

Tottenham Hotspur Football Club - New Stadium

Outside Broadcast Compound due diligence exercise for the London Borough of Haringey

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1. Executive summary

Wilson Owens Owens (WOO) have been commissioned by the London Borough Haringey (LBH) to provide a high level review of the proposed locations and advise on other possible locations, for the Outside Broadcast Compound for the new Tottenham Hotspur Football Club (THFC) stadium.

WOO visited the proposed sites at Northumberland Park and St Paul's and All Hallows schools, and two alternative sites, St Francis de Sales school and Tottenham Community Sports Centre. These sites were only viewed from the outside. For the purposes of this report it was not felt access on to these sites was necessary.

Importantly, we were advised that the stadium's main broadcast positions are intended to be on the west side of the stadium, which is what we would expect for a new stadium. Therefore, if there was a suitable space on the west side, then the compound would also ideally be located there in order to keep the cable runs and broadcast staff movements to a minimum. However, we have concluded that no such site is available on the west side.

Please note that if the main broadcast position was to be located on the east side of the stadium then we would equally encourage the outside broadcast compound to be located on that side of the stadium, to keep the cable runs and staff travel distance as short as possible. However, if the main broadcast positions are to be located on the west, it does not necessarily prohibit the compound being on the east of the stadium, or vice versa, if the conditions were deemed acceptable by the relevant broadcaster (which we understand is the case for this new stadium).

There is adequate space on the west side of the stadium, in the St Francis de Sales School playground and car park. However, that would mean cabling across the High Road, which whilst not impossible, would likely add an unnecessary level of approvals and installation complications. It was also felt that it was likely to create further complications in trying to link the school playground with the Tottenham Community Sports Centre across land owned by others.

However, perhaps more significantly it means depriving the school of its playground and parking spaces for a number of days for each match or event. Importantly, it is understood that the school does not have any other space for a playground or parking, so preventing this being a viable option.

We understand that there are development plans for the land north of St Francis de Sales School and understand that even if space could be found, the timing of this development would be too late for the operational use of the broadcast compound. So, this option was not considered further.

Therefore, we concluded that the proposed locations on the east side of the stadium would be the best options to progress. This includes the areas of Northumberland Park School, which is currently used as the outside broadcast compound, and land occupied by St Paul's and All Hallows School, subject to agreed reconfiguration.

2. Purpose of this report

This is a high-level and independent review of the locations proposed for the television outside broadcast compound for the new stadium for Tottenham Hotspur Football Club, for the London Borough of Haringey.

It is not written to replace any other existing reports or necessarily add further detail to the wider project.

It is to consider the currently proposed locations and if possible suggest any other locations that could then be considered for further detailed study, though those would be separate to this report.

Please note that this report is not informed by any direct dialogue with the relevant media companies or the NFL about their requirements. The report focuses on proximity, location and deliverability of outside broadcast facilities based on the broadcasters' technical requirements provided by THFC.

Please note that WOO is not party to the detailed design or drawings of the stadium. Also, WOO is not party to any detailed discussions or negotiations

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regarding land use that may be underway or the designs that may accompany those discussions.

3. Authors

Wilson Owens Owens is an architectural practice set up by Kevin Owens and Derek Wilson following their role as lead architects of LOCOG for the London 2012 Olympic and Paralympic Games.

The company's experience of sporting projects includes numerous stadia and major events over the last 25 years. The most recent experience relevant to this project includes, but not limited to,

- i. the overlays including broadcast compounds, for all 13 competition venues of the 2015 Rugby World Cup in England,
- ii. AFC Wimbledon's new stadium,
- iii. all London 2012's competition venues,
- iv. Baku's successful Euros 2020 stadium bid,
- v. New Perth Stadium, Western Australia,
- vi. Boston's and now Rome's 2024 Olympic Bids.

Wilson Owens Owens has not had any detailed previous involvement in the new stadium and its knowledge of the project is therefore limited to the information it has been provided and its own observations.

4. Relevant Outside Broadcast Area Briefing Requirements

This section has been included for ease of reference and is drawn from information provided by the LBH.

4a. Main Broadcast Compound Areas

Premier League – 1500m²

FA Cup – 1500m²

UEFA Champions League

- i. Play offs and Group stages – 1,000m²
- ii. Round of 16 and quarter finals – 2,300m²
- iii. Semi Finals – minimum of 2,800m². 500m² of which can be separate.

