SURVEY REPORT

General
The client provided basic hospital utility record information. This consists of sewer, water, gas and subway information. Other record information was obtained by MK Surveys from Openreach (telecom), Western Power Distribution (electric), National Grid (Gas), Anglian Water (water mains), Anglian Water (Sewers). Additional record information was requested from Linesearchbeforeudig however no apparatus was affected. For a full list of providers searched please refer to the enclosures page of the utility research report.

Drainage
All drainage was lifted where possible with pipe sizes and invert levels recorded. Wherever possibe the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external rainwater pipes and external soil stacks have been proven wherever possible into manholes and sewer runs. Where a saddle connection is present the position is assumed only. A number of manholes shown on available hospital record drawings were not located on site and have been approximately positioned on the drawing. Also a Anglian water foul sewer shown running across the front car parks and main access road has been added from records, with the manhole locations shown and positioned from co-ordinates on available records. Connections between manholes have been assumed to be straight. All drainage should be cross checked in critical areas by CCTV survey or hand dug trial holes.

Water
Water pipes are assumed both metallic and plastic, these have therefore been located mainly using GPR methods with radar-derived depths recorded to the top of the pipe. Slight trace on water line along the south perimeter of the site. Area is staff car park and congested with parked vehicles at the time of the survey. Due to the small size of the pipes the location and the depth can easily be misinterpreted, and therefore trial excavations are recommended to confirm these locations.

Gas
Gas pipes are assumed both metallic and plastic, these have therefore been located mainly using GPR methods with radar-derived depths recorded to the top of the pipe. Gas line along the road to the north of the site was located using EML methods with electronically derived depths to service centre. Slight trace on gas line along the south perimeter of the site. Area is staff car park and congested with parked vehicles at the time of the survey. Due to the small size of the pipes the location and the depth can easily be misinterpreted, and therefore trial excavations are recommended to confirm these locations.

Electricity
Electricity cables on site have been traced with electronically derived depths recorded.

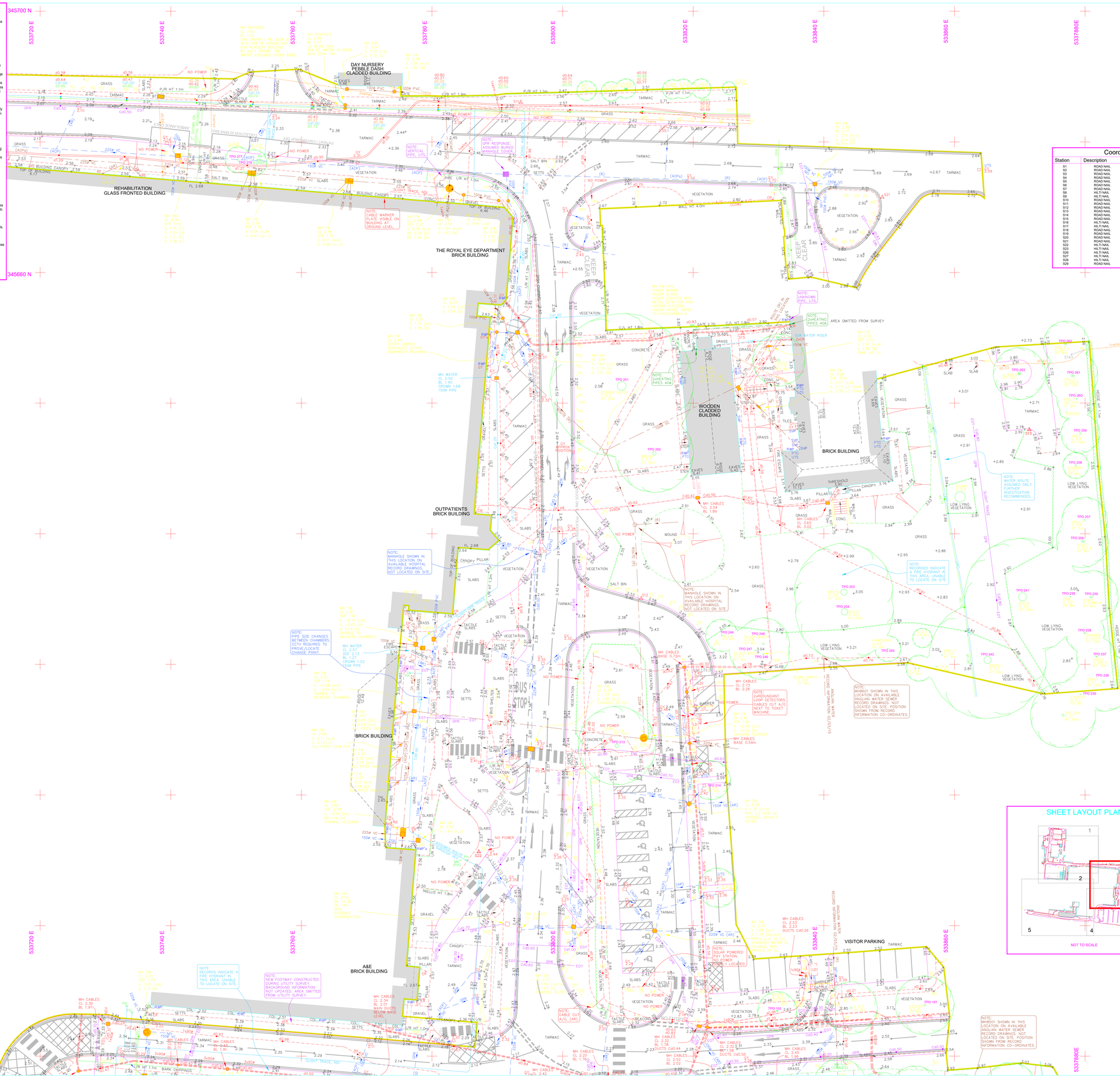
Telecom
All telecom ducts have been traced with depths recorded. Due to laws protecting British Telecom apparatus all ducts have been located using remote detection techniques only and compared with record information. Chamber sizes have been recorded using GPR techniques wherever possible. For further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

