DETECTION SURVEY REPORT

GENERAL
This survey was carried out in accordance with PAS 128:2014 (Publicly Available Specification from BSI). After a pre-survey consultation with the client it was agreed to carry out the detection survey using methodology M1 as per Table 2 of the PAS 128:2014. The survey boundary has been shown on the drawing; please see linestyle section of the key for reference.

DESKTOP UTILITY REPORT
Prior to the survey commencing record information was gathered and compiled in a separate desktop utility report. This report should be read in conjunction with the information contained in this utility detection survey. Record information was at the time of the survey less than 90 days old in accordance with the requirements of the PAS 128:2014. For a full list of the providers searched, records received and the dates the information was obtained, please refer to the attachments page of the desktop utility report.

DETECTION SURVEY
DRAINAGE
Drainage was lifted with pipe sizes and invert levels recorded. Whenever possible the chamber sizes have been recorded and positioned on the drawing. Assumed connection between MH43 and MH32 though internal drainage, not surveyed. All connections from gullies, external rainwater pipes and external soil stacks have been proven wherever possible into manholes and sewer runs by radio sonde location and/or GPR. Where a saddle connection is present the position is assumed only until proven otherwise. In instances where other detection methods were unsuccessful connections between manholes have been assumed to be straight and labelled as QB4. All drainage should be cross checked in critical areas by CCTV survey or verification survey type A.

WATER
Water was located utilising EML and GPR methods to quality level QB2. The supply to the site could not be located and has been transcribed to the drawing from the supplied record information through any relevant water furniture to quality level QB4.

GAS
Gas services located using EML methods to quality level QB2. Two gas supplies to the site were located. Where congested services meant that we could no longer induce a signal onto the pipe in Bartons Road, record information has been transcribed to the drawing to quality level QB4.

ELECTRICITY
Electricity cables located utilising EML and GPR methods to quality level QB2, where GPR results confirmed EML findings the quality level has been upgraded to QB1. While every effort is made to detect all underground cables it is not always possible, pot-ended cables being particularly difficult to locate. Extreme care should be taken when undertaking all excavations. The LV loop supplying the lamp posts in the rear car park is an assumed route and labelled QB4 accordingly.

TELECOM
Telecom ducts have been traced with depths recorded. Due to laws protecting British Telecom apparatus all ducts have been located using remote detection techniques only and compared with record information. Chamber sizes have been recorded using GPR techniques wherever possible. For further information regarding BT apparatus please contact Openreach directly.

CATV
CATV was located utilising EML and Gpr methods to quality level QB2. Where possible the fibre optic ducting has been located along Bartons Road, where it could not be located the record in formation has been transcribed to the drawing to quality level QB4.

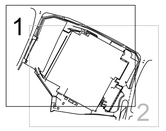
UNKNOWNS
An unknown service located along New Lane, recommend trial excavations to confirm the location, depth and nature of the service. An unknown service was located across New Lane, this could be close to the site entrance, this could be the water supply to the site. Recommend trial excavations to confirm location, depth and nature of the service in critical areas.
An unknown service located crossing the old rear entrance to the car park, recommend trial excavations to confirm location, depth and nature of the service in critical areas.