UEFA Europa League

- i. Play off and Group Stage – 1,000m²
- ii. Knock out stages – 2,000m² minimum

The maximum horizontal straight-line distance from the grandstand housing the main broadcast positions is understood to be 300m but subject to confirmation. This is a 'rule of thumb' distance, which does not necessarily take into account the cable routes inside the stadium.

NFL and other 'major events' (e.g. concerts): In absence of specific technical information, these are assumed to be the same as for a Champions League semi final

4b. Satellite Uplink Trucks

Premier league – space (120m² for up to 6 satellite trucks)

UEFA Champions League – must be within 50m of the main broadcast compound:

- i. Group stages - 6 satellite trucks require at least 120m²
- ii. Knock out stages – at least 10 satellite trucks require at least 200m²

The uplink location must have a clear view of the southern sky.

4c. Required availability of the Broadcast Compound for each competition

Premier League (Premier League)

From 9.00am, one day before the match until 12.00pm, the day after the match

Football Association (FA Cup) and Football League (League Cup)

From 9.00am, one day before the match until 12.00pm, the day after the match

UEFA (Champions League)

From 9.00am, two days before the match until 12.00pm, the day after the match

UEFA (Europa League)

From 9.00am, two days before the match until 12.00pm, the day after the match

5. Compound Location options

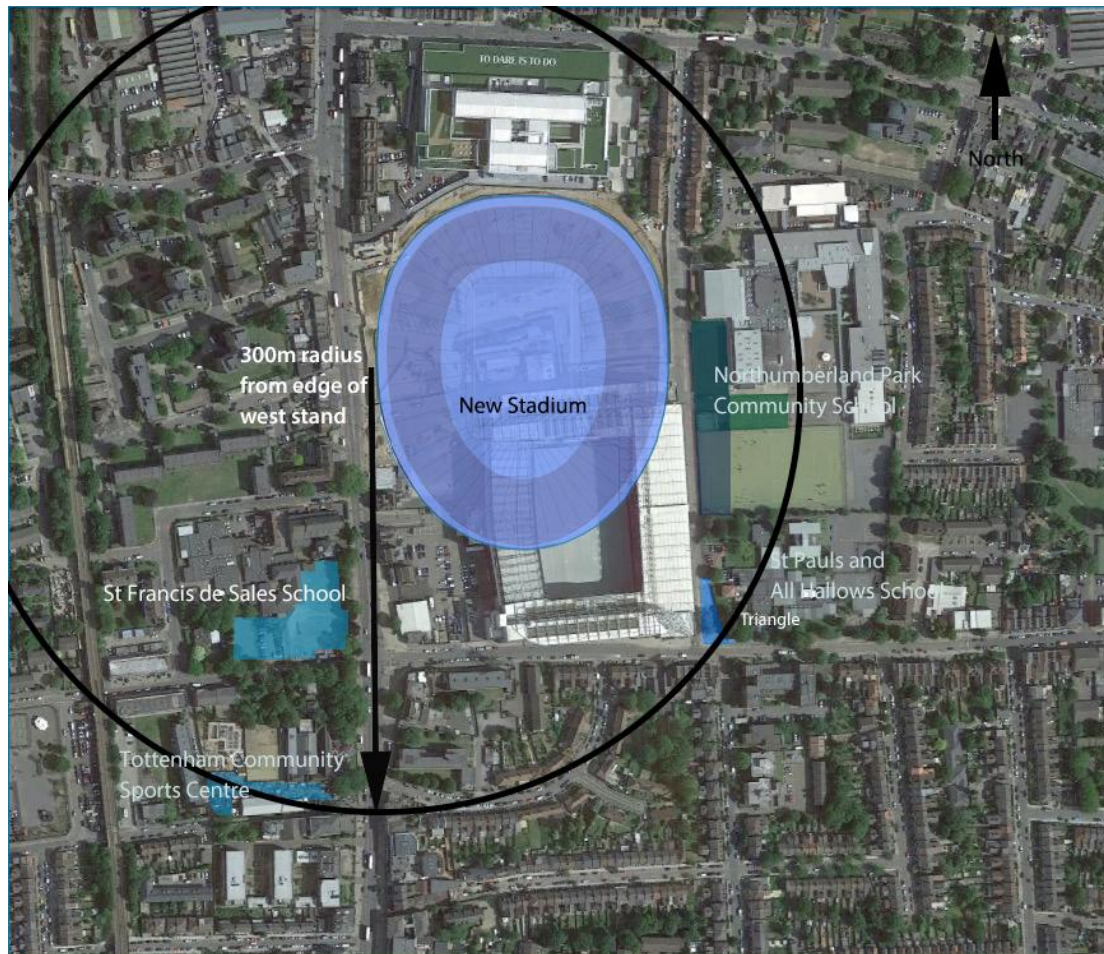


Image 1. All Broadcast Compound Location Options

East Side options

1. Northumberland Park Community School
Option A – Existing (Green – see Image 1 above)
Option B - Reconfiguration of the school's outside sports spaces, if the school site was to be redeveloped. (Blue)
2. Northumberland Park Community School and St Paul's & All Hallows CofE School (Green and Blue).

West Side Options

3. Tottenham Community Sport Centre and St Francis de Sales Catholic School (Ice blue).
4. St Francis de Sales Catholic School (Ice blue).

NB. The site of the possible development north of St Francis de Sales School has not been considered, as we understand the timing would not align with the operational timing requirements of the stadium's broadcast compound, even if there was land available.

East Side Options

5a. Option A – Northumberland Park Community School – Existing



Image 2 - Worcester Avenue (looking south)

This is the current compound and is located on the east side of the stadium (left side of the Image 2 above). It is at a level that is about 0.5m to 1m below that of Worcester Avenue. It is accessed via two ramps from Worcester Avenue.

