers house connected to CWST 3

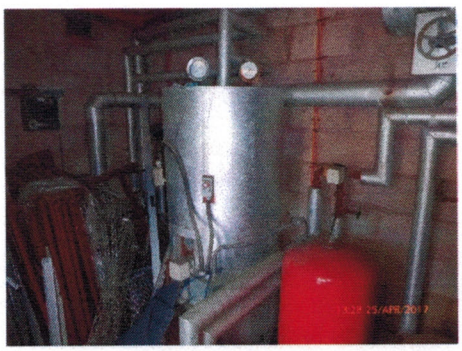

Photo 12:
Example of faulty outlets in the canteen

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Photo 13:
Deadends in the Kitchen store room behind a chest freezer

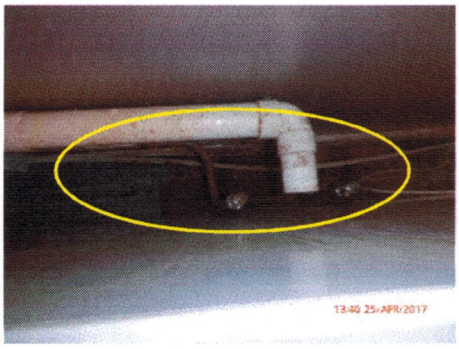

Photo 14:
Outlets disconnected in the Kitchen toilet

Photo 15:
Deadend in Century house 1st floor Female toilet

Photo 16:
Deadend in Century house 1st floor male toilet

Photo 17:
Deadend in Century house 1st floor store cupboard

Photo 18:
Deadend in Century house 1st floor Female toilet

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Photo 19:
Deadend in Lada canteen area above Male toilet

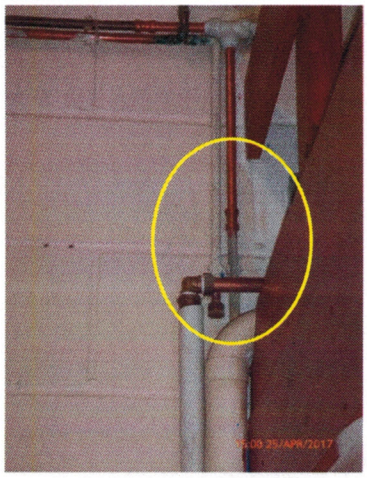

Photo 20:
Deadend in Lada factory

Photo 21:
Deadend above Lada toilet

Photo 22:
Deadend in Lada factory toilet

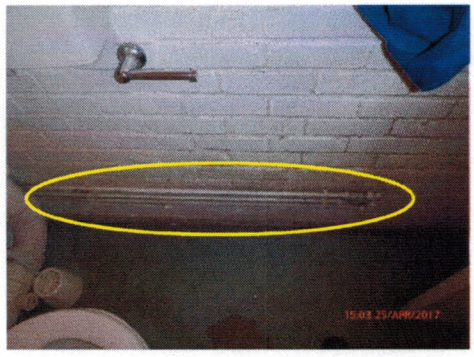

Photo 23:
Deadend in Lada factory toilet

Photo 24:
Deadend in Lada polish room

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Photo 25:
Deadend in Lada polish room