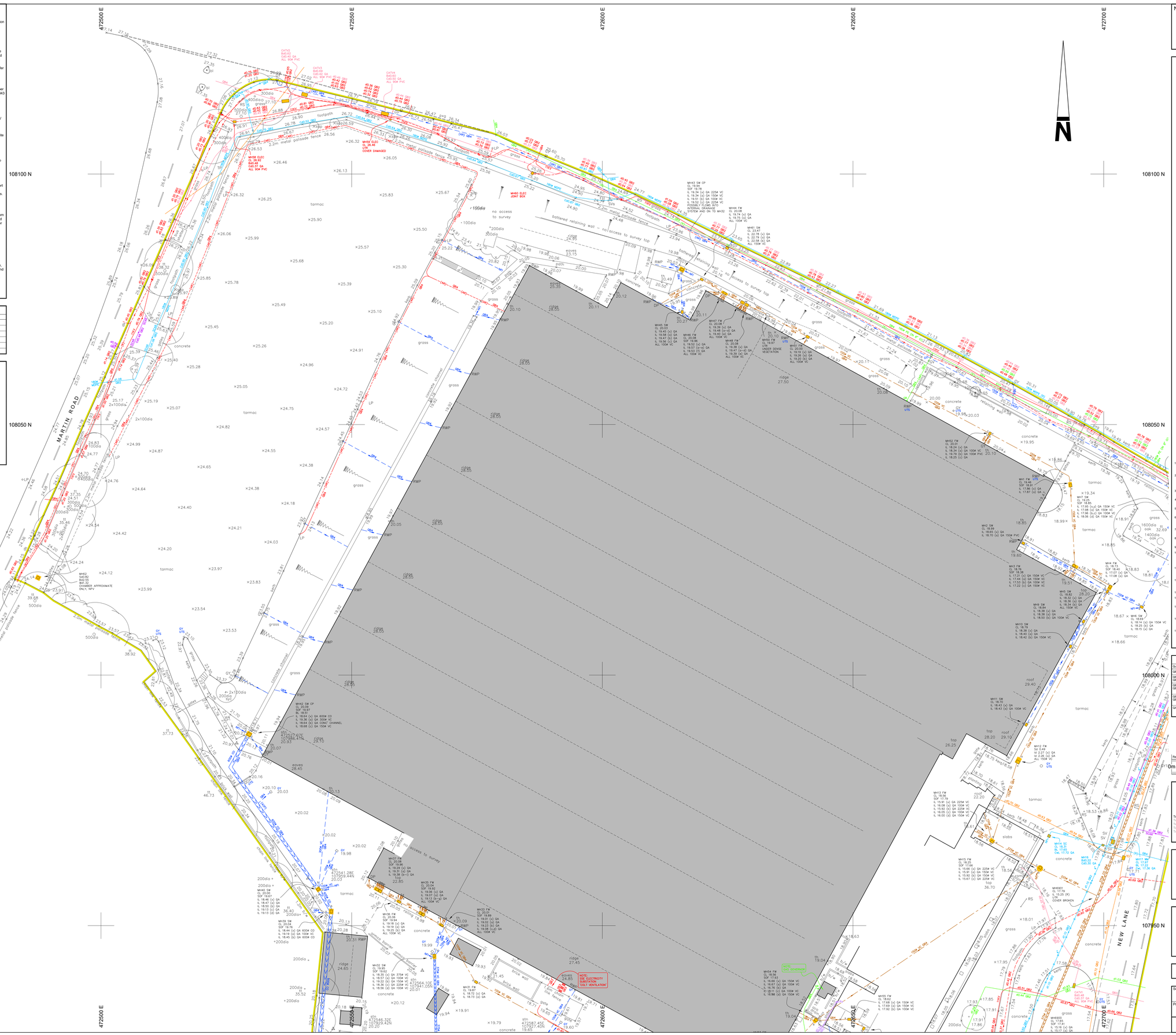
SEE CAUTIONARY NOTES WITHIN THE UTILITY KEY

Desktop Utility Records

Utility Type	Provider Details	Date Acquired
Drainage	Southern Water	09/08/2017
Water	Portsmouth Water	15/08/2017
Gas	SGN	31/08/2017
Electricity	Scottish and Southern	31/08/2017
Telecom	Openreach	31/08/2017
CATV	Virgin Media	07/08/2017

Sheet Layout: (Not to Scale)





Notes :

1. UTILITY AND SERVICE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY P STUBBINGTON LAND SURVEYS LTD. JOB No. 4816/01. DATE DECEMBER 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS.
2. THIS SURVEY SHOULD ALWAYS BE READ IN CONJUNCTION WITH THE DESKTOP UTILITY REPORT. THAT WAS CARRIED OUT AS A PREREQUISITE TO THE DETECTION SURVEY.

KEY

GENERAL

Av.	AVERAGE
(ACP)	ASSUMED CONNECTION POINT
CGW	CABLE ON WALL
CW	COMBINED WATER
DIS	DISUSED
DK	DROP KERB
EML	ELECTROMAGNETIC LOCATOR
EOT	END OF TRENCE
FO	FIBRE OPTIC
FP	FOOTPATH
FW	FOUL WATER
GP	GATE POST
GPR	GROUND PENETRATING RADAR
HB	HARD BED
HP	HIGH PRESSURE
HV	HIGH VOLTAGE
IL	INVERT LEVEL
IP	INTERMEDIATE PRESSURE
LP	LOW PRESSURE
LV	LOW VOLTAGE
MIP	MEDIUM PRESSURE
NDI	NO DEPTH INFORMATION
NFI	NO FURTHER INFORMATION
NPI	NO PIPE IDENTIFIED
NPV	NO PIPES VISIBLE
OSBM	ORDNANCE SURVEY BENCHMARK
PIPV	PIPE ON WALL
P.BOX	POST BOX
RED	REDUNDANT SERVICE
RW	RETAINING WALL
SA	SOAKAWAY
SNP	STREET NAME PLATE
SW	SURFACE WATER
TAC	TACTILE PAVING
TOW	TOP OF WALL
TW	TRADE EFFLUENT WATER
UTL	UNABLE TO LOCATE
UTR	UNABLE TO RAISE
UTS	UNABLE TO SURVEY

