

Telecommunications Connectivity

Fixed Network and Mobile Coverage Assessment

3 Lotus Park
The Causeway
Staines-Upon-Thames
TW18 3AG



3 Lotus Park, The Causeway, Staines-Upon-Thames TW18 3AG

STRUCTURE

3 Lotus Park is an established office building located to the west of Staines-Upon-Thames town centre. The building is currently in the final stages of a comprehensive refurbishment and extension and is over three floors affording approximately 69,382 sq ft (6,446 sqm) of Grade A office accommodation with open floor plates throughout. The building is of typical steel frame and concrete floor construction with part glazed and brick facades to all elevations with a full height glazed entrance. 3 Lotus Park sits within an environment of similar height commercial buildings to the west, south and east with good separation between adjoining properties.

TOPOGRAPHY

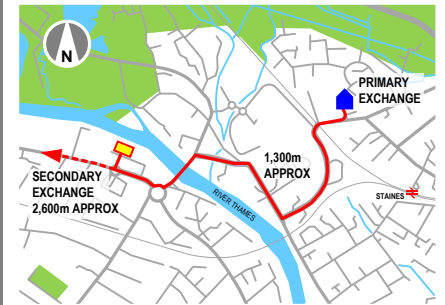
Location Plan



BT Exchange Information

Primary Exchange (1,300m approx)	STAINES (LWSTAI) TW18 4AB
Secondary Exchange (2,600m approx)	EGHAM (LWEGH) TW20 9EQ

BT Exchange locations



BT SUMMARY

3 Lotus Park is located approximately 1,300m from the BT Staines Exchange, which is situated to the north east of the building. Staines Exchange provides excellent services including ADSL, ADSL+, SDSL, 21CN WBC and FTTC services to some areas, plus the availability of LLU services from AOL, O2/Be, C&W, Sky, Talk Talk, and Tiscali all over BT infrastructure. Based on the existing standard copper services, Staines Exchange offers broadband speeds of around 9Mbps at this time. This exchange does not currently provide full FTTC services to this specific location and provides no dates for BT Infinity services at this time (Data via the BT website). Egham Exchange to the south west affords a similar range of services at this time and could provide a level of diversity and resilience across BT business services should it be required.

TELECOMS CARRIERS

Telecommunications carriers with owned infrastructure located within easy reach of the building are listed below for information. In addition to these, there are a number of alternative carriers that can provide service, albeit over a third party network such as BT. It must be noted that the presence of infrastructure within the search area does not constitute availability of service at the building location.

British Telecom Tel: 0800 800 152 www.bt.com
Virgin Media Tel: 0845 6000789 www.virginmedia.com
Vodafone Tel: 020 7111 0047 www.vodafone.co.uk
Level 3 Tel: 020 7954 5454 www.level3.com
Viatel Tel: 01784 494200 www.viatel.com

SUMMARY

The BT services available at Staines Exchange, and added resilience of a second exchange afford 3 Lotus Park an excellent level of services to meet today's business needs, with the added advantage of good diversity and resilience opportunities. The physical presence of alternative carriers infrastructure to BT including that from Virgin Media, Vodafone, Level 3 and Viatel adjacent to the building affords a good choice of alternative carrier with minimal requirements for civil infrastructure in respect of most carriers based on their existing presence within the environs.

RATING

BT / LLU **4**
CARRIERS **3**

BT / LLU **4**

- 1** Limited services available from BT only
- 2** Good BT services, limited by LLU Operators
- 3** Good BT/LLU services now, or planned
- 4** Excellent BT/LLU services now, with diversity

CARRIERS **4**

- 1** Limited infrastructure available / no infrastructure
- 2** Adequate level of infrastructure with limited access issues
- 3** Good level of infrastructure with limited access issues
- 4** Excellent level of infrastructure with no access issues

GLOSSARY OF TERMS

ADSL (Asymmetric Digital Subscriber Line) Asymmetric line speed, the speed from the internet to the user, and the user to the internet are different. Feed over copper cable, governed by distance from exchange to user. (co-exists with voice services)

ADSL+ (Asymmetric Digital Subscriber Line+) Asymmetric line speed as above, but with faster connections both downstream and upstream over similar distance following roll-out of BT's 21CN Wholesale Broadband Connect (WBC).