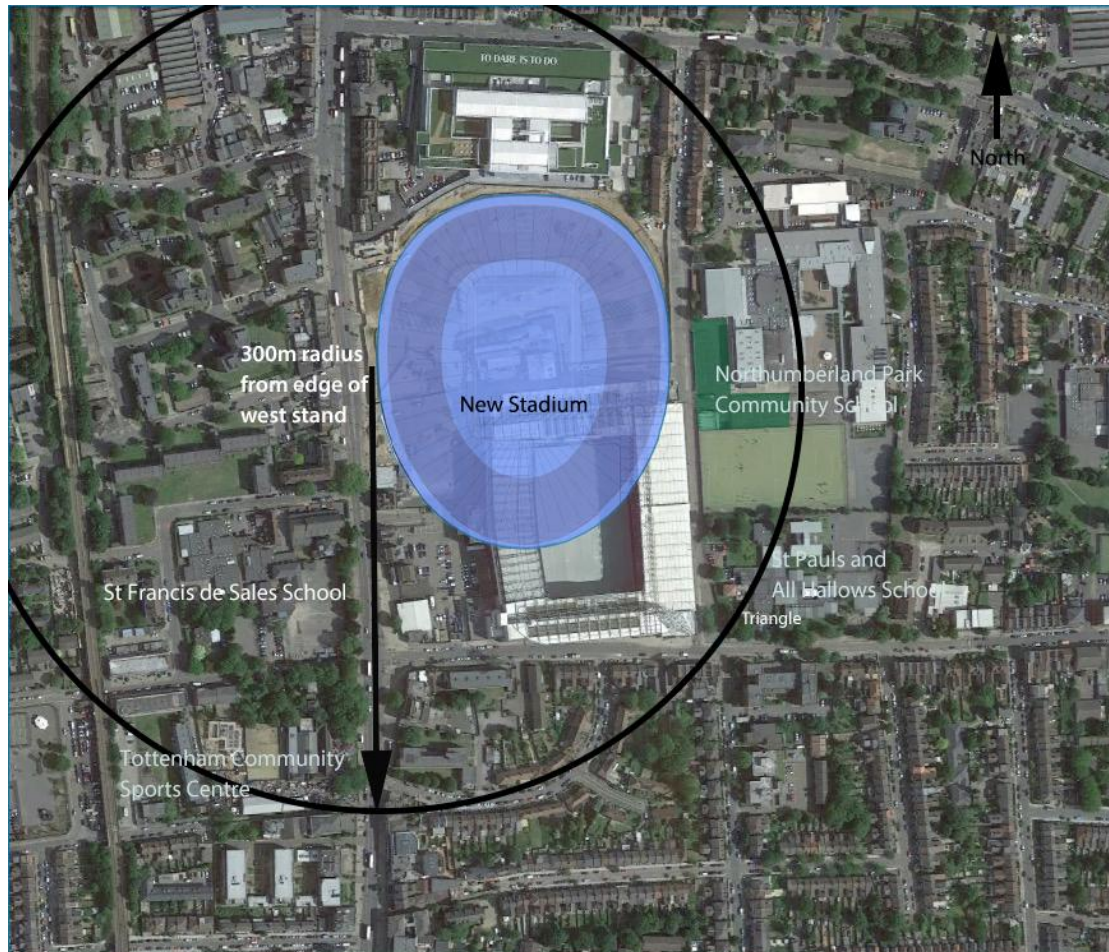


Image 3 - Northumberland Park Community School

The existing arrangement (as shown in document 'Appendix ii. Match day Parking') is understood to have a combined useable area of $1300\text{m}^2 + 380\text{m}^2 = 1680\text{m}^2$ plus a ramp area of 160m^2 . However, it is understood that expansion space is available, making the area suitable for Europa and Champions League matches.

Distances

The horizontal straight-line distance from the middle of the West Stand elevation to the nearest point of the school playground is about 225m and about 260m to the furthest point.

This space would be adequate for:

- i. *the Premier League,*
- ii. *Champions League Play-offs and Group Stages.*

And with the expanded space for:

iii. Europa League Play-offs and Group Stages.

iv. Champions League Quarter Finals

v. NFL requirements – we have no further information at this stage.

However, it is understood that the area required will be similar to that used at Wembley Stadium for NFL games and is about 1800sqm, so this space would be adequate in its expanded arrangement. (TBC)

Assessment

This option is the current outside broadcast compound location and is therefore a proven location. It is assumed that the new stadium design and masterplan has taken this into account in its design development. Whilst the preferred location for broadcasters may indeed be the west side of a stadium, we believe that the east side of this stadium will prove acceptable. We assume conversations have taken place with the broadcasters to confirm that.