APPARATUS

ACU	AIR CONDITIONING UNIT
AV	AIR VALVE
BB	BELISHA BEACON
BO	BOLLARD
BOL	BOLLARD LIGHT
CAB	ELEC CABINET
CATV	CABLE TELEVISION
CB	CONTROL BOX
CCB	CROSSING CONTROL BUTTON
CP	CATCH PIT
CR	CABLE RISER
DCH	DRAINAGE CHANNEL
DO	DOG FOUL BIN / CONTROL BOX
EP	ELECTRIC POLE
ER	EARTH ROD
FD	FILTER DRAIN
FFP	FUEL TANK FILL POINT
FH	FIRE HYDRANT
GR	GAS RISER
GV	GAS VALVE
IC	INSPECTION
IM	INSPECTION COVER
INT	INTERCEPTOR
IT	INLET
KO	KERB OUTLET
LD	LOOP DETECTOR
LH	LAMP HOLE
LP	LAMP POST
MH	MANHOLE
MK	MARKER POST / PLATE
MT	METER
MW	MONITORING WELL
OL	OUTLET
OU	OUTFALL
PO	POST
PTG	PIPE TO GROUND
PTS	PIPE TO SURFACE
PU	PUMP
RE	RODDING EYE
RS	ROAD SIGN
RM	RISING MAIN
RWP	RAIN WATER PIPE
SC	STOP COCK
SD	SOIL PIPE
ST	STAY CABLE
SV	STOP / SLUICE VALVE
SVP	SOIL VENT PIPE
TCB	TELEPHONE CALL BOX
TEL	TELECOM INSPECTION COVER
TL	TRAFFIC LIGHT
TLC	TRAFFIC LIGHT COVER
TP	TELEGRAPH POLE
TR	TELECOM POLE
VP	VENT PIPE
WM	WATER METER
WO	WASH OUT
WR	WATER RISER
WT	WATER TAP
WW	WET WELL

DEPTHS

d	ELECTRONICALLY DERIVED
Pd	PASSIVELY DERIVED
Bd	BASE DEPTH
Cd	DEPTH TO CROWN
Id	DEPTH TO INVERT
Sd	DEPTH TO SOFFIT

PIPE MATERIALS

AC	ASBESTOS CEMENT
ALK	ALKATHENE
BK	BRICK
CI	CAST IRON
CO	CONCRETE
DI	DUCTILE IRON
HDPE	HIGH DENSITY PE
MDPE	MEDIUM DENSITY PE
PE	POLYETHYLENE
PF	POTCH FIBRE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
PVC-U	ULTRA RIB (PVC)
SI	SPUN IRON
ST	STEEL
VC	VITRIFIED CLAY

FENCES

BW	BARBED WIRE FENCE
CB	CLOSED BOARDED FENCE
CPL	CONCRETE PANEL FENCE
CI	CORRUGATED IRON FENCE
CNP	CHESTNUT PALING
HF	HERRAS FENCE
IR	IRON RAILINGS
LL	LARCH LAP FENCE
PIR	POST AND RAIL FENCE
PW	POST AND WIRE FENCE
WM	WIRE MESH FENCE

LEVELS

BD	BACKDROP LEVEL
BL	BASE LEVEL
CL	COVER LEVEL
CWL	CROWN LEVEL
DPC	DAMP PROOF COURSE
FL	FLOOR LEVEL
IL	INVERT LEVEL
PT	P TRAP LEVEL
RL	ROOF LEVEL
SOF	SOFFIT LEVEL
THL	THRESHOLD LEVEL
WL	WATER LEVEL

LINESTYLE

INTERNAL METER — (M)
POT ENDED SERVICE
SEWER CAPPED RUN
SURVEY ABANDONED
INTERNAL VALVE
UNKNOWN UNDERGROUND ANOMALY — UNK
UNDERGROUND CHAMBERS
POST PROCESSING AREA — PROCESSING
ABOVE GROUND — (AG)
ASSUMED ROUTE — (AR)
EMPTY DUCTS — (E)
OVERHEAD — (OH)
BACK DROP
P TRAP
UTILITY CROSSOVER
SURVEY BOUNDARY
VERBAL INFORMATION — (V)
RECORD INFORMATION — (R)
REDUNDANT SERVICE — (X)
RISING MAIN — (RM)
CCTV SECTION A AND 3 FAULTS ARE SHOWN IN RED

SERVICE TYPE

CATV / DATA
ELECTRICITY (HV)
ELECTRICITY (LV)
FUEL
GAS
HEATING
OVERHEAD ELECTRIC
OVERHEAD TELECOM
TRADE EFFLUENT
COMBINED SEWER
FOUL SEWER
SURFACE SEWER
UNIDENTIFIED SEWER
TELECOM
UNKNOWN SERVICE
WATER

