

**Transport & Works Act: 1992**

Application by London Underground Ltd in respect of proposed  
**Victoria Station Upgrade**

**Document No: OBJ21/P6 Jon Satow**

**Victoria Palace Theatre  
PROOF OF EVIDENCE**

## **CONTENTS**

### **1 INTRODUCTION**

- 1.1 The author
- 1.2 Scope of evidence
- 1.3 – 5 Summary of the evidence

### **2 VICTORIA PALACE THEATRE: AS EXISTING**

- 2.1 The theatre and its context
- 2.2 -5 Limitations of the existing building
- 2.6 Summary of the existing theatre

### **3 VICTORIA PALACE THEATRE: DEVELOPMENT PROPOSALS**

- 3.1 - 5 Description of current development proposals
- 3.6 Status of the proposals
- 3.7 Summary of proposals

### **4 LUL PROPOSALS**

- 4.1 -4 Brief description of the scheme

### **5 IMPACT OF LUL PROPOSALS**

- 5.1 Construction phase
- 5.2 Permanent works
- 5.3 Summary of impact

### **6 LUL MITIGATION PROPOSALS**

- 6.1 Construction phase
- 6.2 Permanent works

### **7 SUMMARY**

#### **APPENDICES (SEE SEPARATE VOLUME)**

- A CVs for Arts Team @ RHWL and Jon Satow
- B Tables 1-3
- C Drawings illustrating VPT development proposals
- D Drawings illustrating LUL development proposals
- E List of documentation considered
- F Quotations
- G Detailed critique of LUL proposals
- H Drawings illustrating the change in location of the northern escalators

# **1 INTRODUCTION**

## **1.1 THE AUTHOR**

- 1.1.0.1 My name is Jon Satow. I am a registered architect with over 30 years' experience of practice as an architect, project manager, and consultant in a wide range of areas related to architecture and construction.
- 1.1.0.2 I joined Arts Team @ RHWL in 1998 and was an Associate at the practice between 2000 and 2003, after which I left to set up my own practice, but I have maintained close links with the Arts Team since then.
- 1.1.0.3 RHWL are one of the leading architectural practices in the UK, established for over 40 years. During that time they have developed an expertise and a world-wide reputation for the design of new and the refurbishment of existing theatres, both in the UK and abroad. Arts Team @ RHWL was established in 1998 to give a public identity to that expertise. Commissions executed by the practice include Sadlers Wells, Bridgewater Hall in Manchester, and the Wigmore Hall, to name but a few.
- 1.1.0.4 In particular the practice has built up a wealth of experience working on London's Victorian and Edwardian Theatres, including the Queen's and Guild, the London Coliseum, the Prince of Wales, the Novello (formerly the Strand), Wyndham's and numerous other historic and listed theatres.
- 1.1.0.5 Arts Team were engaged to work on the Victoria Palace theatre by Sir Stephen Waley-Cohen in 2007. Their work has included a review of the theatre, its functional and constructional limitations, and the preparation of options for its redevelopment and refurbishment. Arts Team have prepared and submitted a scheme for the development of the theatre that is currently being considered for Planning permission. (see section 3 below)
- 1.1.0.6 I was project architect for four years on the comprehensive refurbishment and modernisation of the Grade 1 listed Brighton Dome and Museum, and have also had involvement in many of the other theatre projects within Arts Team, as well as the Grade 1 listed St Pancras Chambers.
- 1.1.0.7 Since establishing my own practice I have been involved in various roles on a number of arts buildings including the new Aylesbury Theatre and the recently completed Didcot Arts Centre.
- 1.1.0.8 From my work with Arts team and subsequently I have developed a detailed understanding of the architectural and technical requirements of historic and contemporary theatres.
- 1.1.0.9 CVs for myself and for the Arts Team @ RHWL are included as Appendix A.

## 1.2 SCOPE OF EVIDENCE

- 1.2.0.1 I have been asked to present evidence on behalf of Arts Team in relation to the following aspects of the objection being presented by the Victoria Palace Theatre to the proposed Victoria Station Upgrade:
- a) the functional operation and requirements of musical theatres in general;
  - b) the existing Victoria Palace Theatre including its current shortcomings;
  - c) the proposals for refurbishment and modernisation of the theatre;
  - d) the impact of the London Underground's proposals for the Victoria Station Upgrade, both on the theatre as it is now, and on the development proposals.
- 1.2.0.2 Detailed technical evidence is being presented by a range of other experts; my own evidence will be presented, as far as possible, in non-technical terms, but will refer, when necessary, to the technical evidence of others.

## 1.3 VICTORIA PALACE THEATRE

- 1.3.0.1 The Victoria Palace Theatre (VPT) is one of London's most historic and venerable musical theatres. The current building is nearly 100 years old, and the site on which it stands can claim to have the longest uninterrupted history of musical theatre in London.
- 1.3.0.2 The theatre is one of four great variety theatres built in the early twentieth century that survive today and constitute a major element in the collection of London theatres known as Theatreland, arguably the most intense and vibrant collection of theatres in the world, a major component of Britain's cultural heritage and a key contributor to London's attraction as an international tourist destination.
- 1.3.0.3 The theatre was built by Sir Alfred Butt, one of the most prominent theatrical entrepreneurs of the golden age of Variety, and the building is a magnificent example of the late work of Frank Matcham, perhaps the most talented theatre architect of his period, (indeed of any period). It is currently listed Grade II but this status does not adequately reflect the building's quality and historical importance.
- 1.3.0.4 The building and its historic significance has been well described in the evidence being presented by Mr John Earl (doc ref. OBJ21/P2)
- 1.3.0.5 Although continuing to operate successfully, the Victoria Palace Theatre suffers from a number of restrictions that are characteristic of all theatres of its age, including a shortage of foyer and backstage space, poor access, and general inadequacies of its technical systems in relation to the standards expected in the 21<sup>st</sup> century. The stage house in particular is in need of development, to provide a deeper stage and a taller fly-tower.
- 1.3.0.6 Plans have been prepared and a Planning application submitted for improvements and extension of the building that would safeguard its future as a venue for major musical performances. These plans are closely linked to proposed developments around the site.
- 1.3.0.7 The existing theatre, its limitations, and the proposals for refurbishment and modernisation are described in sections 2 and 3 of my evidence.

## 1.4 VICTORIA UNDERGROUND STATION

- 1.4.0.1 The Victoria Palace has both the good and bad fortune to be sited virtually on top of one of the busiest Underground Stations in London. London Underground Ltd (LUL) have submitted proposals under the Transport and Works Act to carry out a major redevelopment of the station (the Victoria Station Upgrade, or VSU), which includes the construction of a new ticket hall on land adjacent to the theatre, and tunnels around and beneath it. The works will take at least six years to complete and will involve the demolition of several adjacent buildings, the diversion of traffic and pedestrian routes and major construction above and below ground.
- 1.4.0.2 Associated with the LUL development is a proposal to carry out a large-scale commercial redevelopment of the surrounding area. Proposals put forward by Land Securities (LandSec) in respect of this development are under consideration by Westminster City Council (WCC). Negotiations between LandSec and WCC have resulted in a draft Section 106 Agreement that would provide the Victoria Palace with an additional 6 metre-wide strip of land to the north of the stage house, permitting the expansion described above, along with a small portion of land to the east that would allow the construction of public lifts for the theatre foyer.
- 1.4.0.3 The LUL proposals are briefly described in section 4 of my evidence.