5b Option B - Northumberland Park Community School reconfigured

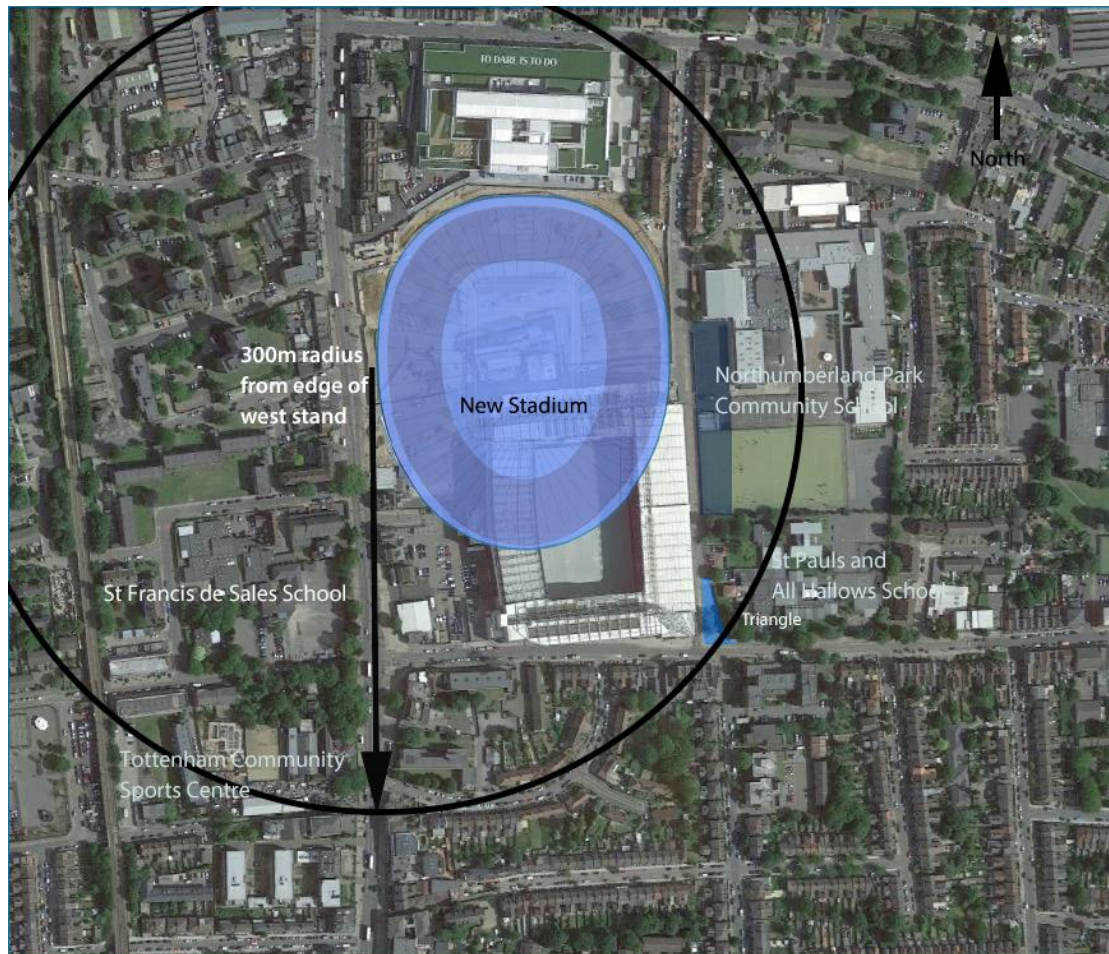


Image 4 Option B - Northumberland Park Community School – reconfiguration of sports facilities

This option (see Image 4) would be a combination of Option A above, and space created by reconfiguring the sports facilities for the school in particular the artificial football pitch.

This would create a flat open area parallel to Worcester Avenue. However, unless the area is filled and levelled it will require ramped access, as it is current estimated to be between 0.5m and 1m below Worcester Avenue. It could be linked to the 'Triangle' site at the junction of Worcester Avenue and Park Lane, which we understand would give clear views of the southern skies.

It would create an open flat area of approximately 3000m² which should provide sufficient space for all outside broadcast requirements.

Distances

The straight-line distance from the middle of the West Stand elevation to the nearest point of the school playground is about 225m and about 280m to the furthest point.

These spaces combined and reconfigured would be adequate for:

- i. the Premier League,*
- ii. Europa League Play-offs and Group Stages.*
- iii. Champions League Play-offs and Group Stages, and notably, Semi-Finals.*
- iv. NFL requirements – we have no further information at this stage. However, it is understood that the area required will be similar to that used at Wembley Stadium for NFL games is about 1800sqm, so this space would be adequate in its expanded arrangement. (TBC).

Assessment

The east side location options should work well for a number of reasons not least because this is the current outside broadcast compound site, so there will be a clear understanding of how it works now, and in theory how it would work in the future. The different options can each provide sufficient space for all anticipate broadcast requirements and there is the potential to provide one space for all OB requirements.

If the main broadcast facilities are to be located in the East Stand then the proximity of the compounds would be very good. However, if the broadcast facilities were are located in the East stand, whilst we recommend taking the advice of a broadcast expert but we believe that proximity should still make these locations viable.

NB. We understand dynamic crowd modelling has been produced to ensure the road is of adequate widths to deal at least exiting crowds. The estimated width of Worcester Avenue is 15m.

5c. Northumberland Park Community School and St Paul's & All Hallows C of E School