CAUTIONARY NOTES

1. EML techniques have been used in the detection of underground utilities as outlined in Table 2 of PAS 128:2014, the results are not infallible and trial excavations must be carried out in order to confirm identification, position and in particular depth of the utility.
2. GPR techniques has been used in the detection of non-metallic utilities as outlined in Table 2 of PAS 128:2014. The interpretation of these results is not infallible and success will depend on a number of factors including soil type, ground water levels and surface conditions, hence trial excavations must be carried out in order to confirm identification, position and in particular depth of the utility.
3. Depths derived via EML are taken to the centre of the conductor (cable, metallic pipe) and those derived via GPR are usually to the crown of the utility unless otherwise indicated.
4. Where cables cannot be detected individually an average depth has been obtained and trial excavations are recommended to confirm number and depths of cables banded together.
5. 'Pot-ended' cables are often difficult to detect and although we have made all reasonable efforts to locate or transpose this information from records, we cannot guarantee that all 'pot-ended' cables have been located.
6. Fibre optic cables are often difficult to detect; and commonly access chambers can be locked and thereby made inaccessible by the utility provider. All reasonable efforts have been made to locate these ducts using GPR. Cables not located have been transposed from records.
7. Within close proximity of electric substations and similar structures results using EML may become distorted. All reasonable efforts have been made to verify our results using GPR wherever conditions permitted.
8. Underneath overhead power lines results using EML may become distorted. All reasonable efforts have been made to verify our results using GPR wherever conditions permitted.
9. Drainage information has been obtained without man entry into the chamber.
10. Wherever possible we have attempted to locate the route of the sewer. Issues such as blockages, surcharging, flooding, sedimentation, sewer collapse, root ingress, excessive depth, obstructions or heavy traffic flow may have affected our ability to obtain meaningful results. In these cases recommendations have been made for further survey or maintenance work.
11. Pipe / duct sizes have been recorded from surface inspection or taken from record information. Pipe sizes have been recorded in millimetres and depths in metres, except in instances where sizes are indicated in imperial units on the record information.
12. Water and Gas utilities to individual properties are often of a size that cannot be detected using EML or GPR; investigation, wherever possible the route has been added from surface evidence (pipe risers, valves, etc), but this should be viewed as a guide only.
13. All utilities detected by MK Surveys should be considered live unless confirmed otherwise by client or service provider.
14. MK Surveys cannot confirm when utilities are redundant unless there is visual or record evidence to indicate this. In addition MK Surveys cannot guarantee being able to detect all redundant utilities.
15. Wherever available the results of our investigations have been cross referenced with record information. If a utility shown on the records cannot be detected on site, the information has been added to the drawing and indicated as QB4 (R). However it should be noted that the completeness and accuracy of the records cannot be guaranteed.
16. The utility information has been obtained from non-intrusive survey techniques. It always remains possible that there are additional utilities within the survey boundary that we have not been able to detect. We recommend that care is taken on site and that all utility records are used in conjunction with this survey.
17. The responsibility for avoiding damage to assets and utilities on site shall be that of the persons proposing to excavate within the surveyed area, who shall be liable to the asset owner and any third party who may be affected in any way for any loss or damage.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.

PAS 128:2014 Quality Level Guide

Quality Level	Description	Accuracy
QB4	A utility is expected to exist but cannot be detected - (ARI), (RI), (VI)	Undefined
QB3 QB3P	Horizontal location only using one geophysical technique. No depth information - NDI	+/- 500mm Horizontal Undefined Vertical
QB2 QB2P	Horizontal and vertical location only using one geophysical technique.	+/- 250mm or +/- 40% of depth whichever is greater
QB1 QB1P	Horizontal and vertical location only using two geophysical techniques.	+/- 100mm or +/- 15% of depth whichever is greater
QA	Service verified in an open excavation, inside an inspection chamber / draw pit, or at the point the service enters / exits the ground.	+/- 50mm Horizontal +/- 25mm Vertical

Revision	Description	Sym. by	Appr by	Date

0m 2 4 6 8 10 12 14 16 18 20 22 24 26 28

mksurveys

Tel 01908 565561 — Milton Keynes — enquiries@mksurveys.co.uk
Tel 01865 394475 — Oxford — oxford@mksurveys.co.uk
Tel 0116 2849127 — East Midlands — eastmidlands@mksurveys.co.uk
Tel 01384 404202 — West Midlands — westmidlands@mksurveys.co.uk
Tel 01403 242363 — Horsham — horsham@mksurveys.co.uk
www.mksurveys.com — www.surveys4bim.co.uk

Homes & Communities Agency

Colt International
Havant
Hampshire

Utility Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:250	A0	1	September 2017
Project Number:	**Rev:**	**Surveyed By:**	**Approved By:**
24301	-	AH	DF

DETECTION SURVEY REPORT

GENERAL
This survey was carried out in accordance with PAS 128:2014 (Publicly Available Specification from BSI). After a pre-survey consultation with the client it was agreed to carry out the detection survey using methodology M1 as per Table 2 of the PAS 128:2014. The survey boundary has been shown on the drawing; please see linestyle section of the key for reference.

