

St George's Fields Ltd

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**Asset Management  
Planning**

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Review for 2006



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June 2006

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

Job number 118290

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20 year Budget Planning – Version 2

### Appendix B

Structural Engineering Report 3 May 2006

## 1 Introduction

Arup were commissioned by Mr J R Nicholl of St George's Fields Ltd to carry out a brief high level review of maintenance and repair works recently carried out, and to assist with future budget planning. During the past year visits have been made by Tony Wallace, Richard Henley and Phil King of Arup. We have met and been assisted in the provision of information by Messrs Nicholl, Keen, Partridge and Tarpey.

We understand that in general terms St George's Fields Ltd is responsible for common areas and services and the main structure of the buildings. The individual flat owners are responsible for all services inside their flats and the windows.

## 2 Overall Planning

From information on copies of installation drawings it appears that St George's Fields was built in the period 1967 to 1969. This is consistent with information provided by the people whom we met. We assume that actual title deeds are available to confirm this. Therefore age of the buildings and originally installed services is in the range 30-40 years.

A typical life expectancy of buildings is 60 years or more, given adequate maintenance. For installed services typical life expectancies are in the range 15-40 years. A spreadsheet has been developed that identifies the major expenditure blocks which may be anticipated over the next 20 years with regard to the building fabric and engineering services. The latest draft of this sheet, which can be found in Appendix A, should be updated progressively in the light of cost information that becomes available. The costs indicated at present are only for major replacement and repair works, not for general maintenance and minor works. It is clear that there is a need to build up substantial funds to finance the future renewal and replacement costs, over and above the general maintenance, service and running costs.

The figures are indicative only and are provided to give guidance on the order of costs likely to be involved for overall planning. They are based on outline non-invasive visual inspection of sample areas and on information provided by SGF. These costs should be updated in the light of ongoing information and as firm estimates by contractors become available. For many items the timing of the expenditure is a central scenario on a range of possible timescale, which will be affected on how systems are used, inspected, maintained and repaired in practice. When the time comes to implement the work then the necessary stages of brief, specification and tendering or other price checking would be carried out in order to achieve value for money.

Economic life factors for different elements are set out in CIBSE Guide to Ownership, Operation & Maintenance of Building Services. Systems can last longer but beyond the rated life there is an increasing risk of failure. In most cases the installations are already older than these standard economic life factors. In the current draft of the spreadsheet a few more years' life has been assumed but on present information the remaining life is uncertain. Future condition surveys may assist to refine the forecast of when replacement will be needed.

## 3 Work planning by element

### 3.1 Building fabric

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An inspection of the repair works was carried out 3<sup>rd</sup> May 2006. The report is included as Appendix B.

### 3.2 Services

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We have sought to establish an outline of the installations based on such record drawings that exist, initial non-invasive sample inspections and discussions with Mr Tarpey. The purpose at this stage was to establish an initial basis for budget planning.

#### 3.2.1 Electrical installations

In 2005 Arup identified the need to carry out electrical inspection and testing, which is required at maximum five year intervals and is a statutory obligation. We have been provided copies of the inspection reports of January 2006 for Hanover/Archery Steps, North Rise and West Rise. Each of these reports states that the installation remains serviceable subject to the items identified being actioned. Such reports are in a set format with four priorities for action in response to the individual discrepancy findings, priority 1 requiring immediate attention.

There are a number of priority 1 and 2 items, many of which are relatively small jobs to carry out. We understand that the necessary work has been carried out or is planned to be done

in the near future. We recommend that all the actions listed in the discrepancy reports should be carried out, including the provision of emergency lighting in the electrical rooms.

Given that the installation has been in use for around 37 years the remedial works necessary at this stage have been found to be relatively modest. However there will come a point in time when nearly the whole system will need renewal, currently projected for 2011 to 2013, following the next five-year inspection and testing. This will incur major expenditure and it is anticipated that some builders' work will be required as part of such a project.

### 3.2.2 Lifts

We understand that the lifts were refurbished around 2001. It would be useful see a copy of the outline description of those works if it is available.

The lift installation does not comply with the current requirements of the Disability Discrimination Act. Whilst the application of this Act is subject to a test of reasonableness on existing installations it is likely that any future upgrades will need to include such compliance.

We assume that:

- The maintenance company carries out the necessary inspections and provides certificates under the regulations (LOLER).
- These are inspected by the insurance company.