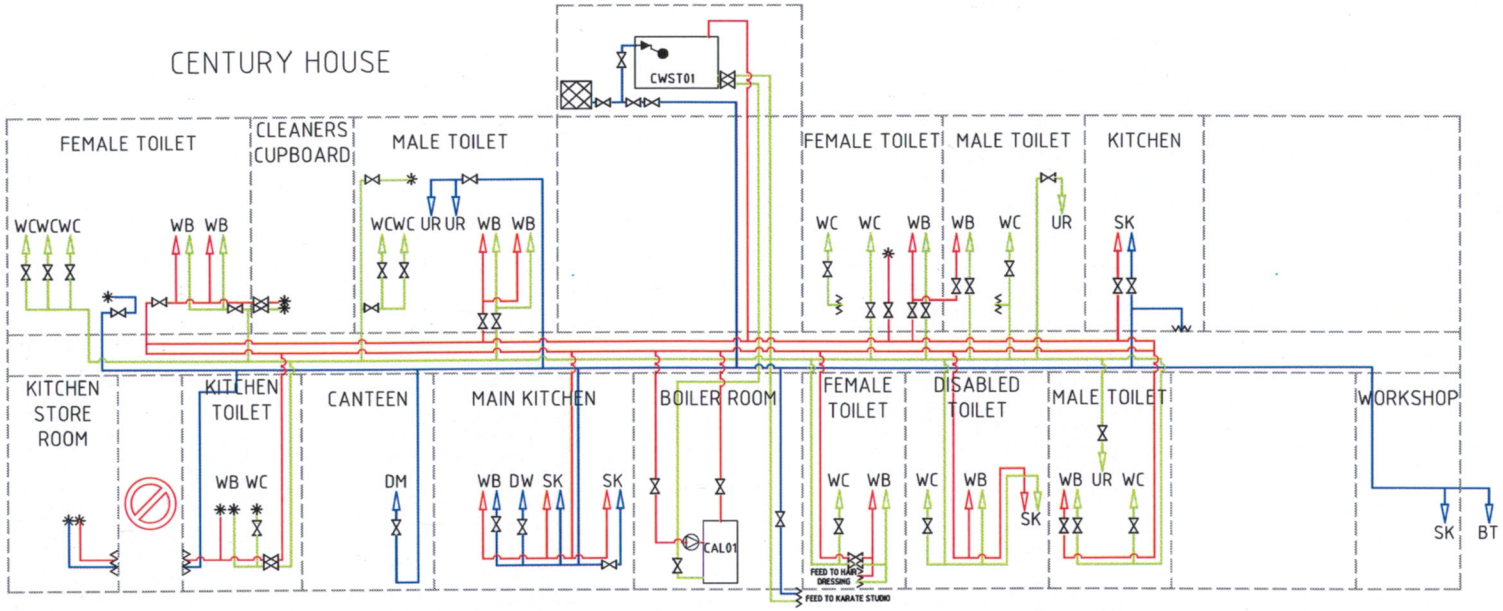
Photo 26:
3 water heaters in Lada workshop toilet that are connected and now redundant

Photo 27:
Deadend in Lada factory toilet

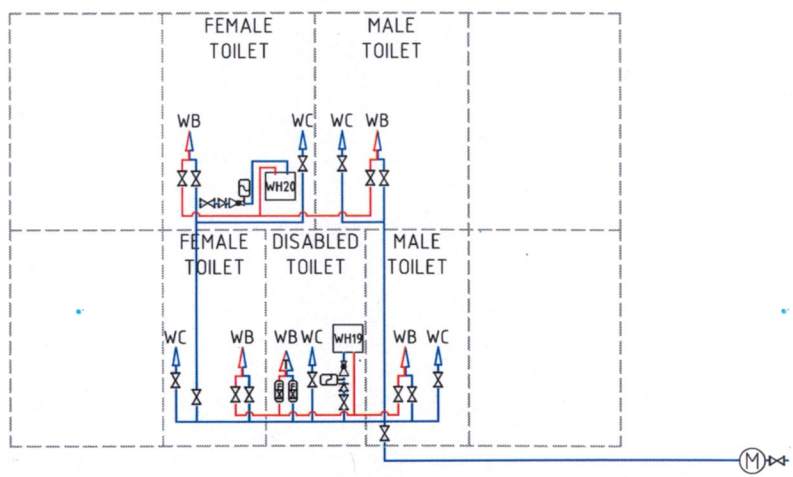
Photo 28:
Deadend in Lada factory toilet

Photo 29:
Deadend in 1st floor Lada Kitchen

CENTURY HOUSE



MILLENNIUM HOUSE



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- COLD WATER SERVICE
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- ISOLATION VALVE
- ISOLATED VALVE
- METER
- OUTLET
- WATER HEATER
- MIXER OUTLET
- CALORIFIER
- THERMOSTATIC MIXER OUTLET
- COLD WATER STORAGE TANK
- EXPANSION VESSEL
- DIRECTION OF FLOW
- FILTER & VALVE
- FLOAT OPERATED VALVE
- SOFTENER
- DEADLEG
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- FILTER
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- PUMP
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- HEATING SYSTEMS
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- FIRE HOSE REEL
- THERMAL SHOWER