DESKTOP UTILITY REPORT
Prior to the survey commencing record information was gathered and compiled in a separate desktop utility report. This report should be read in conjunction with the information contained in this utility detection survey. Record information was at the time of the survey less than 90 days old in accordance with the requirements of the PAS 128:2014. For a full list of the providers searched, records received and the dates the information was obtained, please refer to the attachments page of the desktop utility report.

DETECTION SURVEY
DRAINAGE
Drainage was lifted with pipe sizes and invert levels recorded. Wherever possible the chamber sizes have been recorded and positioned on the drawing. Assumed connection between MH43 and MH32 though internal drainage, not surveyed. All connections from gullies, external rainwater pipes and external soil stacks have been proven wherever possible into manholes and sewer runs by radio sonde location and/or GPR. Where a saddle connection is present the position is assumed only until proven otherwise. In instances where other detection methods were unsuccessful connections between manholes have been assumed to be straight and labelled as QB4. All drainage should be cross checked in critical areas by CCTV survey or verification survey type A.

WATER
Water was located utilising EML and GPR methods to quality level QB2. The supply to the site could not be located and has been transcribed to the drawing from the supplied record information through any relevant water furniture to quality level QB4.

GAS
Gas services located using EML methods to quality level QB2. Two gas supplies to the site were located. Where congested services meant that we could no longer induce a signal onto the pipe in Bartons Road, record information has been transcribed to the drawing to quality level QB4.

ELECTRICITY
Electricity cables located utilising EML and GPR methods to quality level QB2, where GPR results confirmed EML findings the quality level has been upgraded to QB1. While every effort is made to detect all underground cables it is not always possible, pot ended cables being particularly difficult to locate. Extreme care should be taken when undertaking all excavations. The LV loop supplying the lamp posts in the rear car park is an assumed route and labelled QB4 accordingly.

TELECOM
Telecom ducts have been traced with depths recorded. Due to laws protecting British Telecom apparatus all ducts have been located using remote detection techniques only and compared with record information. Chamber sizes have been recorded using GPR techniques wherever possible. For further information regarding BT apparatus please contact Openreach directly.

CATV
CATV was located utilising EML and Gpr methods to quality level QB2. Where possible the fibre optic ducting has been located along Bartons Road, where it could not be located the record in formation has been transcribed to the drawing to quality level QB4.

UNKNOWNS
An unknown service located along New Lane, recommend trial excavations to confirm the location, depth and nature of the service. An unknown service was located across New Lane, this could be close to the site entrance, this could be the water supply to the site. Recommend trial excavations to confirm location, depth and nature of the service in critical areas.
An unknown service located crossing the old rear entrance to the car park, recommend trial excavations to confirm location, depth and nature of the service in critical areas.