## 1.5 IMPACT ON THE VICTORIA PALACE THEATRE

- 1.5.0.1 The proposed LUL development presents significant threats to the operation and continuing viability of the Victoria Palace Theatre on a number of inter-related fronts:

Impact of construction activities:

- a) Settlement caused by the construction of the tunnels is likely to result in damage to, and conceivably in more catastrophic collapse of elements of, elements of the building fabric. This issue is discussed in more detail in the evidence of Mr Colin Wilson (doc ref. OBJ21/P10).
- b) Noise and vibration from the demolition and construction works will disturb activities within the theatre and/or cause damage to its structure and fabric. This is discussed in the evidence of Mr Richard Greer (doc ref. OBJ21/P4) and Mr Wilson.
- c) The works themselves will cause considerable disruption all around the theatre and may significantly affect its accessibility and attraction as a venue, as well as its day-to-day operation. This is discussed in the evidence of Mr Peter Loveday (doc ref. OBJ21/P5).

Impact of completed works:

- d) There is also a risk (currently of unknown magnitude) that noise and vibration from the completed station will adversely impact on the operation of the theatre. This latter risk is itself linked to the mitigation measures that are being proposed for the construction phase. This issue is also discussed in the evidence of Mr Greer.
- e) There is a danger that the LUL works will unacceptably compromise the ability of the theatre to carry out fully its own development plans, in particular the proposal to rebuild and enlarge the stage house. This is also discussed in the evidence of Mr Wilson.
- f) Finally, there will be a visual impact on the setting of the historic theatre building arising from the construction and the completed works. This issue is discussed in the evidence of Mr Earl and Mr Jeremy Edge (doc ref. OBJ21/P3).

Individually and collectively, these effects combine to present a significant threat to the long-term viability of the Victoria Place as a working theatre.

- 1.5.0.2 LUL have produced Environmental Statements, that consider the impact of the development on surrounding activities including the theatre, and these include proposals for the mitigation of adverse effects. However these proposals are not fully detailed and fail adequately to address several major issues. They present an unacceptably complacent view of the overall impact of both the construction works and the completed scheme. The impact of the LUL proposals including the proposed mitigation measures are discussed in sections 5 and 6 of my evidence.

## **2 VICTORIA PALACE THEATRE: AS EXISTING**

### **2.1 THE THEATRE AND ITS CONTEXT**

- 2.1.0.1 Victoria Palace Theatre sits on the edge of the West End, opposite Victoria Station and well served by a range of public transport links. It is one of Frank Matcham's last theatres, and seats up to 1575 in its three-tier auditorium. Its prime use is as a musical theatre; it is the third largest theatre of its type in the West End, making it an attractive venue for producers. (see table 1: Appendix B).
- 2.1.0.2 The theatre has a recent track record of staging extremely successful, long-run musicals, Billy Elliot being its current show. This success has been achieved despite highly restricted staging and back-of-house facilities as well as less than ideal front-of-house provisions for public and staff access. London's Victorian and Edwardian West End theatres were built for a different age and for audiences with different social structures and expectations of comfort.
- 2.1.0.3 The recent lottery boom in theatre building and renovation in the subsidised sector has raised the bar. Theatres including the Royal Opera House, the Royal Court, the London Coliseum and Sadler's Wells all received millions from the Arts Council Lottery funds, and used the money to provide state of the art staging and technical facilities, as well as fully accessible and more comfortable public facilities. The owners and managers of commercial theatres must constantly seek ways of adapting, upgrading and improving the quality of experience they can offer in order that they can continue to compete. Cameron Macintosh is currently investing more than £35M of his own money in transforming his portfolio of theatres. The current owner of the VPT has already spent a several millions of pounds on upgrading the theatre since it took over the management of the theatre in a very decrepit condition in 1991.

### **2.2 LIMITATIONS OF THE EXISTING BUILDING**

- 2.2.0.1 In 2003, the Theatres Trust published "Act Now! Modernising London's West End Theatres". In it they identified the huge contribution West End theatres make to the cultural life of the capital and the UK economy as a whole (see Appendix F). But they also recommend that some £250 million pounds needs to be spent modernising the 40 commercially owned theatres if they are to continue to thrive – and called for public funds to support the works.
- 2.2.0.2 The Victoria Palace has plenty to recommend it, even in its current condition. It enjoys excellent public transport connections, and it occupies a prominent position directly opposite Victoria main line station. The entrance foyer, though limited in size, provides a genuinely striking entrance sequence, with its decorative plaster ceiling and chandeliers, and the marble staircase leading up to the dress circle. Recent alterations have greatly improved the bar and toilet provisions. The auditorium, with its gilt and red tier fronts and boxes in Matcham's deft and sometimes humorous style, provides a rich backdrop to the entertainment.
- 2.2.0.3 Despite its undoubted assets, however, the theatre suffers from a number of shortcomings that are for the most part characteristic of all theatres of its generation. These deficiencies, and the proposed remedies for them, are described below under four headings:
- a) meeting the needs of producers (see section 2.3 below);
  - b) meeting the needs of performers (section 2.4);
  - c) meeting the needs of the public (section 2.5);
  - d) meeting the needs of staff (section 2.5);

## **2.3 MEETING THE NEEDS OF PRODUCERS**

- 2.3.0.1 Two of the prime considerations for any producer are the size of the stage and the technical facilities on offer. The theatre needs to be able to accommodate the expanded demands of a modern musical production. The stage should be deep enough to take large sets, whilst allowing a zone to the rear for performers to cross over the stage; it should have wings with sufficient run off to allow dance to take place; it should have a fly-tower above the stage high enough to allow full flying of sets with the potential for fore-stage flying; and with health and safety issues increasingly a priority, it should be able to be adapted to allow the installation of power flying systems in the near future (replacing the current method of manual counterweight flying).
- 2.3.0.2 At Victoria Palace a number of limitations exist including the following:
- a) the low height of the technical grid and fly-tower;
  - b) the shallow depth of the working stage;
  - c) the lack of run-off space in the stage wings;
  - d) the lack of an adequate stage undercroft.
- 2.3.0.3 Table 2 (Appendix B) shows how the Victoria Palace ranks when compared with similar venues, in respect of the grid height and the stage depth.

### **2.3.1 Grid height**

- 2.3.1.1 The technical grid is an open deck located directly above the stage, beneath which are suspended the bars from which sets can be hung (or “flown”). Traditionally the bars are balanced by counterweights and raised and lowered manually, but in modern theatres they are almost always powered by electric winches. The optimum height of the grid in new proscenium theatres is related to the height of the proscenium (the arch that forms the front “frame” for the stage and divides it from the auditorium) and the sightlines from the front rows of the stalls. A simple rule of thumb is to take the minimum dimension to the underside of the grid as 2.5 times the structural proscenium height. At Victoria Palace the proscenium arch is 8.9m high, which would suggest a grid height of at least 22.25m.
- 2.3.1.2 In the renovation of existing late nineteenth or early twentieth century theatres this rule may need to be modified to take account of the particular configuration of the proscenium arch. There is usually a masking pelmet drape that infills the arch, effectively making it lower, and there is always a safety curtain that can be lowered to separate the stage and auditorium in case of fire. For maximum flexibility it should be possible to raise both the safety curtain and the pelmet sufficiently far above the height of the arch as to make them invisible to the audience. A further consideration is the need to build in sufficient height to allow the installation of power-flying equipment at some future date.
- 2.3.1.3 The above considerations lead to a desired grid height of 24.5m above the stage level. At VPT the grid over the existing stage is only 16.8m above the stage floor, which places it at the bottom of the league in terms of its competition, restricting the height available for flying sets and making it impracticable to use the full height of the proscenium, since this would expose the bottom of the safety curtain.



## **2.3.2 Stage depth**

- 2.3.2.1 The stage at Victoria Palace is only 9.5m deep (from the line of the proscenium arch, to the rear wall) which places it at the bottom of the league against this criterion also. If a cross-over zone is required, to allow performers to move unobserved from one side of the stage to the other, the available depth is further reduced. This restricted depth imposes severe limitations on the number and type of sets that can be accommodated and reduces the flexibility to use the stage in different ways. The current show makes ingenious use of the limited space by using the same items of scenery in different ways, as well as by allowing the rear wall of the theatre to form the backdrop of the set, but the staging of elaborate shows (such as The Lion King) in which several different and complex sets may be necessary would be almost impossible.
- 2.3.2.2 The opportunity presented by the LandSec development (referred to in para. 1.4.0.2 above), for the VPT to acquire a further 6m strip of land at the rear of the stage, would allow the depth of the stage to be increased to around 15m, vastly improving its functionality and its attraction for producers.