CATV
No CATV apparatus located within the survey area. Available record information confirms this.

Service Ducts
There are a number of covers on service ducts within the survey area to allow for gaining depth, size and service information. However there are some areas where there are no access covers, therefore the extents of the service duct has been located with GPR and service information assumed. Further investigation required on these to gain more information.

GPR
Maximum GPR signal penetration across a large percentage of the site was <1m.

SEE CAUTIONARY NOTES WITHIN THE UTILITY KEY



Notes :

1. GRID AND LEVELS BASED ON ORDNANCE DATUM, DERIVED FROM THE NATIONAL GPS NETWORK, LOCAL SCALE FACTOR APPLIED: 0.999921.
2. TREE AND HEDGE SPECIES HAVE BEEN IDENTIFIED AS ACCURATELY AS POSSIBLE BUT SHOULD BE CROSS CHECKED IN CRITICAL AREAS.
3. ALL DRAINAGE IN KEY AREAS SHOULD BE CROSSED CHECKED WITH A CCTV SURVEY FOR CONFIRMATION AND CONDITION.
4. DRAWING SHOULD BE READ IN CONJUNCTION WITH 20658 R1 PILGRIM HOSPITAL SITE PHOTOGRAPH REPORT.

Coordinate Table

Station	Description	Easting	Northing	Level
S1	ROAD NAIL	533565.839	345506.121	2.379
S2	ROAD NAIL	533487.101	345518.907	2.416
S3	ROAD NAIL	533587.257	345524.335	2.435
S4	ROAD NAIL	533654.139	345495.071	2.452
S5	ROAD NAIL	533639.209	345519.774	2.498
S6	ROAD NAIL	533642.721	345539.206	2.518
S7	ROAD NAIL	533473.838	345646.026	2.463
S8	HILTI NAIL	533566.624	345635.641	2.359
S9	HILTI NAIL	533585.824	345603.581	2.419
S10	ROAD NAIL	533665.708	345688.140	2.071
S11	ROAD NAIL	533793.585	345696.071	2.546
S12	ROAD NAIL	533812.028	345610.104	2.555
S13	ROAD NAIL	533871.458	345635.936	2.902
S14	ROAD NAIL	533813.489	345650.176	2.566
S15	ROAD NAIL	533827.561	345650.655	2.768
S16	HILTI NAIL	533537.466	345696.417	1.969
S17	HILTI NAIL	533557.759	345744.225	1.977
S18	ROAD NAIL	533600.193	345744.773	1.870
S19	ROAD NAIL	533600.151	345775.021	1.790
S20	ROAD NAIL	533600.151	345733.790	1.793
S21	ROAD NAIL	533848.946	345571.524	2.742
S22	HILTI NAIL	533787.151	345571.297	2.553
S23	HILTI NAIL	533821.923	345530.321	2.447
S26	HILTI NAIL	533889.463	345526.413	2.763
S27	HILTI NAIL	533776.276	345529.425	2.420
S28	HILTI NAIL	533721.300	345520.318	2.324
S29	ROAD NAIL	533707.210	345489.273	2.311