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WB - WASH BASIN
LM - LAUNDRY MACHINE
DM - DRINKS MACHINE
DWD - DRINKING WATER DISPENSER
UR - URINAL
SK - SINK
DW - DISH WASHER
BA - BATH
SDN - NEAREST, FURTHEST & SENTINEL

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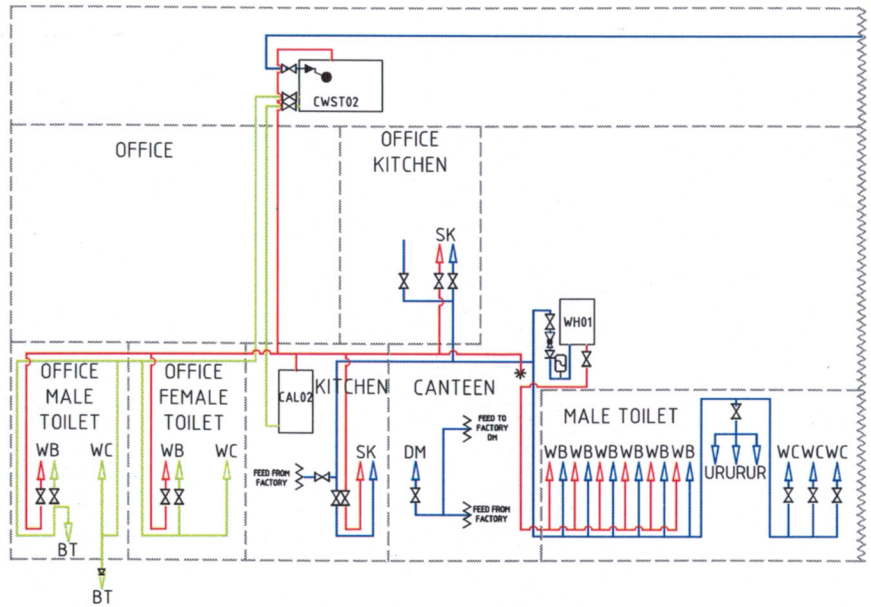
Tel: 01827 288810 Fax: 01827 261390

WATER SERVICES SCHEMATIC

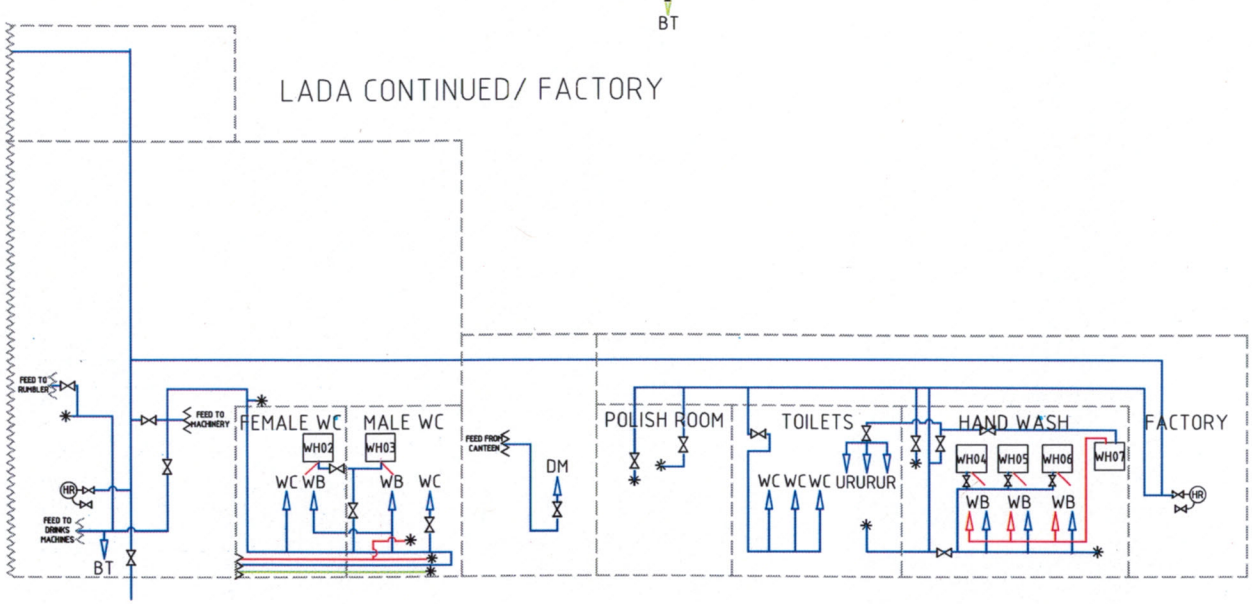
Client: VICKERS BUSINESS PARK
Address: PRIESTLEY ROAD
BASINGSTOKE
RG24 9NP