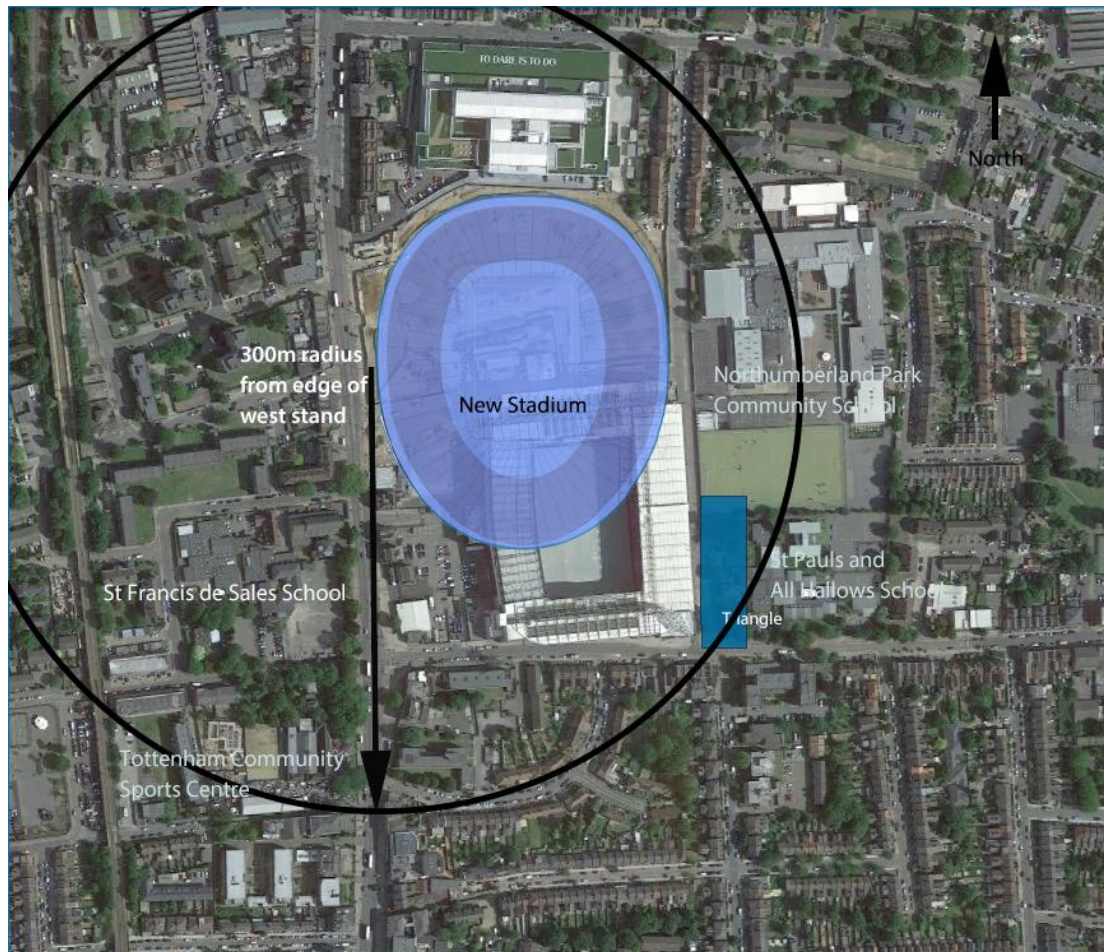


Image 5 Northumberland Park Community School and St Paul's & All Hallows CofE School



Image 6 'Triangle' at the junction of Worcester Avenue and Park Lane

This option would make use of the space described in **Option B** – above.

Included in this option is the possible use of the 'Triangle' of land (see Image 5 and 6 above) at the junction of Worcester Avenue and Park Lane, which provides an area of about 400m² but with trees and bollards it is understood that the usable area would actually be about 275m².

North of this 'Triangle' is a small car park measuring approximately 300m². Together these three locations provide just over (1680m² + 275m² + 300m²) 2255m².

Immediately north of the car park is an enclosed green space that could provide up to 500m², which would provide this option with the required area for a Champions League semi-final. However, this area looks to have quite mature trees and a garden, and we believe has buildings on it. However, if this land was made available perhaps through reconfiguration of the St Pauls and All Hallows School, then the space should be adequate for all compound requirements. We also understand that this location would be immediately opposite the broadcasters entrance to the stadium which would be an advantage.

Distances

The straight-line distance from the middle of the West Stand elevation to the nearest point of the school playground is about 225m and about 320m to the furthest point of the 'Triangle'.

Also, the distance from the southern edge of the Northumberland Park Community School playground to the northern edge of the car park is about 60m, which is consistent with the current uplink and main broadcast compound space requirements.

The 'Triangle' we understand will provide space with clear views of the southern skies.

Assessment

This combination of these 3 or 4 of areas around St Pauls and All Hallows School provides over the 2,800m² required to service all football broadcast needs and probably the NFL requirements.

However, it would come at the expense of losing trees and possibly buildings. Further planning approvals would most likely be required, if this option was chosen.