KEY

GENERAL

(ACP)	ASBESTOS CEMENT
BIN	LITTER BIN
CHW	CHEMICAL WATER
COW	CABLE ON WALL
CW	COMBINED WATER
DIS	DISUSED
EML	ELECTROMAGNETIC LOCATOR
EOT	END OF TRACE
FO	FIBRE OPTIC
FP	FOOTPATH
FW	FOUL WATER
GP	GATE POST
GPR	GROUND PENETRATING RADAR
HV	HIGH VOLTAGE
HV	HIGH VOLTAGE
KV	KILO VOLT
LP	INTERMEDIATE PRESSURE
LB	LETTER BOX
LP	LOW PRESSURE
LV	LOW VOLTAGE
MP	MEDIUM PRESSURE
NDI	NO DIGITAL INFORMATION
NPI	NO FURTHER INFORMATION
NPV	NO PIPES VISIBLE
OSGM	ORDNANCE SURVEY BENCHMARK
POW	PIPE ON WALL
RED	REDUNDANT SERVICE
RMAIN	RISING MAIN
RW	RETAINING WALL
SP	SERVICE GAS GATE
SW	SURFACE WATER
TAC	TACTILE PAVING
UTL	UNABLE TO LIFT
UTS	UNABLE TO SURVEY

APPARATUS

ACU	AIR CONDITIONING UNIT
AV	AIR VENT
BB	BELISHA BEACON
BO	BOLLARD
BOL	BOLLARD LIGHT
BS	BUS STOP
BT	BT INSPECTION COVER
CATV	CABLE TELEVISION
CB	CONTROL BOX
CH	CATCH POT
CR	CABLE RISER
DCH	DRAINAGE CHANNEL
EB	ELECTRIC CONTROL BOX
EP	ELECTRIC POLE
ER	EARTH ROD
FO	FILTER DRAIN
FH	FIRE HYDRANT WALL POINT
FH	FIRE HYDRANT
GR	GAS RISER
GV	GAS VALVE
GY	GULLY
IC	INSPECTION COVER
INT	INTERCEPTOR
K	KERB
KO	KERB OUTLET
LD	LOOP DETECTOR
LH	LAMP HOLE
LP	LAMP POST
MK	MARKER POST / PLATE
MH	MANHOLE
MTR	METER
MWELL	MONITORING WELL
NK	NEW KERB
OU	OUTFALL
PO	POST
PTG	PIPE TO GROUND
PTS	PIPE TO SURFACE
PU	PUMP
RE	RODDING EYE
RP	RODDING POINT
RWP	RAIN WATER PIPE
SC	STOP COCK
SP	SOIL PIPE
ST	STAY CABLE
SVP	SOIL VENT PIPE
SV	STOP / SLUICE VALVE
TB	TRAFFIC LIGHT CABLE BOX
TL	TRAFFIC LIGHT
TLC	TRAFFIC LIGHT COVER
TP	TELECOM POLE
VP	VENT PIPE
VM	WATER METER
WO	WASH OUT
WR	WATER RISER
WWELL	WET WELL

DEPTHS

d	ELECTRONICALLY DERIVED
Pd	PASSIVELY DERIVED
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	PITCH FIBRE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
PVC-U	ULTRA RIB (PVC)
ST	STONEWARE
ST	STEEL
VC	VITRIFIED CLAY

FENCES

BW	BARBED WIRE FENCE
CB	CLOSED BOARDED FENCE
CPL	CONCRETE PANEL FENCE
CS	CORRUGATED IRON FENCE
OB	OPEN BOARDED
CL	CHAIN LINK FENCE
IR	IRON RAILINGS
PIR	POST AND RAIL FENCE
PW	POST AND WIRE FENCE
WM	WIRE MESH FENCE

