

We would recommend that water samples are taken every year along with the formulation of a management plan in relation to the water supplies in the building.

### **5.3.3 CONTROL OF ASBESTOS REGULATIONS**

The Control of Asbestos Regulations 2006 places a duty on occupiers, employees and owners to ensure that a suitable and sufficient assessment is carried out to determine whether asbestos containing materials (ACMs) are likely to be present in the premises. This information should be recorded by means of a Management Survey (formerly referred to as a Type 2 Survey) and the associated results contained within an Asbestos Register for the building. This should include essential information relating to location, condition, recommendations and implementation for management of the ACMs.

We have been provided with a copy of schedule of what Asbestos reports have been carried out at Cairngorm. It appears that no survey has been undertaken of the Base Station however in our opinion it is unlikely that any asbestos containing materials exist due to the age of construction and we did not note any suspicious materials on site during our inspection.

Despite the above a regulations still require a statement to be kept on site to confirm that there is no asbestos containing materials on site. You should ensure that this is provided in early course.

## **6 SUMMARY AND RECOMMENDATIONS**

### **6.1 PRINCIPAL CONSIDERATIONS**

The premises have been constructed to an average standard and specification commensurate with their use and age. We did not note any evidence of significant differential structural movement or settlement within the building. We did however note a number of minor items, which should be considered as part of your 10 Year maintenance programme, as highlighted below: -

1. The internal decorations to the property are in a fair condition with general minor marking and soiling noted to areas as would normally be expected. The

workshop, Ranger Station and back of house areas are all showing signs of heavy wear at this time. Redecoration should be carried out on a cyclical basis, which we have identified in year 4.

2. Generally, the external parts are in good condition with minor maintenance works only being required to maintain a wind and watertight property and to prevent further or future building fabric decay. These include repairing the gutters to the perimeter where they are damaged and repairs to all main door sets.
3. The internal doors are all showing signs of heavy wear and tear particularly the double leaf doors to the funicular and workshop with ironmongery generally requiring attention. In addition the smoke seals and intumescent strips are poor. We have included costs for overhauling all of the doors and installing appropriate smoke seals and intumescent strips in year 1.
4. Within the main workshop we noted that a plywood timber partition and timber double doors have been installed between the workshop and the loading areas. In addition a large metal formed mezzanine floor with a plywood formed electrical workshop and store have been constructed. We do not believe that these have been built with the appropriate statutory consent to comply with the Building Regulations in particular in terms of fire containment/escape. You should ensure that the works as installed receive a Building Warrant Completion Certificate or are removed. This is also the case with the first aid room to the upper level and eaves store accessed off the funicular platform.
5. The rear access roadway to the workshop is badly eroded and requires to be reformed. We have recommended forming as part of the maintenance works within the attached schedule.
6. The water supply to the building is slightly acidic. To minimize any potential on-going effect this may have on pipework distribution systems, costs have been included for the installation of local water treatment equipment. We have based our costs on this work taking place in year 1.

7. Electric convector heaters have a recommended economical life expectancy of 10 years so we have included replacement costs – to be spread over the 10 year period (as and when they fail).
8. The cold room cooler units have a recommended economical life expectancy of 10 years so we have included replacement costs – to be carried out in year 2.
9. Main architectural works associated with redecoration / refurbishment taking place in year 4 and allowance has been made in 10 year cost plan for electrical installation to be upgraded at this time.

## **6.2 FUTURE MAINTENANCE OPTIONS**

Following our review, there appears to a lack of robust processes in place to review the maintenance and health and safety statutory requirements for such premises.

At the present time it would appear that CML undertake repairs to the properties on a reactive basis with planned works being limited to the redecoration of the externals using in-house labour.

We would suggest that CML are encouraged to review the condition survey on a yearly basis and appoint a professional representative to produce tender documentation to cover all works required and obtain competitive tenders from four local contractors. This will result in economies of scale in procuring the works as one entity and provide consistent quality.

The in-house labour force can then deal with day to day reactive repairs and possible external redecoration. It may also be possible for CML to employ the services of a centralised management company for reactive repairs, whereby the repairs required are reported to the company who then manage the works along with health and safety issues, this would incur a percentage mark-up on all repairs and therefore costs would be slightly higher, but the benefit is better allocated resources internally.

We would also suggest consideration is given to a central electronic system, such as 'TrackRecord' which provides a management tool for CML and HIE. The system provides an electronic diary which records the actions required for CML such as statutory requirements (Fire Risk Assessments, Water Risk Assessments, Health and Safety Review, Test Records for the Funicular Railway, Test Records for the Ski Tows, Electrical Tests, PAT Tests, and Water Temperature Readings etc). The system also acts as an electronic storage device for all records to be held in one place, which can be viewed by HIE.

Furthermore, such a system can monitor the progress of CML and provide data recording the compliance using charts and percentage readings that can be easily reviewed and followed up by HIE.

Our recommended on-going maintenance costs include for the required statutory testing and monitoring procedures.