## **2.3.3 Other factors**

- 2.3.3.1 Wing space is hampered on the stage-left side by the Kings Scholar Pond Sewer which runs at a shallow depth directly beneath ground level and creates a slope in the side wing level. The stage-right wing is currently occupied by the stage get-in and principals' dressing rooms as the theatre is short on good dressing space. This leaves only 3m of wing space on this side, restricting the run-off area for dancers and reducing flexibility in terms of large items of scenery or equipment. Freeing up space on stage right would create useful working wing space.
- 2.3.3.2 The stage has a limited basement area. For Billy Elliot special excavations had to be undertaken to enable the staging for the show to be accommodated. A larger basement with a full modular stage would offer much greater staging flexibility as a fraction of the cost.
- 2.3.3.3 A further consideration for producers is the audience experience. As the evidence of Mr Julian Stoneman (doc ref. OBJ21/P8) shows, the acoustic qualities are a major factor in the selection of a theatre by producers. This is discussed in more detail in section 5.2.1 below.

## **2.4 MEETING THE NEEDS OF PERFORMERS**

- 2.4.0.1 Performers are becoming used to the superior facilities now offered at regional theatres, funded by the lottery boom. Day-lit dressing rooms, close to the stage, and with en-suite or nearby sanitary facilities are regarded as standard, but are rarely on offer in London's West End. Facilities for performers with disabilities must be provided under Disability Discrimination Act (DDA), but can be difficult and costly to accommodate within historic or listed theatres. Good access for costumes, sets and other support equipment is also needed.
- 2.4.0.2 The existing theatre has 73 dressing spaces, only 60 of which have windows and are day lit, 17 with en-suite facilities, spread over 3 floors on both sides of the stage. None of the spaces are wheelchair accessible without management assistance. Some of the principals' dressing rooms are valued by performers, but the more remote spaces are cramped and uncomfortable.

- 2.4.0.3 There is currently no dedicated rehearsal space within the VPT. In the case of a large show it may be necessary to hold several rehearsals concurrently (in the case of Billy Elliot this need is enhanced by the doubling-up of the child actors). VPT manages this at present by using bar areas as well as the stage for rehearsals: hardly an suitable arrangement for children!
- 2.4.0.4 There is no wheelchair access from Allington Street into the stage door area. Special provision would have to be made if it were required by an incoming production. There is no lift provision in the back-of-house. In listed theatres with limited space and heritage fabric to be considered, these two provisions often come into direct conflict with each other, as the ability of the theatre to stage productions must be balanced with a sensitive and appropriate provision for wheelchairs users.
- 2.4.0.5 The development proposals, making use of the additional land to be released by the LandSec development, will greatly improve accessibility, with front and back-of-house lifts, and improved circulation routes to many areas including dressing rooms.
- 2.4.0.6 The evidence of Mr Brian Conley (doc ref. OBJ21/P1) makes it clear that for performers, any distraction from extraneous noise sources can have a major adverse effect on their ability to concentrate, and to stay “in character”. As discussed later (section 5.2.1) trains on the Victoria Line beneath the theatre are already audible within the theatre. This imposes constraints on the kind of show that can be staged within the VPT; it is notable that in general electronic sound enhancement is used for most shows, and at the current levels the intrusion is just about manageable. Were it to get any worse, however, the impact would be severe. This is not an issue that can be dealt with by the current development proposals, however.

## 2.5 MEETING THE NEEDS OF AUDIENCES AND STAFF

- 2.5.0.1 Today’s audience in the West End is very diverse, comprising a healthy mix from London and the Home Counties as well as regional and international tourists. They come for the reputation the West End has developed over the last century, and for the experience of seeing these shows in rich and diverse theatre buildings. They bring with them different expectations grown in more generous theatres overseas, and in the regions. The reality of seeing a show in a Victorian theatre is much less romantic than the idea, and often includes:
- Cramped leg room in poorly designed seats (note 1)
  - Poor sightlines to stages that have been raised to accommodate modern show decks;
  - Lack of acceptable provision for wheelchair and other disability access to front of house areas as well as to the auditorium;
  - Lack of adequate toilet facilities to meet peak interval demands, particularly for women;
  - Lack of effective or low energy air conditioning systems;
  - Restricted bar and catering facilities

Note (1) “The average height of people 100 years ago was 100mm less than today. The front-to-back spacing for backless bench seating and balcony tiers was only 600mm. The minimum spacing for seats was 710mm. Theatres built today allow around 900mm back-to-back” – Act Now!

- 2.5.0.2 Legroom in the auditorium Dress and Grand circles is inadequate and access along rows is difficult due to restricted space between rows. Existing seat layouts on all floors include a central aisle which has the effect of splitting audiences from each other and from the performance.

- 2.5.0.3 The quality of air temperature and movement within the auditorium is not good at present. Air extract is inefficient due to inadequate capacity of ductwork and inefficiency of grilles, and the evolution of air systems within the theatre over the last few decades has resulted in a direction of flow of air that is the reverse of the ideal. The effects of smoke and dry ice on stage can be pulled into the audience as a result of this air flow pattern. The existing heat pump units used to air-condition front of house are obsolescent and will need to be replaced.
- 2.5.0.4 As pressure for more public facilities increases, so the range of staff facilities come under pressure: storage, changing facilities and management offices are often sacrificed. Facilities for staff with disabilities must be provided under DDA legislation, and are again difficult and therefore costly to provide within historic or listed theatres.
- 2.5.0.5 There is no wheelchair access to the front of the building: wheelchair users have to use the side entrance from Allington Street straight into the auditorium. There is only one disabled WC in the auditorium and refreshments need to be served to wheelchair patrons in the auditorium itself. In today's culture this is inequitable, and it is one of the Theatre's key priorities that redevelopment should address this issue.
- 2.5.0.6 Although the front of house toilet facilities were improved in 2000, there are still currently fewer than would be provided in a new build theatre designed today. Rationalisation of toilet layouts at each level, together with the provision of lifts linking levels would speed up vertical circulation through the building for staff and audience, and reduce crowding at toilets.

## **2.6 SUMMARY**

- 2.9.0.1 The Victoria Palace is an historic musical theatre, a key part of London's theatreland, with a long history of staging successful West-end shows. That tradition continues with current run of Billy Elliot, one of the most popular musicals in London.
- 2.6.0.2 The Victoria Palace has been well maintained and cared for in recent years, and continues to function as one of London's most successful musical theatres.
- 2.6.0.3 In common with other theatres of its age and type, however, it needs to respond to contemporary demands. The work currently proposed in the recent application for extension and refurbishment of the theatre has been considered in this context, and aims to address the needs of producers, performers, audiences and staff.
- 2.6.0.4 The following section (section 3) describes the current proposals for refurbishment and improvement of the Victoria Palace, which would substantially overcome the shortcomings identified above.