Also, the furthest point of the 'triangle' is over 300m from the west side of the stadium, which maybe acceptable but needs a broadcast technical expert to confirm. However, if the main cameras are on the east side of the stadium then proximity to the compound should be comfortably acceptable.

The main stadium broadcast service access is understood to be opposite this site, which supports this location as a good option.

We believe this to be a viable option.

West Side Options

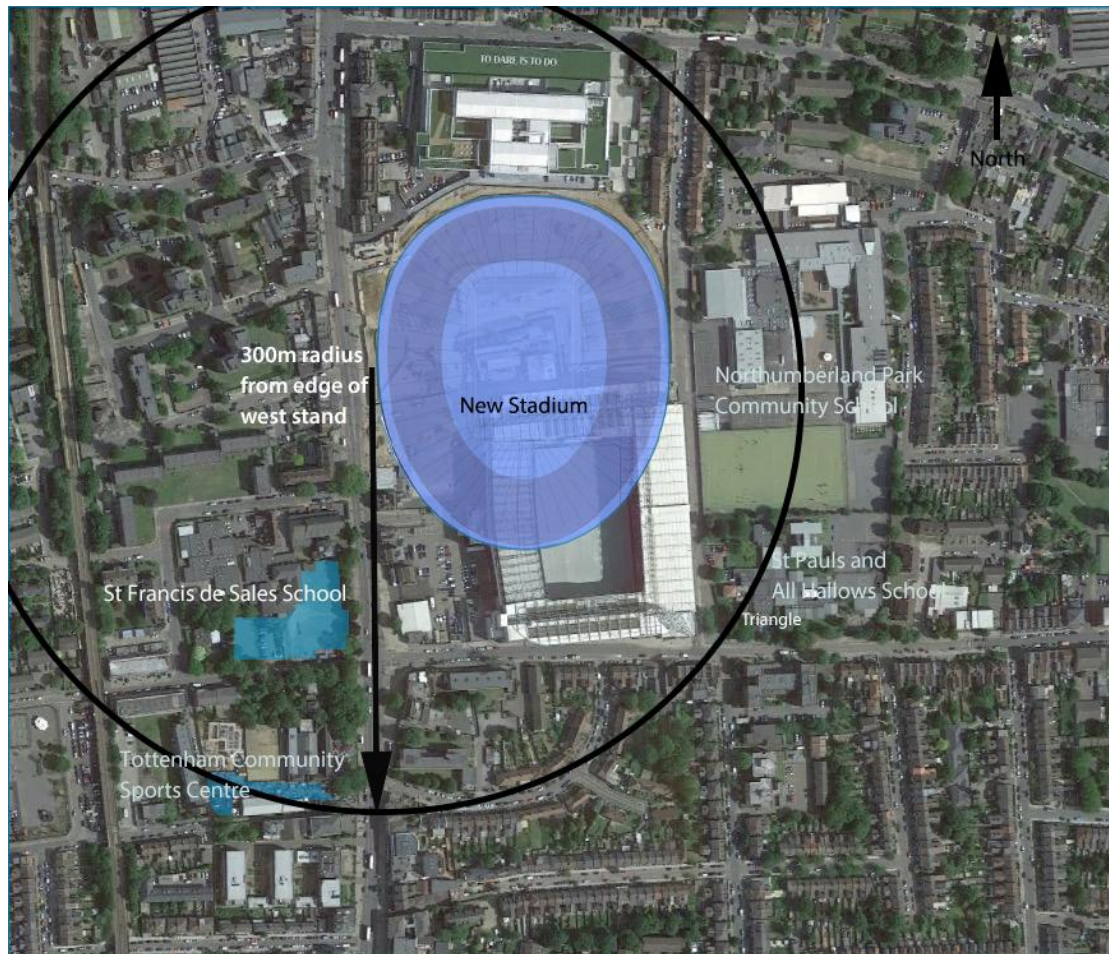


Image 7 Tottenham Community Sport Centre and St Francis de Sales Catholic School

5d. Option D Tottenham Community Sport Centre and St Francis de Sales Catholic School

The community sports centre and school (Image 7) are located immediately off the western side of Tottenham High Road, opposite Park Lane. Access to the sports centre would be directly off Tottenham High Road (Image 8).