SEE CAUTIONARY NOTES WITHIN THE UTILITY KEY

Desktop Utility Records

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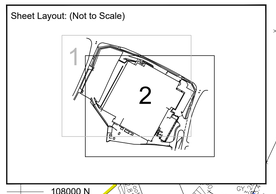
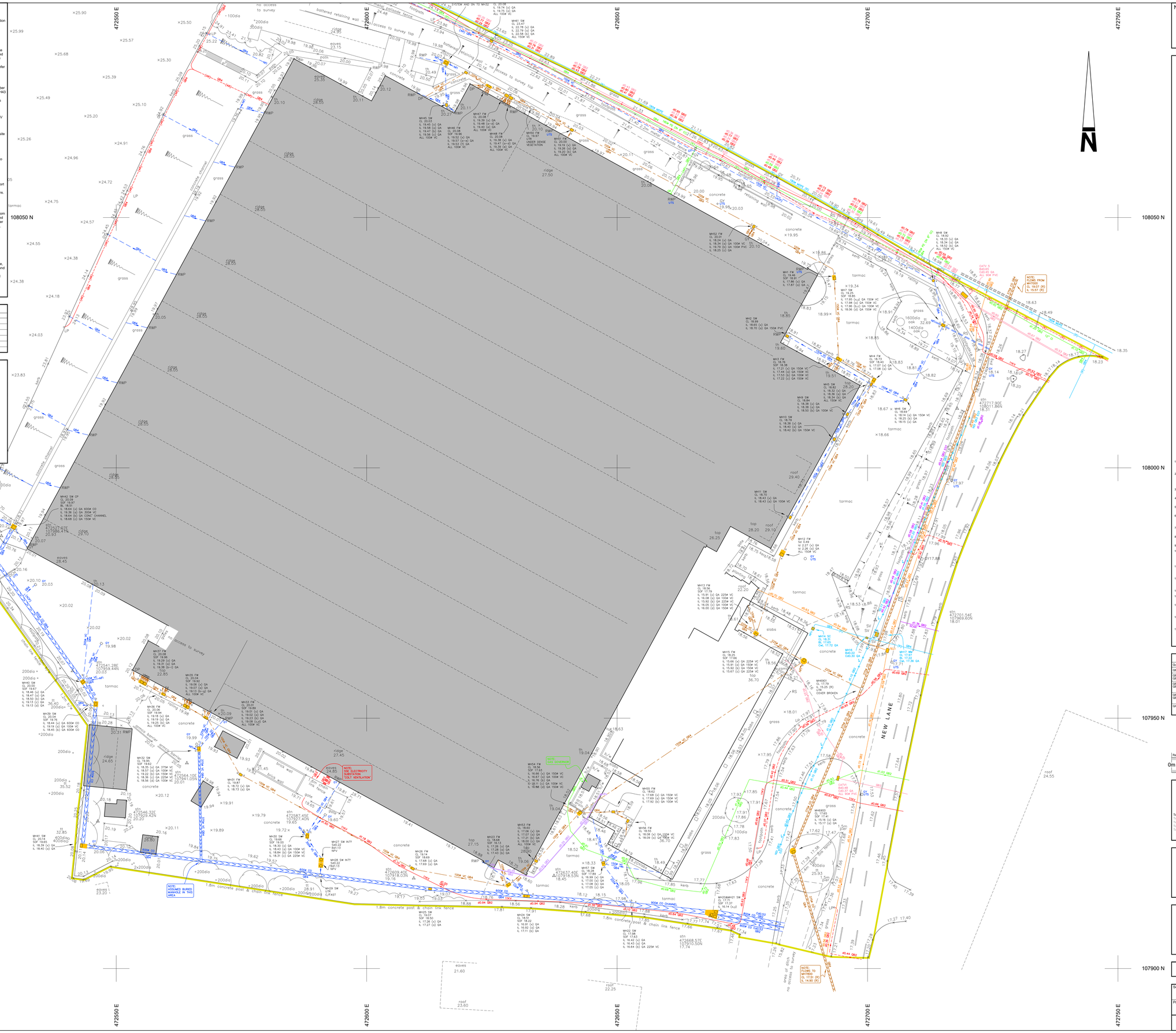
Water	Portsmouth Water	15/08/2017
Gas	SGN	31/08/2017
Electricity	Scottish and Southern	31/08/2017
Telecom	Openreach	31/08/2017
CATV	Virgin Media	07/08/2017

Sheet Layout: (Not to Scale)





Notes :

1. UTILITY AND SERVICE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY P STUBBINGTON LAND SURVEYS LTD. JOB No. 481/6/01. DATE DECEMBER 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS.
2. THIS SURVEY SHOULD ALWAYS BE READ IN CONJUNCTION WITH THE DESKTOP UTILITY REPORT. THAT WAS CARRIED OUT AS A PREREQUISITE TO THE DETECTION SURVEY.

KEY

GENERAL

Av.	AVERAGE
(AOP)	ABSURBED CONNECTION POINT
CGW	CABLE ON WALL
CW	COMBINED WATER
DIS	DISUSED
DK	DROP KERB
EML	ELECTROMAGNETIC LOCATOR
FOT	FOOT BRIDGE
FP	FIBRE OPTIC
FP	FOOTPATH
FW	FOUL WATER
GP	GATE POST
GPR	GROUND PENETRATING RADAR
HB	HARD BED
HP	HIGH PRESSURE
HV	HIGH VOLTAGE
IC	INSPECTION
IP	INTERMEDIATE PRESSURE
LIP	LOW PRESSURE
LV	LOW VOLTAGE
MIP	MEDIUM PRESSURE
NDI	NO DEPTH INFORMATION
NFU	NO FURTHER INFORMATION
NPI	NO PIPE INSERT
NPV	NO PIPES VISIBLE
OSBM	ORDNANCE SURVEY BENCHMARK
POW	PIPE ON WALL
P.BOX	POST BOX
RED	REDUNDANT SERVICE
RW	RETAINING WALL
SAP	SAPLING
SNP	STREET NAME PLATE
SW	SURFACE WATER
TAC	TACTICAL CABLING
TOW	TOP OF WALL
TW	TRADE EFFLUENT WATER
UTL	UNABLE TO LOCATE
UTR	UNABLE TO RAISE
UTS	UNABLE TO SURVEY