### **3 VICTORIA PALACE THEATRE: DEVELOPMENT PROPOSALS**

- 3.0.0.1 A scheme has been prepared by Arts Team @ RHWL for the refurbishment, alteration, and extension of the Victoria Palace Theatre. The scheme takes full advantage of the additional land that it is envisaged will be released by the proposed Land Securities development, to extend the stage house to the north and to provide two new front-of-house lifts on the east side of the foyer.
- 3.0.0.2 Drawings showing the proposals are provided in Appendix C
- 3.0.0.3 The following is a summary of the improvements that will be provided by the development:

#### **3.1 STAGE HOUSE AND TECHNICAL FACILITIES**

- 3.1.0.1 The existing stage house, behind the proscenium, is to be completely demolished and rebuilt,. It will be designed with a frame that will ensure no additional load is imposed on the proscenium wall and will also provide sufficient structural strength to allow the stage to be extended forwards by means of beams cantilevered off the main framework.
- 3.1.0.2 Existing stairs connecting basement to stage, and stage to upper floors would need to be retained so wing space would remain limited on stage left. On stage right however, space made available at high level in the new stage house would allow stage level dressing rooms to be removed, improving the width of wing.
- 3.1.0.3 The stage house would be significantly improved by extending it upwards to achieve a grid 25m from the stage floor. A stage with a grid height of 25m will be comparable favourably with other with London theatres and new theatres outside London and will have the following benefits:
- a) it will allow the installation of the most up-to-date technical facilities;
  - b) it will allow more elaborate scenic productions which rely on height for effect;
  - c) it will bring the theatre into line with current theatre building trends nationwide;
  - d) it will allow the proscenium opening to be used to maximum advantage for scenic effect;
  - e) it will allow adaptation to power flying in the future.
- 3.1.0.4 The stage itself will be further improved by extending it to the rear, and by freeing up the stage-right wings by relocating the existing dressing rooms. These alterations would have the following benefits:
- a) they will bring the stage size up to that of comparable theatres;
  - b) they will provide space for the mounting of large-scale musical productions;
  - c) they will provide cross-over space behind the set;
  - d) they will provide improved get-in and working space;
  - e) they will provide improved run-off space for performers, in particular for dancers
- 3.1.0.5 The provision of an enlarged basement with a modular stage would provide the following benefits:
- a) greatly enhanced flexibility in the staging of productions;
  - b) space for a greater range of technical workshops and plant rooms;
  - c) cost savings in production

## **3.2 BACK OF HOUSE**

- 3.2.0.1 The deeper stage house, with improved means of escape, will also provide more space for dressing rooms. A total of 124 spaces (a further 51) can be provided, all but seventeen of which will be day-lit. A new wardrobe and laundry room will be serviced by the lift, and will have a crossover to stage left via the forestage grid. This will allow the existing laundry room to be converted into a rehearsal space – a highly coveted facility in any musical production and one that will relieve the difficulties described above (see para. 2.4.0.3).

## **3.3 AUDIENCE COMFORT AND SIGHTLINES**

- 3.3.0.1 The auditorium seating will be completely reconfigured using a modern seat designed by Kirwin and Simpson to provide a total of 1,541 seats, an increase of 62 over the current configuration, but with greatly improved comfort and sightlines. Revised seating layouts will aim to omit the central aisles in order to create more cohesion between performers and audience in this important central area.
- 3.3.0.2 New air conditioning systems and plant will be installed to serve the auditorium and foyer. There will need to be a large amount of roof top plant which can be configured into a new plant stack. This will be shielded visually and acoustically from adjoining properties. Services infrastructure will be integrated with due regard to the listed fabric of the building.
- 3.3.0.3 Overall the improvement to audience comfort and access will be significant, bringing the Theatre in line with modern day expectations.

## **3.4 AUDIENCE AND STAFF FACILITIES WITHIN THE FOYER**

- 3.4.0.1 The proposals for the foyer take advantage of the anticipated release of a small parcel of land immediately adjacent to the east flank wall of the building, on the site currently occupied by No 124 Victoria Street, allowing the construction of a new lift tower with two lifts serving the front-of-house and admin areas. This is currently impossible due to the shallow depth of the King's Scholar's Pond Sewer (KSPS), that runs underneath the eastern extension of the foyer (see Arts Team sketch No SK/01B in Appendix D).
- 3.4.0.2 The demolition of No 124 Victoria Street itself also allows the rebuilding of the eastern front section of the foyer on five levels, on the existing shared footings.
- 3.4.0.3 With extended foyers significant improvements to front of house can be made. Toilets can be rationalized and numbers increased – their layout reconsidered to minimize queuing – bars extended and improved, and the historic light-well designed by Matcham can be reinstated. A new platform lift can link the various ground floor levels of the foyer and the rear stalls.
- 3.4.0.4 A new cloakroom and accessible WC will be built at the end of the reconfigured stalls bar. New catering and front of house manager's offices can be provided at first floor level, together with ice cream and merchandise stores. An ice machine room, spirit cage and staff changing facilities can be located at second floor level. A new merchandising area can be provided for the grand circle at third floor level, and new administration offices and facilities can be provided at fourth floor.

### **3.5 ACCESS AND ESCAPE**

- 3.5.0.1 A new lift and stair core in stage left close to the get in doors will make the whole back-of-house and basement area accessible to wheel chairs and far easier to use for fit-up and rehearsals. A new stair and means of escape from stage left will mean better means of escape from all levels.
- 3.5.0.2 Land to the east of the foyer will allow two new passenger lifts to be installed to serve all levels of the foyer, as well as the new administration offices at fourth floor level, as described in paragraph 3.4.0.1 above. This lift will also, to some extent overcome the restriction on lift access to dressing rooms on the third and fourth floors, stage left, that will not be served by the new back-of-house lift.
- 3.5.0.3 Adjustment of levels at Victoria Street will make the foyers accessible. Installation of a three way platform lift connecting the three different levels of box office, foyer and auditorium will ensure the stalls level of the building is fully and universally accessible.

### **3.6 PLANT ROOMS**

- 3.6.0.1 At high level there will be space for internal plant rooms, allowing roof top plant to be kept to a minimum, in line with Westminster City Council's current policy, and ensuring cost effective and minimum noise and visual intrusion to neighbouring sites. The plant will also be far more discreet in relation to the listed main façade on Victoria Street.

### **3.7 STATUS OF THE PROPOSALS**

- 3.7.0.1 The scheme described above was submitted for Planning and Listed Building consents on 3 June 2008, formally validated on 19 September 2008, and is currently out for consultation and awaiting a decision. As part of the design development process a series of meetings have been held with Westminster City Council to ensure a clear understanding of the proposals. Meetings have also been held with English Heritage and the Theatres Trust, both of which have indicated support for the proposals.

### **3.8 SUMMARY**

- 3.8.0.1 The works described above will ensure that Victoria Palace Theatre will be modernised to address many of the audience and staff issues, as well as some fundamental staging limitations. The resulting fly-tower will be one of the highest in the West End (see Table 3), and the stage basement will undoubtedly make the Theatre more attractive to producers.
- 3.8.0.2 The technical improvements to the stage house will enable the Victoria Palace to offer state-of-the-art staging facilities to producers, and to continue to attract top productions to the theatre. The improvements to dressing rooms, audience comfort and front-of-house facilities will make it one of the most desirable musical theatres in London for producers, performers, audiences and staff alike. Without these improvements, however, the theatre will continue to slip down the rankings as investment elsewhere raises the bar for technical facilities.
- 3.8.0.3 Table 3 (Appendix B) illustrates how the proposed improvements will lift the Victoria Palace Theatre into the top rank of theatres, allowing it to remain one of the top musical venues.
- 3.8.0.4 A sketch illustrating the various components of the proposed Victoria Palace refurbishment and development, is included in Appendix C.

## **4 THE LUL PROPOSALS**

4.0.0.1 The LUL development plans are described in a series of documents (see Appendix E) The most significant elements of the scheme, in relation to the VPT, are as follows:

### **4.1 THE NORTH TICKET HALL (NTH)**

4.1.0.1 The construction of a new North Ticket Hall on a site on the corner of Victoria Street and Bressenden Place. The western edge of the NTH will be approximately parallel to the eastern wall of the VPT and at its closest lies within 1m of the theatre wall. The lower floor is approximately 10m below street level (5m below the assumed level of the VPT footings). The piles used in its construction will extend even further down. The relationship of the NTH to the VPT is shown in Arts Team sketch No SK02: (Appendix D).