SDSL (Symmetric Digital Subscriber Line) Symmetric line speed, the speed between the user and the internet are the same in both directions but cannot co-exist with voice services over the same line.

FTTC (Fibre to the Cabinet) Provides fibre to the cabinet, shortening copper cable length requirements to enhance speed

FTTP (Fibre to the Premises) Provides fibre direct to the premises at a lower cost than that of standard lease line products

LLU (Local Loop Unbundling) Is the process by which third party network operators are able to install equipment into BT exchanges in order to deliver their own services without having to utilise BT's network.

BT Infinity (British Telecom) Fibre to the cabinet/premises delivered services from enabled exchanges providing broadband speeds of up to 80Mbps download (subject to conditions) at a lower cost to that of traditional leased fibre services.

Mobile Voice / Data Appraisal - Coverage Predictions

3 Lotus Park, The Causeway, Staines-Upon-Thames TW18 3AG

Dec 2014

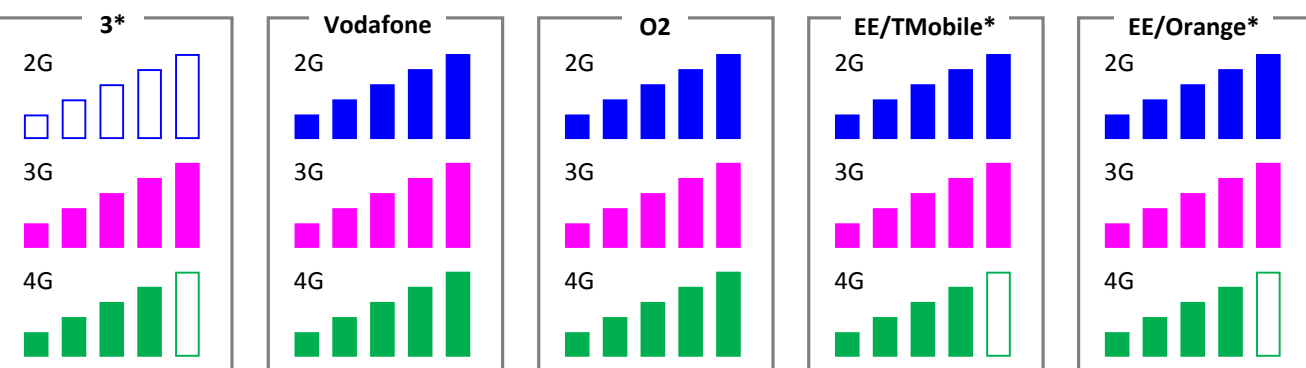
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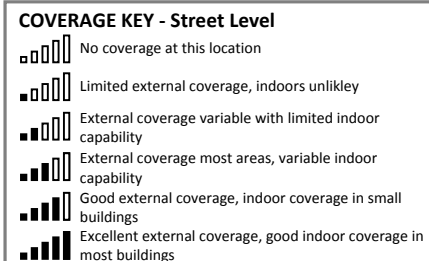


STREET LEVEL COVERAGE



OBSERVATIONS

3 Lotus Park affords an excellent level of macro coverage from all of the four mobile operators for 2G and 3G services with varied levels in respect of 4G as above. The closest serving cells are detailed in respect of 2G, 3G and 4G services and can be seen vary in location and distance, providing general coverage to the building. Any high concentration of users within the building may impact on the capacity available especially if this is confined to any one single network operator. Based on this information it is considered to be a location that affords an excellent level of overall coverage across all operators at street level across 2G and 3G, with some constraints in respect of 4G services for Three and EE.