### **6.3 SUMMARY OF COSTS**

The attached maintenance programme provides budget costings for expenditure in 2010 and the following ten years to 2020. These costs, assessed at 2011 rates, are budget costings only and in many instances the cost will vary once opening up and further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT.

We recommend that a sum in the order of £70,000 which excludes VAT and Professional Fees, is included in the year 2011 repair budget to undertake the works included in the 10 Year Maintenance Plan.

A summary of the costs are shown within Appendix 1.

**6.4 RECOMMENDATIONS**

Overall the Base Station premises at Cairngorm Mountain are in good condition; however we would recommend that you undertake the remedial maintenance repairs in line with the 10 year maintenance plan with a full redecoration internally in year 4.

The condition of the Mechanical & Electrical (M&E), building services were found to be reasonable, however, we would recommend that remedial and maintenance works are undertaken in line with the 10 year Maintenance Plan.

<p>[Redacted]</p> <p><b>Partner</b> King Sturge LLP</p> <p>T [Redacted] (Direct) F [Redacted] (Direct) M [Redacted] (Mobile) [Redacted]@kingsturge.com</p>		<p><i>Prepared by</i> [Redacted]</p> <p><i>Property Inspected by</i> [Redacted]</p>	
<p><i>Date of Issue</i> 28 January 2011 Rev March 2011</p>		<p><i>Authorised by</i> [Redacted]</p>	
<p><i>Report Status</i></p>		<p>FINAL</p>	
<p><i>Other Consultants Involved</i></p>			
<p><i>Name</i></p> <p>Davie and McCulloch</p> <p>Scott Wilson</p>		<p><i>Discipline</i></p> <p>Mechanical and Electrical</p> <p>Transport Engineers</p>	



**Highlands and Islands Enterprise**  
Iomairt na Gàidhealtachd 's nan Eilean

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**PLANNED MAINTENANCE CONDITION  
SURVEY REPORT**

ON

**BUILDING CODE: 004  
SHEILING BUILDING  
CAIRNGORM MOUNTAIN  
CAIRNGORM**

FOR

**HIGHLANDS AND ISLANDS ENTERPRISE**

AS AT

**JANUARY 2011  
REV – MARCH 2011**

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**King Sturge LLP**  
6th Floor  
145 St Vincent Street  
Glasgow G2 5JF

T +44 (0)141 204 2221  
F +44 (0)141 204 2201



**SHEILING BUILDING, CAIRNGORM MOUNTAIN, CAIRNGORM**

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## **1 INTRODUCTION**

In accordance with your instructions, confirmed in the contract document dated 14 September 2010, we have undertaken a building surveyor's inspection of the Sheiling building at Cairngorm Mountain, Cairngorm, to advise you on its condition with the objective of providing a ten year maintenance programme. The inspection was carried out between 18 and 21 October 2010; and at the time of the inspection the weather was varied including snow, wet, fog and strong winds.

In accordance with your invitation to tender our survey inspection has included for all Mechanical and Electrical services within the premises and as-built drawings have been produced both of which are included in the appendices along with the layout drawings.

The inspection of the Mechanical & Electrical (M&E) building services was carried out on the 27<sup>th</sup> October 2010.

We must stress that this report is only for the use of the party to whom it is addressed and no responsibility is accepted to any other party for the whole or any part of its content. Neither the whole nor any part of this report or any reference thereto, may be included in any document or statement, nor published or reproduced in any way, without our prior approval in writing as to the form or content in which it will appear.

## **2 GENERAL DESCRIPTION & TENURE**

The Sheiling building forms the mid station half way up Cairngorm Mountain and is located adjacent to the main hill service road and the funicular railway line within the ski area. We understand that the building was constructed in the early 1970's to provide a restaurant/packed lunch area and welfare facilities for the ski area.

The building has been formed around a structural steel frame incorporating columns and beams supporting concrete roof slabs with areas extending over the ground floor to form a perimeter canopy and first floor roof terrace.

Externally the main roof forms an external roof terrace finished in asphalt with concrete paving slabs laid on insulation and incorporating aluminium edge flashings around the perimeter to form a raised deck. Surface drainage in the form of rainwater outlets with gratings located around the roof finish feeding external perimeter and some internal downpipes. The perimeter of the roof has been provided with metal balustrades clad with timber with access provided to the north and south ground floor areas by two galvanised metal staircases with similar balustrades and timber cladding. A concrete slab formed bridge provides access to the ski area to the west which is finished with concrete monoblock sets.

A large plywood clad plant housing exists to the centre of the roof which is surmounted by a flat mineral felt roof with timber fascias and uPVC rainwater goods.

The main elevations have been constructed using red granite rubble walls to the majority of areas with the exception of treated timber weatherboarding, which has been decorated, to part south and west elevations. Timber cladding has been installed above all openings to the elevations which has been decorated.