Access to the school car park and playground may be possible off Church Road but this road is relatively narrow (6m). Both areas are slightly elevated above the High Road but this may only be an issue if a new access is required to the playground from the High Road.



Image 8 Tottenham Community Sports Centre

Areas

The Sports Centre appears to have an open and reasonably flat area of approximately 1,420m².

St Francis de Sales Catholic School has an open and flat area of approximately 2150m² of playground and a car park of about 1250m², making it adequate for all football broadcast requirements.

Distance between the two sites

The school and sports centre open spaces are about 80m apart at the closest point which may be too far, if uplink trucks are located in one and the main compound in the other. A technical specialist would need to advise if there are ways of achieving this.

The cabling would need to pass, not only across the High Road but also across Church Road, which may be possible via underground conduits but it will be across land that may be in various ownerships, which may be difficult to achieve agreement.

The distance from the middle of the West stand elevation to the:

- ii. nearest point of the school playground is about 120m and about 190m to the furthest point.
- iii. nearest point of the sports centre open space is about 270m and 310m to the furthest point.

Assessment

This option may be worth considering if the main cameras are to be located on the west side of the stadium. The combined area of St Francis de Sales School and Tottenham Community Sports Centre would be more than adequate for all broadcast compound requirements.

It would mean cabling crossing the High Road, which could be done by conduit under the road, but would likely need temporary overhead cable bridging over the High Road. This would not be ideal and would be compounded by also having to cross Church Road and land that is understood not to be in the Club's or Council's control. In addition it is unlikely to work operationally for the broadcasters due to the nature of the land separating the two sites.

However, the main issue that renders this option unviable is the loss of the school playground and parking for several days when matches and events take place, as the school appears to have no alternative areas it can use.

5e. St Francis de Sales Catholic School

The school is located immediately off Tottenham High Road (Image 9).



Image 9 St. Francis de Sales School from Tottenham High Road

Areas

St Francis de Sales Catholic School has an open playground of approximately of 2150m² but it also has an adjacent car park of 1250m². Together totalling approximately 3,400m².

This should be more than enough space for the largest OB Compound that will be required to serve all stadium events that are broadcast. It is also on the west side of the stadium, which is generally accepted as being the better side for broadcasters in stadia.

Distance from stadium

The distance from the middle of the West Stand elevation to the:

- iv. nearest point of the school playground is about 120m and about 190m to the furthest point.

- v. nearest point of the car park is about 180m and 220m to the furthest point.

NB. There is a strip of land that separates the playground and car park, which is about another 85m².

Assessment

The St Francis de Sales School only option has a similar assessment to that of the school and Tottenham Community Sports Centre. It does though have the advantage of being one, more than adequately sized site and having cables only crossing the High Road (though not ideal) and not crossing Church Road, or land not in the control of the Club or Council.

As with Option 3 the issue that makes this option unviable is the school playground and parking not being useable by the school when an event is on at the stadium.

6.Conclusion

Wilson Owens Owens has concluded that, of the options reviewed, the land on the east side of the stadium occupied by Northumberland Park School and St Paul's and All Hallows School, would provide the most suitable and probably only location for an outside broadcast compound to serve the various events at the new stadium.

The land identified at St Francis de Sale School on the west side of the stadium, whilst adequate in size and distance from the stadium, would not be suitable as it would deprive the school of its outdoor playground space and parking, which could not be replicated nearby. In addition temporary cabling across the High Road could be far more complicated than the equivalent across Worcester Avenue on the east of the stadium.

We understand that the arrangement of land use would be subject to discussions between the Council, the Club and the schools.

7. Recommendations

Location

LHB to continue to monitor the design options for the OBC on the east side of the stadium on the Northumberland Park and St Paul's and All Hallows schools sites.

Broadcast technical expert

A broadcast technical expert should be consulted for all detailed television broadcasting technical issues including cabling routes.

Compound layouts

We advise LBH to request OB compound layout options.

Crowd movement

It would be advisable for LBH to see and assess any dynamic crowd modelling of the stadium.

Temporary Cabling

It is essential to identify the routes for temporary cabling during the design stage of the stadium.

Note: All distances are straight-line measurements and areas are taken from Google Earth and as such measurements may have a small level of discrepancy.