Project: VICKERS BUSINESS PARK
Job No.: 6372
Drawn by: R.PARKINSON Date: 15/05/17
Approved by: R.PARKINSON Date: 15/05/17
Drawing No.: PD1163-01
Scale: NTS
Revision: 0

LADA MAIN BUILDING



LADA CONTINUED/ FACTORY



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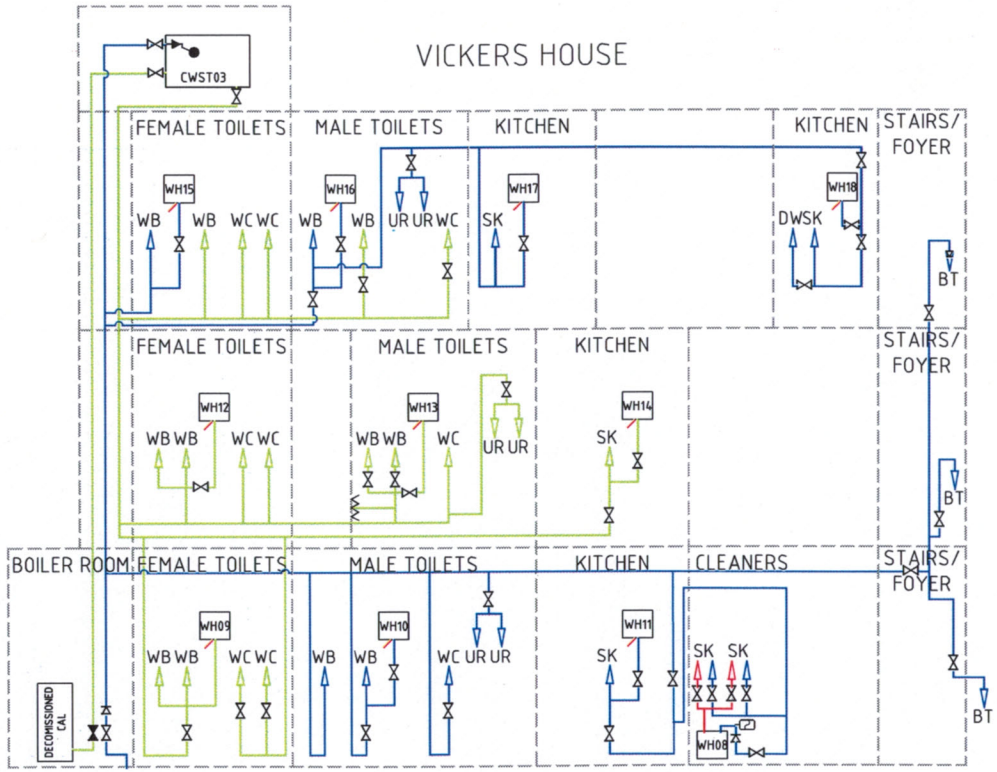
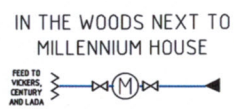
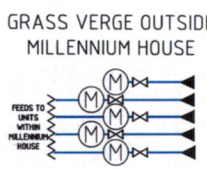
Job No.:	6372
Drawn by:	R.PARKINSON — Date: 15/05/17
Approved by:	R.PARKINSON — Date: 15/05/17
Drawing No.:	PD1163-02 — Scale: NTS — Revision: 0







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Drawing No.:	PD1163-03
Scale:	NTS
Revision:	0