### 3.2.3 Security

On the present information we have indicated only a projection of when gate renewal may be necessary and some allowance for new or replacement CCTV equipment. CCTV cameras and equipment will have a shorter life expectancy, both in regard to equipment and the period over which equipment is supported for repairs and maintenance. Developing technology may be a major factor in the timing of future expenditure.

### 3.2.4 Water supplies

The galvanised mild steel mains water distribution system is past the end of the rated life. We have no information on failures and the projection is of another 10 years life. At renewal the use of copper tube would be preferable on the basis of longer life and the avoidance of the risk of rust in the water when pipes start to corrode. If individual water metering were to be installed it would most economically be done at the time of the mains renewal.

### 3.2.5 Drainage

It is possible that the drainage system will last some time beyond the rated life expectancy. Any signs of failure should be recorded for information in this matter. Damage is a potential factor with underground drainage, especially tree roots getting into salt glazed pipe joints when the ground is dry. A CCTV survey of the underground drainage would be useful to establish if there are any problems at present. Such surveys are commonly done and are not too expensive.

### 3.2.6 Sump Pumps

Renewal of all the sump pumps is likely to be necessary over the next few years. Individually they do not represent a major expenditure. The maintenance should include periodic cleaning of the sumps by a specialist.

### 3.3 Fire Protection Systems

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#### 3.3.1 Fire Risk Assessment

It has not been possible to locate the original statutory consent and associated drawings. Impending legislation requires owners to carry out fire risk assessment to act as the basis for the various fire precautions required for the premises. It is therefore necessary to commission a specialist to carry out a full fire risk assessment. This will take into account the existing fire precaution measures, any further measures advisable and the advice and requirements of the insurance company to St. George's Fields Ltd.

We have ascertained that Westminster City Council do hold some microfilm records for St. George's Fields and we will arrange to inspect these and obtain copies of potentially useful documents.

#### 3.3.2 Sprinkler system

In the recent past repairs have been necessary to sections of the sprinkler system because of corrosion of the outside of the pipe sections in question caused by leaks from above. Such repairs should be carried out promptly. It would be useful to retain sections of the removed pipe to give an indication of the metal thickness of the remainder of the system which is near the end of its rated life. The fire risk assessment should confirm the long term need for a sprinkler system and the views of the insurance company must be taken into account.

We understand that quarterly servicing is carried out by Amec. BS 5306 Part 2 sets out the requirements for servicing and for weekly checks on pressure gauges etc.

Because of the use of compressed air the system will require annual inspection by a competent person under the Pressure Systems Safety Regulations 2000. It should be confirmed who carries this out; options are the service company, the insurance company or another specialist.

#### 3.3.3 Dry risers and fire hydrants

Annual maintenance is a requirement of BS 5306 Part 1. Dry risers should be inspected every six months and tested once a year. This work should be carried out by a competent person. With the local fire authority no longer carrying out such tests alternative arrangements should be made with a specialist company.

#### 3.3.4 Emergency lighting

The need for emergency lighting should be included in the fire risk assessment. We understand that there are some existing emergency lighting fittings at lower staircase levels but other below ground areas in particular need to be assessed. The requirements for emergency escape signage should be included in the assessment.

The requirements for emergency lighting are set out in BS 5266 including the need for maintenance and monthly testing.

#### 3.3.5 Estate Office Fire Detection System

The requirements for maintenance are set out in BS 5839, to be carried out by a specialist company. Weekly tests and periodic fire drills should be carried out.

#### 3.3.6 Fire extinguishers

The fire risk assessment should set out the need for fire extinguishers in the landlord's areas. These will require servicing every year with an extended service every five or ten years.

3.3.7 Responsible Person and Fire Protection Systems Log Book  
BS 5839 sets out the need to appoint a Responsible Person who should ensure that the necessary tests, checks and servicing are carried out by people competent to do so. In addition there is a requirement for a log book to record all tests, servicing and faults on systems. This log book should have sections to include fire alarms, emergency lighting, sprinklers, dry risers and hydrants.

#### 3.4 Asbestos

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Current regulations require that an asbestos management plan be in place and a Responsible Person appointed. It is understood that asbestos is known to be present in a number of components such as fire rated doors. A specialist company should be appointed to carry out a survey. The company should produce a report and drawings showing the locations of asbestos containing materials. This will form the basis of the future asbestos management plan and register which are legal requirements.