APPARATUS

ACU	AIR CONDITIONING UNIT
AV	AIR VALVE
BB	BELISHA BEACON
BO	BOLLARD
BOL	BOLLARD LIGHT
BT	BT APPARATUS
CATV	CABLE TELEVISION
CB	CONTROL BOX
CCB	CROSSING CONTROL BUTTON
CP	CATCH PIT
CR	CABLE RISER
DCH	DRAINAGE CHANNEL
EPO	ELECTRIC POWER CONTROL BOX
EP	ELECTRIC POLE
ER	EARTH ROD
FD	FLUSH DRAIN
FFP	FUEL TANK FILL POINT
FH	FIRE HYDRANT
GR	GAS RISER
GV	GAS VALVE
IC	INSPECTION
IM	INSPECTION COVER
INT	INTERCEPTOR
IT	INLET
KD	KERB OUTLET
LD	LOOP DETECTOR
LH	LAMP HOLE
LP	LAMP POST
MHF	MANHOLE
MK	MARKER POST / PLATE
MT	METER
MW	MONITORING WELL
OL	OUTLET
OU	OUTFALL
PO	POST
PTG	PIPE TO GROUND
PTS	PIPE TO SURFACE
PU	PUMP
RE	RODDING EYE
RS	ROAD SIGN
RM	RISING MAIN
RWP	RAIN WATER PIPE
SC	SECURITY LOOP
SD	SOIL PIPE
ST	STAY CABLE
SV	STOP / SLUICE VALVE
SVP	SOIL VENT PIPE
TCB	TELEPHONE CALL BOX
TEL	TELECOM INSPECTION COVER
TL	TRAFFIC LIGHT
TLC	TRAFFIC LIGHT COVER
TP	TELEGRAPH POLE
TP	TELECOM POLE
VP	VENT PIPE
WM	WATER METER
WO	WASH OUT
WR	WATER RISER
WT	WATER TAP
WW	WET WELL

DEPTHS

d	ELECTRONICALLY DERIVED
Pd	PASSIVELY DERIVED
Bd	BASE DEPTH
Cd	DEPTH TO CROWN
Id	DEPTH TO INVERT
Td	DEPTH TO SOFFIT

PIPE MATERIALS

AC	ASBESTOS CEMENT
ALK	ALKATHENE
BK	BRICK
CI	CAST IRON
CO	CONCRETE
DI	DUCTILE IRON
HDPE	HIGH DENSITY PE
MDPE	MEDIUM DENSITY PE
PE	POLYETHYLENE
PF	POTCH FIBRE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
PVCU	ULTRA RIB (PVC)
SI	SPUN IRON
ST	STEEL
VC	VITRIFIED CLAY

FENCES

BW	BARBED WIRE FENCE
CB	CLOSED BOARDED FENCE
CPL	CONCRETE PANEL FENCE
CI	CORRUGATED IRON FENCE
CNP	CHESTNUT PALING
HF	HERRAS FENCE
IR	IRON RAILINGS
LL	LARCH LAP FENCE
PIR	POST AND RAIL FENCE
PW	POST AND WIRE FENCE
WM	WIRE MESH FENCE

LEVELS

BD	BACKDROP LEVEL
BL	BASE LEVEL
CL	COVER LEVEL
CWL	CROWN LEVEL
DPC	DAMP PROOF COURSE
FL	FLOOR LEVEL
IL	INVERT LEVEL
PT	P TRAP LEVEL
RL	ROOF LEVEL
SOF	SOFFIT LEVEL
THL	THRESHOLD LEVEL
WL	WATER LEVEL

LINESTYLE

INTERNAL METER — (M)
POT ENDED SERVICE
SEWER CAPPED RUN
SURVEY ABANDONED
INTERNAL VALVE — (V)
UNKNOWN UNDERGROUND ANOMALY — (?)
UNDERGROUND CHAMBERS
POST PROCESSING AREA — PROCESSING
ABOVE GROUND — (AG)
ASSUMED ROUTE — (AR)
EMPTY DUCTS — (E)
OVERHEAD — (OH)
BACK DROP — (BD)
P TRAP — (P)
UTILITY CROSSOVER — (X)
SURVEY BOUNDARY
VERBAL INFORMATION — (V)
RECORD INFORMATION — (R)
REDUNDANT SERVICE — (X)
RISING MAIN — (RM)
CCTV SECTION 4 AND 5 FAULTS ARE SHOWN IN RED