4.1.0.2 The NTH development also includes the construction of a replacement Vauxhall Bridge Road (VBR) Sump at its southern corner on Victoria Street, approximately 6m east of the theatre building and 16m in depth.

### **4.2 THE PAID AREA LINK (PAL)**

4.2.0.1 The construction of a new set of tunnels linking the new NTH with the existing District Line ticket hall and the expanded South Ticket Hall (STH) connected to the mainline station.

4.2.0.2 The northern section of the PAL will run beneath the southern arm of Allington Street with its crown at a depth of approximately 9.5m. The tunnel runs parallel to the western flank wall and footings of the VPT stage house and its closest will be approx. 4m from it.

4.2.0.3 The central section of the PAL, linking to the STH, will cut beneath the south-western corner of the VPT auditorium. At its closest the crown of the tunnel will be approx. 3m from the footings of the auditorium. The relationship of the PAL to the VPT is shown in Arts Team sketch No SK03: (Appendix D).

### **4.3 THE NORTH ESCALATORS (ESCALATOR 10)**

4.3.0.1 The construction of a bank of three escalators linking the NTH with the Victoria Line platforms that lie directly beneath the stage of the VPT. These will descend in a southerly direction, cutting under the northern (rear) wall of the existing stage, and the strip of land envisaged for future expansion of the stage house. The top of the escalator tunnel will be within approximately 6m of the existing footings of the stage, and would actually clash with the footings of the proposed expanded stage house. The relationship of the escalator tunnel to the north wall of the VPT is shown in Arts Team sketch No SK04: (Appendix D).

4.3.0.2 It should be noted that the position of this bank of escalators in earlier LUL schemes was at least 5m further to the north. The previous position is shown on the drawings prepared for the option assessment studies (SES technical appendix C: Option studies: sub-appendix B) and illustrated in section on Arts Team sketch No SK06: (Appendix D) and also in Appendix H: in those plans the distance between the top of the escalator tunnel and the level of any existing or proposed footings for the VPT would have been at least 3m more than is now proposed.

### **4.4 UTILITIES AND ASSOCIATED WORKS**

4.4.0.1 Associated works including major utilities diversions. These will result in the closure or restriction, at various times, of all the streets surrounding the theatre.

## 5 IMPACT OF LUL DEVELOPMENT

- 5.0.0.1 A detailed analysis of the impact of the LUL development and the mitigation measures proposed is provided in Appendix G. The following two sections (5 and 6) summarise the effects and provide a commentary on the mitigation measures, and suggest how they might be improved and strengthened.
- 5.0.0.2 This section discusses, firstly, the impact of the construction works, then the impact of the permanent works, and, in the summary, the way in which those impacts would affect the existing theatre, and the plans for development.

### 5.1 CONSTRUCTION PHASE

- 5.1.0.1 The construction of the LUL scheme is currently programmed to start in October 2009 and to take a minimum of 6 years. The work will be carried out in a number of phases.
- 5.1.0.2 Preparation work for the LUL scheme involves the demolition of a number of buildings surrounding the VPT. These include Elliot House, which is a seven-storey office building sited immediately adjacent to the north of the VPT, and other lower buildings at 120-124 Victoria Street and 3-11 Bressenden Place. No 124 Victoria St and No 3 Bressenden Place are physically attached to the theatre. There will be noise and vibration, and the possibility of dust and other nuisance, from this activity. This is confirmed in LUL's own Supplementary Environmental Statement (Tables 6.3-5 and 6.3-6: refer to Appendix G). The extent of demolition around the Victoria Palace is shown on Arts Team's sketch SK05 (Appendix D)).
- 5.1.0.3 The demolition of 124 Victoria Street will reduce the loading on the foundations that it shares with Victoria Palace, allowing the VPT in turn to add further stories to the eastern part of the foyer, a key component in the development plans.
- 5.1.0.4 The construction of the NTH involves the driving of secant piles immediately adjacent to the east wall of the VPT, followed by excavation of the ticket hall and construction of the building. Construction of the new Vauxhall Bridge Road sump involves the driving of deep secant piles within approximately 6m of the east wall of the VPT. There will be noise and vibration arising from these activities.
- 5.1.0.5 Preparation work for the new PAL and escalator tunnels alongside and beneath the VPT involves work to improve the stability of the ground through which the tunnels will be cut, in order to reduce the risk of settlement and consequent structural damage. It is currently proposed that this will be carried out by a process of jet-grouting, by which concrete is pumped into the loose ground beneath the buildings (see Note 2 below). The process will be carried out from around and possibly from within the VPT and is likely to be highly disruptive as well as generating noise and vibration. If hard obstacles are encountered it is possible that percussive breaking or drilling techniques may need to be used.

Note (2) The exact extent and nature of the proposed jet-grouting remains unclear, as does the method by which it is to be carried out. The plan shown in Fig 3 on page 51 of Technical Appendix F to the Environmental Statement indicates jet grouting only along the west side of the theatre, in Allington St.. Technical Appendix E, clause 5.2.13, however, states that jet grouting will also be carried out from Victoria St, from within the Duke of York Public House, and to the north wall of the theatre. The Supplementary Environmental Statement also implies (e.g. para 6.6.13 et seq) that jet grouting will be more extensive than shown on the plan. However, this plan has not, as far as I am aware, been updated. It is also unclear whether it is intended to use the jet-grouting technique to underpin any part of the VPT; the documentation produced by LUL seems to be ambiguous in this respect.



- 5.1.0.6 The process of jet grouting involves pumping wet cement grout into the gravel beds beneath the building. The cement flows away from the jet nozzle, mixing with the gravel and sand to create a solid block of concrete. It is, of necessity, a fairly imprecise process, since it is impossible to predict how far or in which direction the grout will flow, as it follows faults and weak spots in the soil. There is a strong likelihood that the grout will create solid connections between the theatre footings and the tunnels below, and even if it remains separate will enhance the transmission path. The evidence of Mr Greer (para. 8.6) discusses this issue in more detail.
- 5.1.0.7 The process of tunnelling through the ground, even after it has been “improved” by jet grouting, will lead to settlement. This is confirmed in the evidence provided on behalf of LUL by Mr Robert Essler (doc ref. LUL.P4: para. 8.9). The extent of that settlement can be calculated in theory, but cannot be known exactly, as it depends on the ground conditions, the expertise of the workforce and other factors. This settlement will have an effect on the Victoria Palace, the severity of which cannot accurately be predicted.
- 5.1.0.8 Further discussion of the process of jet grouting is provided in LUL’s own Potential Damage Assessment and the potential impact is discussed in the evidence of Mr Wilson on structural issues and Mr Greer on acoustic issues.
- 5.1.0.9 A detailed discussion of the process of tunnelling in conjunction with jet grouting used as ground improvement is provided in the evidence being given on behalf of Land Securities by Mr Tim Chapman (doc ref. OBJ3/P3). This evidence highlights a number of risks inherent in the process (section 5), including the likelihood of considerable settlement, and the possibility of a catastrophic collapse occurring during the tunnelling operation.
- 5.1.0.10 The execution of the utilities diversions, as well as the main works, will involve a sequence of diversions and restrictions to vehicular and pedestrian movements in the area around the stations. This is likely to impact on the operation of the theatre in a number of ways, including access for technical purposes to the stage door, and access to the building for the general public including disabled visitors. It could also restrict the safe evacuation of the theatre in the event of an emergency: the doors onto Allington St would need to evacuate the full theatre population of around 1,700 in the event of a fire in the rear of the auditorium or the foyer. The impact of the works are described in greater detail in the evidence of Mr Loveday.
- 5.1.0.11 There is also reference in the LUL documentation to the risk of changes to the ground water level beneath the theatre, which is assessed as slight.