## 4 Other Matters

#### 4.1 Record Drawings

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In order to facilitate the effective use of drawings of the premises for fire precautions, asbestos management and other uses, it is recommended that a set of outlines be prepared electronically using the standard AutoCAD format. The record drawings available considerably predate electronic methods which would be useful for future management and control.

We have scanned some of the record drawings into pdf format but preparation of electronic layouts which can be used for various different purposes would be much more useful.

#### 4.2 Roof Access

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It is understood that some consideration has been given to improving access to roofs which are not up to current safety standards. All contractors should have appropriate risk assessments and method statements where work is needed on roof or any other hazardous areas. Possible expenditure may be needed in consideration of safe access and the reduction of other costs when future work is done.

#### 4.3 Water Metering

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At present water is paid for on an un-metered basis. For the water consumption of the flats alone a change to metering would be expected to give a reduction in bills paid. In practical terms this would be a common meter at the incoming point from Bayswater Road. Whether there would be a saving overall depends on how much water is used on the grounds. A useful indicator would be given if during a typical week in April, July, October and January a record is kept of the number of hours of individual hose and sprinkler use. This could be converted to an approximate estimate of consumption.

It may be that year 2006 will be influenced by the new water restrictions in the south of England and Thames Water Utilities may introduce compulsory metering. However an estimate of the use for grounds watering would be useful.

## 5 Summary

St George's Fields has now entered a period when renewal of services and further maintenance work on the building structure will require significant expenditure. Indicative costs and timescales are included in the 20-year budget plan. This will require updating at least annually.

The actual time for expenditure may be sooner or later depending on the original quality of the systems and well they maintained.

The following are urgent items with legal obligations as to their provision: -

- A fire risk assessment
- An asbestos survey and register

There is also a need for layout drawings to assist the ongoing management of the estate and to facilitate the above requirements.

Appendix A  
**20 year Budget  
Planning – Version 2**

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Appendix B  
**Structural Engineering  
Report 3 May 2006**

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## St George's Fields Maintenance Program

### Structural Engineering Report [File Ref: 4.50]

3<sup>rd</sup> May 2006

## 1 Introduction

This reports on a site inspection made on 2<sup>nd</sup> May 2006 by Terry Tarpy (St George's Fields maintenance contractor) and Richard Henley (Arup).

The purpose of the inspection was to consider the forthcoming, high level, maintenance program for the structure and external fabric.

The scope of the inspection was limited to the items set-out in this report and was an external inspection.

It was a visual inspection of parts of the Estate; Arup relied on TT to report on any defects and matters of concern. This report should not, therefore, be construed as a full and complete condition inspection.

This report is prepared for the Estate Management Board. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

## 2 Brickwork

As part of an ongoing activity, that had an intensity of activity in 2004, movement joints are being cut into the external leaf of the cavity brick wall envelopes on all blocks. This work arises because the original construction did not incorporate the number of movement joints that would typically be expected in such a construction and did not appear to detail the brickwork to account for that. As a result a reasonably significant amount of brickwork cracking had occurred. Whilst this did not compromise the overall structural and weathering resisting performance of the cavity walls it was unsightly and over the long term would give lower water and draught resistance than might be expected for properties of the current (and expected) values.

The brickwork cracking can be grouped under two headings

### 2.1 North, West and South Rise Blocks

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Typically cracking was and is evident to the brick spandrel panels, below the widow cills. It is evident on all elevations with main windows.

The general pattern of cracking is so called pyramid cracking, of the sort one might see over an undersized lintel. It is considered to be due to the long term deflection of the concrete floor plates of the blocks. The brickwork tries to follow the concrete profile until it reaches a critical stress whereupon it cracks.

The solution has been to cut vertical slots at nominally mid panel position to relieve the stresses in the brickwork. The joints are filled with a compressible expansion joint filler strip and pointed with polysulphide mastic.

The current state of progress is understood to be as follows: -

- West Rise completed in 2004
- North Rise – east face completed 2006 – west face to be done
- South Rise – east face to be done.

It is not considered that the remaining works are high priority although this should be factored into the maintenance program over the next two years. The manufacturers of the polysulphide mastic will advise on the likely life span.