SERVICE TYPE

CATV / DATA
ELECTRICITY (HV)
ELECTRICITY (LV)
FUEL
GAS
HEATING
OVERHEAD ELECTRIC
OVERHEAD TELECOM
TRADE EFFLUENT
COMBINED SEWER
FOUL SEWER
SURFACE SEWER
UNIDENTIFIED SEWER
TELECOM
UNKNOWN SERVICE
WATER

CAUTIONARY NOTES

1. EML techniques have been used in the detection of underground utilities as outlined in Table 2 of PAS 128:2014, the results are not infallible and trial excavations must be carried out in order to confirm, identification, position and in particular depth of the utility.
2. GPR techniques has been used in the detection of non-metallic utilities as outlined in Table 2 of PAS 128:2014. The interpretation of these results is not infallible and success will depend on a number of factors including soil type, ground water levels and surface conditions, hence trial excavations must be carried out in order to confirm identification, position and in particular depth of the utility.
3. Depths derived via EML are taken to the centre of the conductor (cable, metallic pipe) and those derived via GPR are usually to the crown of the utility unless otherwise indicated.
4. Where cables cannot be detected individually an average depth has been obtained and trial excavations are recommended to confirm number and depths of cables banded together.
5. 'Pot-ended' cables are often difficult to detect and although we have made all reasonable efforts to locate or transpose this information from records, we cannot guarantee that all 'pot-ended' cables have been located.
6. Fibre optic cables are often difficult to detect, and commonly access chambers can be locked and thereby made inaccessible by the utility provider. All reasonable efforts have been made to locate these ducts using GPR. Cables not located have been transposed from records.
7. Within close proximity of electric substations and similar structures results using EML may become distorted. All reasonable efforts have been made to verify our results using GPR wherever conditions permitted.
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9. Drainage information has been obtained without man entry into the chamber.
10. Wherever possible we have attempted to locate the route of the sewer. Issues such as blockages, surcharging, flooding, sedimentation, sewer collapse, root ingress, excessive depth, obstructions or heavy traffic flow may have affected our ability to obtain meaningful results. In these cases recommendations have been made for further survey or maintenance work.
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13. All utilities detected by MK Surveys should be considered live unless confirmed otherwise by client or service provider.
14. MK Surveys cannot confirm when utilities are redundant unless there is visual or record evidence to indicate this. In addition MK Surveys cannot guarantee being able to detect all redundant utilities.
15. Wherever available the results of our investigations have been cross referenced with record information. If a utility detected by our investigations cannot be found on the record information it should be treated as a live service and labelled as QB4 (R). However it should be noted that the completeness and accuracy of the records cannot be guaranteed.
16. The utility information has been obtained from non-intrusive survey techniques; it always remains possible that there are additional utilities within the survey boundary that we have not been able to detect. We recommend that care is taken on site and that all utility records are used in conjunction with this survey.
17. The responsibility for avoiding damage to assets and utilities on site shall be that of the persons proposing to excavate within the surveyed area, who shall be liable to the asset owner and any third party who may be affected in any way for any loss or damage.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.

PAS 128:2014 Quality Level Guide

Quality Level	Description	Accuracy
QB4	A utility is expected to exist but cannot be detected - (ARI), (RI), (VI)	Undefined
QB3	Horizontal location only using one geophysical technique. No depth information - NDI.	+/- 500mm Horizontal Undefined Vertical
QB2 QB2P	Horizontal and vertical location only using one geophysical technique.	+/- 250mm or +/- 40% of depth whichever is greater
QB1 QB1P	Horizontal and vertical location only using two geophysical techniques.	+/- 150mm or +/- 15% of depth whichever is greater
QA	Service verified in an open excavation, inside an inspection chamber / draw pit, or at the point the service enters / exits the ground.	+/- 50mm Horizontal +/- 25mm Vertical

Revision	Description	Sys. by	Appr by	Date

0m 2 4 6 8 10 12 14 16 18 20 22 24 26 28

mksurveys

Tel 01908 565561
Tel 01908 694993
Tel 0116 2849127
Tel 01384 404203
Tel 01603 243162

Milton Keynes
Leicester
East Midlands
West Midlands
Horsham

enquiries@mksurveys.co.uk
leicester@mksurveys.co.uk
eastmidlands@mksurveys.co.uk
westmidlands@mksurveys.co.uk
horsham@mksurveys.co.uk

www.mksurveys.com
www.surveys4bim.co.uk

Homes & Communities Agency

Colt International
Havant
Hampshire

Utility Survey

Scale	Sheet Size:	Sheet Number:	Date:
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