## **5.2 PERMANENT WORKS**

### **5.2.1 Noise and vibration**

- 5.2.1.1 A theatre is by definition a space in which, for the duration of a show, an artificial environment is created, shutting out the reality of everyday life, allowing the suspension of disbelief and encouraging the audience to enter into the alternative world created by the performers. For this to happen the sensory stimulations of the “real” world outside the theatre must be excluded as far as reasonably practicable. Any intrusions, of light and sound particularly, will distract the audience and destroy the illusion of the show. The evidence of Mr Conley describes this effect well.
- 5.2.1.2 It is therefore of vital importance that sound and vibration from both the construction work, and the completed underground systems, are not allowed to penetrate the auditorium.

- 5.2.1.3 Within the auditorium at the Victoria Palace it is already possible to hear quite clearly the passage of trains along the Victoria Line. The existing noise levels have been measured and are discussed in the evidence of Mr Greer. The subjective experience of this intrusion during a show can vary, depending on whether it occurs during a quiet passage in the show, and also to some extent on the degree to which the listener is engaged by the show: like any irritant, the effect becomes more pronounced as soon as one becomes conscious of it.
- 5.2.1.4 An increase in noise levels could result in a commercial impact on the Victoria Palace, in at least two ways:
- a) producers may take such effects into account in considering which theatre is best for their proposed production;
  - b) The Victoria Palace's ability to negotiate fees at the most advantageous rate might be compromised.

Mr Stoneman's evidence explains how producers' attitudes might be affected by a perception that a theatre was "noisy".

- 5.2.1.5 A major concern of VPT is that noise and vibration generated by trains and machinery including the new bank of escalators directly below the stage house, will be transmitted into the theatre. The escalators in particular will be in extremely close proximity to the stage, with a machine room located at the top of the escalators.
- 5.2.1.6 This situation has been exacerbated by design development, in which the location of the escalators has been moved at least 5m further south from their original position (as noted in para. 4.3.0.2 above). The reason for this change has not been explained in any of the documents seen, but the effect will be to reduce the depth above the escalator tunnel by at least 3m in the critical locations beneath the rear wall of the theatre.
- 5.2.1.7 The exact extent of the proposed jet grouting is unclear at present but it appears that it may involve complete encasement of the Victoria Line running tunnels and platforms as well as the new escalator and PAL tunnels, resulting in a solid transmission path for noise and vibration into the structure of the VPT, which is likely to make the adverse effects considerably more pronounced. This issue is discussed in more detail in the evidence of Mr Greer.

## **5.2.2 Use of the 6m strip**

- 5.2.2.1 In discussions between Land Securities, VPT and WCC it has been agreed in principle that the LandSec development will release a 6m wide strip of land to the rear of the stage for future expansion of the stage house. It is on this assumption that the expansion plans for the theatre have been based.
- 5.2.2.2 As has been shown in section 2.3.2 above, this additional land would allow the stage to be extended to a depth much more in line with the requirements of producers of moderns musicals, and match those of similar theatres elsewhere. However, the utility of this land depends on the theatre actually being able to build on it.

5.2.2.3 The ability of the VPT to rebuild the stage house will be seriously compromised by the LUL plans. The location of the escalator tunnel and associated works at a relatively shallow depth below the land to the rear of the existing theatre will make it impossible for VPT to construct footings for and to impose new loadings from their envisaged rebuilding and enlargement of the stage house. Even if the footings could be constructed they would be considerably more complex and more expensive than at present. This issue is discussed in more detail in the evidence of Mr Wilson (section 10).

5.2.2.4 In previous discussions between the various parties it was understood that the existing electrical sub-station on this site would be relocated as part of the LUL works. The sub-station sits on a small plot of land directly between Elliot House, No 3 Bressenden Place, and the Victoria Palace, roughly central to the rear of the stage (see Arts team sketch drawing No SK 01 rev A). The proposed expansion of the stage house requires the removal of the sub-station. However, recent changes to the LUL proposals suggest that it is no longer intended to relocate the sub-station. This effectively negates the value of the proposed Section 106 agreement in respect of the LandSec development and would severely compromise the VPT proposals.

### **5.2.3 Loss of ability to expand into the 6m strip**

5.2.3.1 In the event that the LUL proposal renders the land to the rear of the stage impossible, or economically unviable, to build over, this would have drastic implications for the VPT development plans.

5.2.3.2 The chief consequence would be that the stage depth would remain severely restricted at its current dimension of 9.5m. This would mean that no matter what other improvements were realised, (such as the increased grid height, enlarged basement etc), the Victoria Palace would continue to suffer from a fundamental restriction that would always prejudice its ability to compete with other West End theatres in attracting major productions.

5.2.3.3 A second consequence would be that the space available at high level in the enlarged stage house would be lost. Some relocation of the dressing rooms and other facilities that currently impede the stage wings could take place, in order to free up the stage-right side, but the overall number of dressing rooms would be restricted to current levels and the standards would be lower.

5.2.3.4 A third consequence would be that the new back-of-house lift could not be built to serve the upper floors, meaning that provision for disabled staff and performers would continue to be poor. The theatre would be severely restricted in its ability to comply with the DDA and its commitment to improved access for the disabled. Management solutions to providing better access would be cumbersome and costly. It would be possible to provide improved access for performers, but an accessible dressing room and WC suite could be constructed at stage level, thereby compounding the lack of space in the get-in and wings area of the stage house.

### **5.2.4 Loss of ability to rebuild on the existing footprint**

5.2.4.1 In the event that the LUL proposal makes it impossible to rebuild the stage house at all, the consequences would be even more severe. The fly tower and the stage grid would remain at their current low levels, making impracticable the use of the full proscenium height, restricting the option of later installing power-flying machinery, and removing the prospect of increased flexibility of staging so vital to attract top musical shows.

5.2.4.2 In addition, the plans to re-house the various dressing rooms and other back-of-house facilities in the upper levels of a rebuilt stage house would not be realised. The existing sub-standard facilities would remain, again prejudicing the attraction of the theatre to producers and performers.

5.2.4.3 The loss of the enhanced basement would result in the retention of the confined space and headroom that make the installation of elaborate sub-stage machinery extremely problematic.

### **5.2.5 Loss of ability to rebuild the eastern side of the foyer and new lifts**

5.2.51 The LUL plans do not acknowledge or discuss the plans by the theatre to rebuild the eastern side of the foyer, nor the construction of new front-of-house lifts on land to the east of the theatre, on the current site of No 124 Victoria Street.

5.2.52 The extent to which foyers can be further improved is dependant on whether the building adjacent to the Theatre on its east boundary is demolished. The Theatre currently shares loading of its foundations along this boundary and there is no spare capacity to further extend the foyer vertically. If the adjacent building is demolished and rebuilt on its own independent foundations, the Theatre can to extend the foyers a further two floors in line with its planning application of 2000.

## **5.3 SUMMARY**

### **5.3.1 Impact on the existing theatre**

5.3.1.1 The construction works if unmitigated will impact heavily on the current theatre in four principal ways:

- a) the noise of construction will be audible during performances and other activities, such as rehearsals, within the theatre;
- b) the vibration from the construction works, and in particular from demolition of adjoining buildings, may cause structural damage to the building, with serious risks including the danger of collapsing plaster;
- c) settlement resulting from the tunnel excavations will be transmitted to the structure of the building with potentially disastrous effects;
- d) the disruption, including diversions of traffic around the building, will severely affect access to the building, making it more difficult to reach and enter.

5.3.1.2 These effects, while not uniform through the works, will nevertheless impact throughout the construction period, and would severely compromise its ability to operate during that period.

5.3.1.3 The permanent works if unmitigated will impact on the current theatre principally in aggravating the already noticeable noise of underground systems within the theatre. If this occurs, it will undoubtedly affect the audience experience and may affect the ability of the theatre to attract the shows it currently specialises in, or to charge fully for its facilities, with consequent implications for its future viability.