LEVELS

BD	BACKDROP LEVEL
BL	BASE LEVEL
CL	COVER LEVEL
FL	FLOOR LEVEL
IL	INVERT LEVEL
RL	ROOF LEVEL
SOF	SOFFIT LEVEL
WL	WATER LEVEL

LINESTYLE

INTERNAL METER (MT)
POT ENDED SERVICE
SEWER CAPPED RUN (S)
SURVEY ABANDONED (AG)
INTERNAL VALVE (V)
UNDERGROUND CHAMBERS (C)
ABOVE GROUND (AG)
ASSUMED ROUTE (AR)
EMPTY DUCTS (E)
OVERHEAD (OH)
BACK DROP
P-TRAP
UTILITY CROSSOVER
SURVEY BOUNDARY
VERBAL INFORMATION (VI)
RECORD INFORMATION (R)
REDUNDANT SERVICE (X)
RISING MAIN (RM)
CCTV SECTION 4 AND 5 FAULTS ARE SHOWN IN RED

SERVICE TYPE

ELECTRICITY (HV)
ELECTRICITY (LV)
FUEL
GAS
OVERHEAD ELECTRIC
OVERHEAD TELECOM
CHEMICAL SEWER
COMBINED SEWER
FOUL SEWER
SURFACE SEWER
UNIDENTIFIED SEWER
TELECOM
UNKNOWN SERVICE
WATER

CAUTIONARY NOTES

1. Electromagnetic techniques have been used in the location of underground services, the results are not infallible and trial excavations must be carried out in order to confirm identification, position and in particular depth of the services, where these are critical.
2. Ground Penetrating Radar (GPR) techniques have been used in the location of non metallic services (including fibre optic) wherever record information or surface scarring indicates the existence of a particular service. 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 service, where these are critical.
3. Depths derived via electromagnetic detection are usually taken to the centre of the conductor (cable, metallic pipe) and those derived via Ground Penetrating Radar are usually to the top of the service.
4. Where cable routes cannot be individually selected for tracing, any one trace could be a single cable or a cluster of cables.
5. The locations of 'pot-ended' cables are often difficult to detect and although we will make all reasonable efforts to locate or transpose this information from records, we cannot guarantee that 'pot-ended' cables do not exist on this site.
6. Drainage information has been obtained without man entry into the chamber and MK Surveys presume that sewers are straight between chambers.
7. Pipe / Duct sizes are shown from visual inspection or taken from record information. Pipe sizes are recorded in millimetres and depths in metres.
8. Water and Gas services to individual properties are often of a size that cannot be detected using Electromagnetic or GPR investigation, wherever possible the route will be added from surface evidence (pipe risers, valves, etc), but this should be viewed as a guide only.
9. MK Surveys cannot confirm when services are redundant and unless there is surface evidence of a redundant service, cannot guarantee being able to locate all redundant services.
10. Wherever possible the results of our investigations will be cross referenced with record information and where there is further information available and this cannot be detected on site, the information will be added to the drawing and indicated as such (R). However it should be noted that the completeness and accuracy of the records cannot be guaranteed.
11. The utility information has been compiled from non-intrusive survey techniques; it always remains possible that there are additional services within the survey boundary that we have not been able to detect. We recommend that care is taken on site and that all service records are used in conjunction with this survey.
12. The responsibility for avoiding damage to assets and services 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.

TOPOGRAPHICAL KEY

SURVEY STATION (5)
BANKING (TOP / BOTTOM)
HEDGE SPREADS
WOODLAND CANOPY
MARSH / WATERLOGGED
TREES (SPREAD & GIRTH SHOWN TO SCALE)
GATE
KERB CHANNEL
ROAD UNKERBED
FENCE
WALL
BUILDING
OPEN SIDED BUILDING
GLASSHOUSE
CONTOUR 25.50
SPOT LEVEL + 127.13
BORE HOLE (BH)
TRIAL HOLE (TH)
FOOTPATH
CHANGE IN SURFACE

Revision	Description	EB/DSR/ TS/GL	May 2015
R1	Additional Topographical and Utility survey information added	Surv. by	Appr. by Date

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

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Topographical and Utility Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:200	A0	3	March 2015
Project Number:	Rev:	Surveyed By:	Approved By:
20658	1	EPB	TS

SHEET LAYOUT PLAN