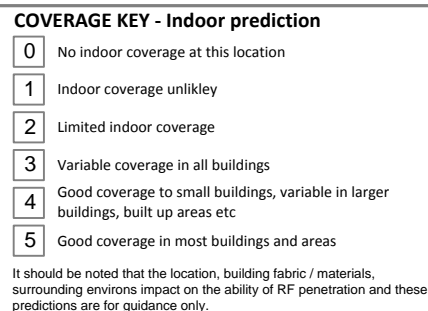


PREDICTIONS

Surrounding buildings, the distance and direction of the serving cells and building construction can all impact on the penetration of signal throughout a building. Based on the location and serving cells, it is envisaged that a good/variable level of coverage will be present throughout the building for 2G, 3G and 4G services, with some isolated issues within the basement car parking area as expected. In addition, there may be some limited isolated coverage issues internally across 4G services for both Three and EE at this time throughout the building in general. In cases of coverage issues, each of the operators can provide solutions to enhance their service of which we can provide details and assist in their procurement and installation should they be required. Further to the coverage levels, the availability of service is dependant on capacity. This is the volume of data and simultaneous voice calls the macro cell can accommodate at any one time. Capacity issues result in 'network busy' messages or dropped calls. The level of capacity can be addressed by the operators should the building be populated with a high number of users on a single network which will impact on both them and others using the same cell.

INDOOR SUMMARY

OPERATOR	2G	3G	4G
3*	0	4	3
Vodafone	4	4	4
O2	4	4	4
EE/T-Mobile*	4	4	3
EE/Orange*	4	4	3



Fixed Telecoms Appraisal Summary

In addition to the Fixed Network carrier study completed, a review by survey of the building was undertaken on the 2nd December 2014 accordingly. The purpose of this survey was to clearly identify the presence of existing fixed telecommunications carrier's infrastructure adjacent to the building, or within the local environs.



SITE AERIAL VIEW (Building highlighted in red, prior to extension)



ENTRANCE FROM THE CAUSEWAY LOOKING NORTH



LOOKING EAST ALONG BUILDING FRONTAGE

Local Carriers

3 Lotus Park has access from the estate footway and carriageway from the south elevation of the building. A number of chambers are present within the access and car parking areas but with no specific markings to confirm ownership. The survey located a good number of telecommunications chambers owned and operated by BT in the area including one within the site works boundary (See **Photograph 1**). This chamber was partly open and confirmed by site personnel as being the connected route into the basement as detailed in the below section. Further BT chambers were located on the estate typically in the footway (See **Photograph 2**). In addition to BT, a single chamber owned by Vodafone was identified at the entrance to the estate in the west footway (See **Photograph 3**). It was evident from existing scarring that a ducted route was present onto the estate but no further chambers were confirmed at this time, but this is a good indication of additional carrier services being available.



PHOTOGRAPH 1
EXISTING BT CHAMBER ON SITE, CONFIRMED AS PROVIDING
ACCESS INTO BASEMENT LEVEL CAR PARK



PHOTOGRAPH 2
BT CHAMBER AND INFRASTRUCTURE IN EAST
SIDE FOOTWAY TO ACCESS ROAD



PHOTOGRAPH 3
EXISTING VODAFONE CHAMBER AND DUCT SCARRING AT
JUNCTION OF THE CAUSEWAY WITH ACCESS ROAD

In addition, a number of chambers and supporting infrastructure was located along the length of The Causeway from BT, Vodafone, Virgin Media, Level 3 and Viatel on both sides of the carriageway (See **Photograph 4, 5 and 6**). Each of these alternative carriers could provide services into the estate if required subject to the extension of their respective networks.



PHOTOGRAPH 4
EXISTING BT, VODAFONE AND VIRGIN MEDIA CHAMBERS
IN FOOTWAY ON THE CAUSEWAY (NORTH SIDE)



PHOTOGRAPH 5
EXISTING VODAFONE CHAMBER IN THE FOOTWAY
ON THE CAUSEWAY (NORTH SIDE)



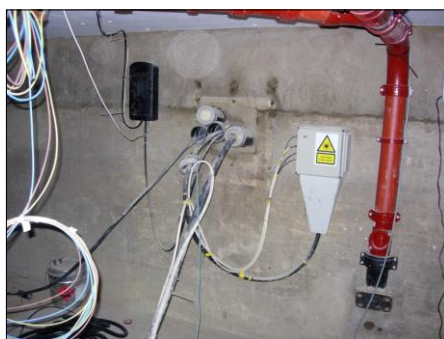
PHOTOGRAPH 6
EXISTING BT AND VIRGIN MEDIA CHAMBERS IN FOOTWAY
ON THE CAUSEWAY (SOUTH SIDE)