5.3.1.4 In particular, the ground improvement works proposed to mitigate the possible structural impact of tunnelling under and around the VPT may well have the unintended effect of exacerbating the transmission of noise and vibration into the theatre, with disastrous consequences for the audience experience, potentially rendering the building unusable as a theatre.

### **5.3.2 Impact on the theatre's development proposals**

- 5.3.2.1 The construction of the proposed escalator tunnel beneath the rear of the stage house would effectively thwart VPT's ambition to redevelop the stage house, by making it impossible to construct new foundations.
- 5.3.2.2 The benefits that will derive from the redevelopment of the stage house and the foyers have been described in section 3 above. They include the following:
- a) a taller fly-tower, allowing vastly improved staging with more flexibility;
  - b) extended and improved dressing rooms and other back-of-house facilities.
  - c) increased space below stage, also allowing greater flexibility in staging;
  - d) improved access to all areas for performers and the public;
  - e) a larger stage, with increased depth and run-off space;
- 5.3.2.3 If redevelopment were to be limited to the existing footprint of the stage house, some of these improvements could be realised, but most of them would be only partial, and the last one not at all. Without the benefit of the total package, the justification for any redevelopment would be questionable.
- 5.3.2.4 The availability of two additional pieces of land on which Victoria Palace can extend its facilities will offer this theatre a once in a lifetime opportunity to extend and enhance its stage. It will allow the theatre to create a truly exceptional stage house in the West End that will raise it into a different league. Victoria Palace is almost unique in the West End in having this opportunity to extend its stage house to such extents. It should not be lost as a result of the LUL development.

## 6 LUL MITIGATION PROPOSALS

### 6.1 CONSTRUCTION PHASE

#### 6.1.1 Proposals

6.1.1.1 The ES and SES issued by LUL, together with their technical appendices contain a number of references to measures intended to mitigate any adverse significant effects of the construction works, including the following:

- a) the use of “ground improvement measures” to stabilise the ground adjacent to tunnels and (possibly) to underpin existing footings (ES technical appendix E: Built Heritage: paras. 5.2.32 ff: see Appendix G). These measures appear to consist of jet grouting. The exact extent of jet grouting is not clear (see note 2 to para 5.1.0.5 above), but it appears to be intended that it will be widespread and extensive;
- b) the avoidance, where possible of the use of hydraulic breakers and percussive techniques in the breaking out of obstructions (SES paras. 6.3.33 ff);
- c) the use of “specific engineering techniques” to avoid damage to plasterwork (SES paras 6.3.36);
- d) reference to a Draft Code of Construction Practice, that will be incorporated into the Contract documents for the VSU, and which will “set out standards for managing the environmental impacts of construction activities...” (ES para. 3.5.6). This document (rev 4) appears to be a very general description of good practice to be followed on construction sites and makes reference to various other Codes of Practice.
- e) a commitment to monitoring and liaison with the operators of the theatre, and to programming operations to avoid sensitive periods (ES para. 5.2.7, SES para. 6.3.36);
- f) a general commitment to making good damage caused (SES para. 6.3.36).

#### 6.1.2 Comments

6.1.2.0 A number of observations can be made in respect of LUL’s analysis of the effect on the building and the activities of the theatre, and their mitigation proposals.

6.1.2.1 There appears to have been a reasonably comprehensive analysis of the unmitigated impact of demolition, or the vibrations to be expected from other site activities such as tunnelling, although the evidence of Mr Chapman suggests that the possible effects of tunnelling may have been under-estimated, and that of Mr Wilson suggests that the full impact of any settlement on the building may have been misjudged. It is asserted by LUL in that these effects can be mitigated, in most cases to an insignificant level, by the measures being proposed, but it is not at all clear on what basis these assertions are founded. No objective evidence appears to have been presented to justify the assumptions.

6.1.2.2 The mitigation measures proposed are in most cases aspirational and ill-defined. There are frequent references to carrying out works sensitively, or with “specialist techniques”, and to avoiding the use of hydraulic or percussive techniques, but these are not clearly specified and are often qualified with the term “where possible”. This suggests that there may well be cases where such precautionary measures are not possible (or economically feasible). It is not clear where the threshold for such assessments would fall. There are also several statements to the effect that measures will be determined once the work is under way. This gives little comfort that when the time comes, satisfactory measures will in fact be found.

- 6.1.2.3 The potential consequences of significant effects do not appear to have been given adequate consideration. It is in general limited to the possibility of minor cosmetic damage to plasterwork. This ignores some potentially major consequences of the works:
- a) the possibility of a major failure of a section of plastered ceiling caused by vibrations to the structure.
  - b) the possibility of other forms of structural damage, on particular resulting from differential settlement of the structural components of the building;
  - c) the possibility that excessive noise or vibration levels from work could impair the acoustic conditions within the building to the extent that either the reputation of the theatre suffers unacceptably, or performances become impossible.
- 6.1.2.4 The possible structural impact is discussed in detail in the evidence of Mr Wilson. In the following paragraphs I will provide some further specialised evidence on the nature of fibrous plaster and the possible risks resulting from its disturbance.
- 6.1.2.5 Fibrous plaster was widely used in the construction of ornate decorative ceilings and other elements of 19<sup>th</sup> and early 20<sup>th</sup> century theatres, including the Victoria Palace. The technique involves the creation of moulded panels of plaster that are then suspended from or otherwise attached to a concealed supporting structure of metal or timber. The panels were reinforced with organic fibrous material such as jute or horse-hair and attached to the substructure by means of ligaments of a similar nature: i.e. cords impregnated with plaster.
- 6.1.2.6 Fibrous plaster has many advantages as a constructional material, including lightness and the ability to prefabricate panels in a workshop for rapid assembly on site, allowing grand effects to be obtained relatively cheaply: ideal for the theatres. However, the organic nature of the material means that it is prone to ageing and to damage due to wear and tear or moisture. It is generally accepted that after around 80 years the effects of such deterioration may become more pronounced: cracking may appear in the panels or the ligaments may become frayed or detached. These effects are not necessarily immediately noticeable from superficial inspection, but the results of failure can be dramatic: in recent years sections of fibrous plaster ceilings have collapsed without warning at a number of West End theatres, including the Shaftesbury Theatre (famously in 1973), the Victoria Apollo Theatre, and, quite recently Wyndham's Theatre. While the root cause of failure may be a gradual deterioration of the plasterwork, it is likely to be precipitated by vibration or shock.
- 6.1.2.7 Fortunately none of the above-mentioned failures resulted in serious injury, but the effect of a ceiling collapsing above an audience could be catastrophic.
- 6.1.2.8 At present little is known about the underlying condition of many of the areas of ornamental fibrous plaster work within the Victoria Palace. Although the theatre does (as it is required to do) commission regular visual inspections of the plasterwork, access behind certain areas, such as the tier fronts is limited. It is entirely conceivable that vibration of the structure caused by demolition or other construction works, or settlement of the building, could trigger a catastrophic collapse of a large section of ceiling, with potentially disastrous results.
- 6.1.2.9 The assumption that damage to plasterwork (or other elements of the building) could be relatively easily repaired is also questionable. Some of the fibrous plaster within the theatre would in fact be extremely difficult to replace, and the resultant repair would always be second best to the original work and lack historical authenticity. The evidence of Mr Earl confirms this.