## 2.2 Ziggurat Blocks

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Typically the cracking was evident below windows along the walkway elevations. Vertical slots have been cut into the brickwork at locations of cracks and bricks replaced adjacent to the slots as required. In a number of cases the cracking was not simply vertical and had migrated diagonally away from the initial source.

The cause of this cracking is attributed to thermal and moisture movement of the walls with cracking typically occurring at abrupt changes in wall section (in the spandrel panels at window edges).

It should be noted that the cut-in joints follow a similar pattern to the limited number movement joints installed as part of the original construction. An example of this is the existing movement joints on the west and south faces of South Rise and the joints cut into the spandrel panels along the Archery Steps level 5 walkway.

It is understood that this work has been completed.

It is an open question as to why the original construction included some movement joints but not across the whole scheme.

## 3 Concrete

In the recent past certain patch repairs have been carried out to the external, exposed concrete; typically arising from the effects of reinforcement corrosion.

One such repair, made in 2004 on the level 5 stair tower to Archery Steps was inspected and found to be sound.

As a general rule all such repairs should be periodically inspected for soundness and condition.

Most of the exposed concrete faces have been recently coated with a proprietary, good quality, concrete paint system to reduce the effects of atmospheric exposure on the concrete surfaces. This appears in good order but as with the patch repairs should be periodically inspected for soundness and condition.

## 4 Flat roofs

Two flat roofs of Hanover Steps were visually inspected.

It is understood that the roofs are asphalt, on screed cast on wood-wool slabs supported by timber joists spanning between the dividing walls of the apartments; there are no expansion/movement joints in the screed

It is evident that the roof joists are sagging, although the roof does not appear to be lively. An effect of this on the roof covering is that the asphalt "ridges" over the dividing walls below. This "ridging" is susceptible to cracking, although there are no reports of roof leaking arising from this potential cause.

The lower of the two roof inspected has been repaired along the "ridging" lines.

It is not clear if the roof covering is from the original construction.

A specialist inspection is recommended to establish the detail condition of each roof and the likely residual life of the current covering.

It is noted that although access to the roofs is restricted to maintenance only there are no safety handrails or fall arrest provisions to protect maintenance workers. This should be specifically drawn to the attention of everyone seeking access to the roofs for either inspection or construction work. Temporary, removable fall arrest systems are available, the appropriate system being informed by the roof construction detail and load capacity.

## 5 Balustrades to walkways

A recent repair program has been completed to the teak handrails at the original joints in the handrails, which had been subject to substantial rotting of the timber. The design of that repair was informed by the desire not replace the handrail entirely as that would also have necessitated the temporary removal of the glass balustrade panels.

The large glass panels are a cause for concern. In the original detail they are wired glass panels supported only along their top and bottom edges; those supports being simple putty or mastic pointed rebates, the top being rebated into the underside of the teak handrail.

Subsequent modifications have been made to the support of some, but not all glass panels, in the form of a small diameter bolt bracketed to the steel balustrade posts and passing through the gap between the glass panels. The glass is held to the bolt by large diameter steel washers with rubber or neoprene separating washers. The ability to affect such a detail is dependant on the size of the gap between the glass panels.

It was noted that some glass panels are loose and some are cracked.

The original glass fixing detail is not robust, not all panels are restrained by the modified balustrade post fixings and the washer sizes are relatively small.

We recommend that the balustrade panel design be thoroughly reviewed with the aim of bring the design and construction to a more robust level; perhaps replacing the glass with metal grilles/mesh panels.

In the meantime the cracked glass should be replaced, all panels inspected for tightness of fit and loose panels packed tight.

## 6 Summary

The forthcoming maintenance program (next 12 months) which applies to the structure and external fabric may be summarised as follows: -

- Thorough review of the design and construction detail of the large glass balustrade panels.
- Pending any fundamental refurbishment of the glass balustrade panels – replace cracked panels and tighten up all loose fitting panels.
- Commission specialist inspection and survey of the flat roof coverings to establish condition and residual life. Note the absence of safety handrails or fall arrest system.
- Complete the cutting-in of brick movement joints on North and South Rise – perhaps spread over a 24 month period.
- Periodically inspect concrete patch repairs and concrete over-coating – this can be carried out as part of the regular on site presence of the maintenance contractor.
- Continue to receive and log any potential defect reports/concerns of the Estate Management Team and occupiers; to be considered at the next maintenance program review.