Building Presence

The point of telecoms intake is located in the basement car park level (See **Photograph 7**) comprising of three 100mm diameter duct entries of which 2/3 are believed connected into the external BT chamber as highlighted above (See **Photograph 8**). However, this was not confirmed, and may be found to be a spare for future use by others. A forth duct includes an existing power cable, and was therefore deemed to be owned by others. Two of the three ducts are currently occupied by BT, and the third is capped and sealed. Cabling extends to an existing 300 pair copper cable that has been cut off within the basement, a fibre cable that remains connected to the fibre termination point, and a further copper cable (approx 20 pairs) to a distribution point on the wall, recently installed for lift alarms etc by BT. All outgoing cabling and blown fibre tubes from the fibre termination have been cut off as part of the refurbishment. Based on this, apart from the new installation for lift services, there is no telecommunications services within the building from this point at this time.



PHOTOGRAPH 7
EXISTING TELECOMS INTAKE LOCATION IN BASEMENT
CAR PARK LEVEL



PHOTOGRAPH 8
EXISTING TELECOMS SERVICES IN BASEMENT
CAR PARK LEVEL



PHOTOGRAPH 9
TYPICAL HIGH LEVEL CONTAINMENT IN BASEMENT
LEVEL CAR PARK

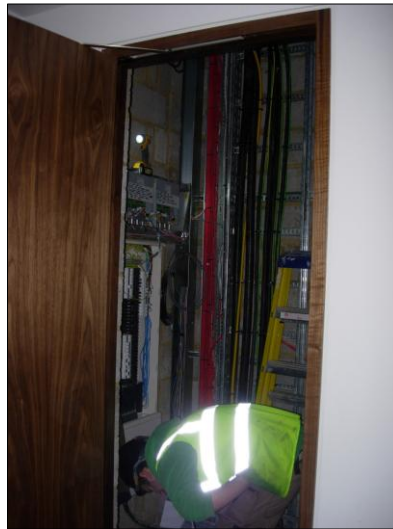
Risers and Containment

The building affords a good level of risers from the ground floor to the upper floors with access to all from the basement car parking area. Based on the location of the existing telecommunications intake position, access to all risers and subsequent floors will be via the high level containment (See **Photograph 9**) to suit.

The number of risers throughout the building include those for general M+E services plus a number of tenant specific use for which telecoms would ideally be suited to be run (See **Photograph 10, 11 and 12**). This coupled with the below floor void will enable service distribution with ease to all areas of the floor plates and any required equipment room locations the tenants may require.



PHOTOGRAPH 10
TYPICAL RISERS ACROSS ALL FLOORS



PHOTOGRAPH 11
TYPICAL RISER ACROSS ALL FLOORS



PHOTOGRAPH 12
TYPICAL RISER ACROSS ALL FLOORS

Service Availability

The standard services afforded by BT over its existing copper networks provides a level of broadband services with speeds expected in the region of 9Mbps. Staines Exchange does not currently provide full FTTC services to this specific location, and provides no dates for BT Infinity services at this time (Data via the BT website). Egham Exchange to the south west affords a similar range of services, plus FTTC to some areas and could provide a level of diversity and resilience across BT business services should it be required. However, the current level of business tariff services available from BT will provide an excellent level of service at this time. Furthermore, there are a host of companies that can provide enhanced products over the existing infrastructure providing smaller businesses a more affordable level of service if so required. The current status of the BT services as identified above will necessitate the requirements for site works to provide a new distribution point for copper services, jointing of the existing cabling and provision of fibre tubes to floors where required. However, based on the location and availability of containment and risers this we consider can be completed with ease in minimal timescales.

The presence a number of other carriers outside of the estate affords any incoming tenants a choice of providers within short timescales, as minimal external works will be required, albeit with the need for extension via external civil infrastructure and additional building entry positions or third party agreements.

Summary

Based on the local carrier infrastructure and the availability of services from BT's local exchange, we consider 3 Lotus Park has a good/excellent level of connectivity with the ability to provide services where required in minimal timescales from order. The presence of additional carriers externally affords a good alternative provision of service at this time albeit subject to rights of access requirements and civil infrastructure extension.