- 6.1.2.10 A number of potential effects appear to have been ignored or dismissed. The likely disruption to the operation of the theatre, including restrictions on access to the stage get-in door, for the general public and for disabled staff and visitors, does not appear to have been adequately assessed. Likewise, the sheer adverse impact of having the theatre surrounded by a building site for six years has not been acknowledged. All these factors are likely to affect the public perception of the VPT as a destination, and will lead to a significant reduction in its appeal.
- 6.1.2.11 The proposed use of jet grouting techniques to stabilise the ground and to underpin existing foundations has been put forward as a kind of universal panacea for overcoming the effects of tunnelling and other works. However, this technique is of relatively recent origin, and there are significant questions over its efficacy, longevity, and the potential “unintended” consequences it might have for long-term sound transmission:
- a) jet grouting as a technique has only been in use for around 25 years. It is not clear what its long-term durability is likely to be.
  - b) LUL’s own documentation (e.g. paras. 5.2.26 – 27 of Technical Appendix E to the main ES) acknowledges that there could be adverse effects of jet grouting, and the evidence of Mr Chapman sheds considerable doubt on the reliability of the technique.
  - c) the effect of jet grouting will be to solidify the ground between the theatre and the underground systems and in so doing may well create a considerably enhanced transmission path for noise and vibration between the two. No evidence appears to have been produced to demonstrate that this would not occur.
- 6.1.2.12 A further general concern relates to the evident intention of the LUL design team to leave the detailed design of the works to the Contractor. This is referred to in, for example, the evidence of Mr Essler for LUL (para. 9.6). This process (known generally in the construction industry as “Design and Build” (or D&B) places responsibility for the final and detailed design of elements of the work upon the contractor. Although in theory the contractual arrangements are supposed to provide for the client’s team to comment on the contractor’s design proposals, this ability is frequently compromised by the demands of cost and programme once the works are under way. It is also inherent in the D&B process that clear definition of design responsibility becomes blurred between different parties.
- 6.1.2.13 The further danger, for VPT, is that this process would place VPT at a further remove from the design process and affect its ability to comment constructively on any proposals. The likelihood is that critical decisions on the design and construction methodology will be taken under pressurised conditions and without VPT having any control over them.

### **6.1.3 Possible further mitigation measures**

A number of further mitigation measures should be considered in order to lessen the risk of adverse impact on the theatre.

- 6.1.3.1 A full fibrous plaster survey should be carried out, in order to determine the condition of the plaster and its supporting structure. Following from this, protective measures may need to be put in place to safeguard any weak areas. Even with these precautions, however, it is doubtful whether such measures would be sufficient to remove all risk of collapse.
- 6.1.3.2 The constructional methodology should be enhanced, by agreement with the owners of VPT, by introducing clearer and more specific measures to ensure that the operation of the theatre is safeguarded during the construction phase.



- 6.1.3.3 Further research should take place in order to establish with more certainty what the effects of the proposed jet grouting may be, particularly in respect of its longevity and the possibility of solid connections being formed between the theatre substructure and the tunnels beneath.

## **6.2 PERMANENT WORKS**

### **6.2.1 Proposals**

- 6.2.1.1 The ES and the SES issued by LUL do not appear to have addressed the possible adverse effects of the permanent works.

### **6.2.2 Comments**

- 6.2.2.1 There appears to have been no study carried out by LUL on the possible effect of the jet grouting in creating an enhanced sound and vibration transmission path between the underground systems and the VPT. This a major deficiency of the LUL proposals.

- 6.2.2.2 No consideration of the impact of the escalator appears to have taken place and the LUL Environmental Statement is silent on the matter. This is a further major deficiency.

### **6.2.3 Possible further mitigation measures**

- 6.2.3.1 One means of mitigating the impact would be for LUL to install a substructure, as part of their works, that would allow the Victoria Palace to construct its new stage house at a later date without interfering with the LUL tunnels.

- 6.2.3.2 Mr Wilson in his evidence (section 10), suggests that some form of bridge over the escalator tunnel, or an agreed piling solution could be found that would allow the VPT to construct its own footings in due course. Discussions should be held with LUL with the aim of finding such a solution.

- 6.2.3.3 Further research should be carried out in to the effects of jet grouting (see 6.1.33 above).

- 6.2.3.4 Measures to mitigate the potential noise and vibration at source should be considered. These could include the installation of more resilient track supports and fully welded rails on the section of the Victoria Line where most of the vibration is generated. This possibility is discussed in the evidence of Mr Greer.

- 6.2.3.5 Consideration should be given to the provision of enhanced measures to isolate the theatre structure (in particular the proposed new structure, from ground-borne noise and vibration).

## 7 SUMMARY

- 7.0.0.1 The Victoria Palace Theatre is one of London's most historic and venerable musical theatres. It is important in its own right as a significant example of the work its architect, Frank Matcham, and is a Grade II listed building. It has historical importance in its links with the Victorian music hall tradition. It is a significant component of London's Theatreland, with all that implies in terms of the cultural tradition of theatre in London and its contribution to tourism and the economy.
- 7.0.0.2 The Victoria Palace is a successful working theatre, and has been well maintained in the past, but it suffers from shortcomings and limitations typical of its generation. To remain competitive, bring it up to the expectations of current audiences and producers, and to ensure its future as a viable theatre it needs to modernise in order that it can continue to attract the top musical shows, and the audiences to see them.
- 7.0.0.3 Development proposals have been drawn up, and submitted for Planning Permission, that would address the theatre's shortcomings and make it one of the best musical theatres in London. These proposals contain a number of elements, including:
- refurbishment and improvement of the existing theatre;
  - the rebuilding of the stage house and the side extension;
  - construction of a lift tower on land released by the demolition of No 124 Victoria Street;
  - extension of the stage house to the rear;
- The proposals and their logic are described in section 3 of my evidence, above.
- 7.0.0.4 The extension element of the proposals takes advantage of a unique opportunity to acquire land around the existing site in order to extend the stage house and to provide lifts for better access. Without this opportunity the development would be possible, but will not address all the theatre's limitations.
- 7.0.0.5 London Underground Limited have submitted proposals for a major redevelopment of Victoria Station that will take at least six years to complete (with possibly more to follow), and which will completely encircle the theatre. These proposals are briefly described in section 4. They include ground treatment and tunnelling techniques that carry significant risks of settlement or even collapse.
- 7.0.0.6 The disruption of the construction activities will be huge, involving noise, vibration and restriction of access around the theatre. The vibration and settlement may well result in danger to the public from the disturbance and possible collapse of elements of the building including ornamental plasterwork. Any of these factors might force the closure of the theatre while the LUL works are in progress. Although mitigation and preventive measures have been proposed it is by no means clear that they will be adequate or effective. The impact of the construction works is described in section 5.1.
- 7.0.0.7 The impact of the completed works, in their currently proposed form, will also be enormous. The location of the north escalator tunnel will impede the construction of suitable footings for the rebuilding of the stage house, either in its current position or in its expanded form on the 6m strip.

- 7.0.0.8 Furthermore the completed development may well result in increased noise and vibration within the theatre that would compromise its viability. In either of these cases the future of the theatre would be significantly threatened. Details of these threats are discussed in section 5.2
- 7.0.0.9 LUL have proposed mitigation measures but these are not fully detailed and fail adequately to address several major issues. They present an unacceptably complacent view of the overall impact of both the construction works and the completed scheme. The mitigation measures are described in section 6 above.
- 7.0.0.10 In particular the mitigation measures do not address the longer-term impacts of the completed works in terms of the possible increased levels of noise and vibration resulting from the operation of the LUL systems below ground, and limitations that might be placed on VPT's ability to modernise and extend the stage house.
- 7.0.0.11 There are ways in which the LUL scheme might be adapted and construction safeguards introduced that would considerably lessen the likely impact, and preserve the ability of the theatre to carry out its development plans. However, there is no indication at present that LUL are willing to consider these.
- 7.0.0.12 Theatres are highly specialised buildings. If the Victoria Palace ceases, through the effects of LUL's development, to be a commercially viable theatre, it is difficult to see what alternative use might be found for the building. Suggestions that it might be used in other ways are speculative and any case miss the point that the Victoria Palace was designed to be a working theatre, and any change of use would amount to a complete failure of conservation.
- 7.0.0.13 If the building were to lose its viability as a commercial theatre the almost inevitable result would be neglect, deterioration and ultimately the loss of a precious part of London's cultural heritage.