Timber framed double glazed windows are provided to the elevations with concrete cills located beneath each window to the opening. Various timber doors exist to the elevations being of either timber slat construction with nylon ironmongery or flush timber fire exit doors with some being fitted with glazed viewing panels. All doors are paint decorated while the doors to the main entrance and toilet block are of double leaf construction all others are of single leaf construction.

The external areas around the Sheiling building consist of concrete monoblock sets forming the perimeter walkway around the premises while a gravel finished access lane is provided to the west elevation. Limited concrete steps or entrance plats are provided to each doorway and staircase bases. The remainder of the surrounding areas to the premises are not landscaped.

The main entrance is located to the north elevation giving access to the internal areas. The premises have been configured to provide a large open restaurant/packed lunch area to the north of the premises with a former servery located to the rear of this area.

## **SHEILING BUILDING, CAIRNGORM MOUNTAIN, CAIRNGORM**

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Generally these areas are finished with painted blockwork walls with varnished timber clad or painted plaster ceilings, concrete floors which are painted, vinyl or quarry tile finished and gloss paint finished doors with nylon ironmongery to individual rooms.

Service accommodation is located to the rear of the restaurant/packed lunch area with individual rooms providing accommodation cellar, freezer, store/plant room/cleaner cupboard and switch room all accessed from a central corridor and service lobby to the north. These areas are finished to a basic standard comprising painted plaster ceilings, painted blockwork walls with some ceramic tiled walls, a mixture of painted, vinyl or quarry tile finished floors and gloss paint finished doors with nylon ironmongery to individual rooms

In addition a race office, first aid/ski patrol room and staff lobby, each with their own entrance have been formed to the rear of the premises with access to the central corridor being available to the first aid/ski patrol office and staff lobby. These areas are similarly finished to the service areas.

Male and female toilet facilities for the public are located within a dedicated toilet block, which is to the rear of the premises, with a main entrance provided to the south elevation adjacent to the staff lobby entrance. Two single toilet facilities are also provided within the service areas for staff use. However at present there is no accessible toilet for the disabled. We were unable to gain access to inspect the main toilet block however understand that this is provided with painted plaster ceilings, ceramic tiled walls, quarry tiled flooring, vitreous china wc's and whb's and preformed board cubicles and vanity units.

The Mechanical & Electrical (M&E) building services in the Sheiling Building appear to be of a similar age to the main building, which is reported to be approximately 40 years old. It was noted that the building was not in use at the time of survey and is only used occasionally by staff. The M&E systems had been isolated.

The mechanical services consist of ventilation systems serving the toilets, kitchens & dining areas, central domestic hot & cold water storage systems, foul water drainage and electric space & water heating.

Our surveys indicated that the materials used for the installed domestic water pipework systems were copper, the above ground drainage systems were plastic (UPVC), and the ventilation ductwork systems were galvanized steel. The condition of the pipework, ductwork & plant thermal insulation inspected was poor. The heating & ventilating systems controls are minimal and consist of local plant & appliance controls only – no central management system present.

The main incoming water supply is thought to come from a local source and the below ground drainage is understood to discharge to a local sewage treatment plant – reported separately.

We could not gain access to the main toilet block at the time of survey but it has been assumed that the condition of the services and appliances within this area were similar to that of the other parts of the building.

Generally surface and recessed mounted electrical installation with decorative & fluorescent luminaires, electric heaters and general power outlets. Condition of most of this installation is poor. The main switchboard is a MCCB panel type with split busbar. There is a telemetry outstation in the dry goods area.

The as built drawings shown in Appendix 3 provide the layout for the premises which show individual room references which are referred to within this report and the maintenance schedule.

Access was available to all parts of the premises with the exception of limited secured storage rooms. In addition, we were unable to gain access to the main public toilet block as the key could not be located by any of the Cairngorm Mountain Operatives. All other parts of the building including the landscaped and hardstanding areas were accessible.

We understand that Highlands and Islands Enterprise lease the properties, infrastructure, ski tows and funicular railway to Cairngorm Mountain Limited under an FRI Lease.

### **3 TERMS OF REFERENCE**

The 10 Year Maintenance Programme describes the condition of the building fabric of each referenced room as shown on the as built plan, with associated budget costs and detailed within Appendix 1. To clarify the definition of description frequently used in the schedule, we give below a detailed description of their meaning: -

1. **SOUND:** Denotes almost perfect condition having regard to all circumstances of age, locality and use.
2. **GOOD:** Indicates that, although suffering from blemishes and faults attributable to wear and tear, the item is of reasonable standard and there are no major defects and that the particular item does not require attention unless it is specifically stated otherwise.
3. **FAIR:** Of a lesser standard than might reasonably be expected, having regards to the age and location of the property, its users and the type of tenants likely to occupy it, although not seriously defective, the item requires attention to bring it to a reasonable standard.
4. **POOR:** Have exceptionally low standard, having regard even to the age and location of the property, its user and its tenant likely to occupy it.

Each item of repair to the building has been prioritised and the attached repair schedules provide the following classifications: -

- PRIORITY A:** Repair or replacement required immediately for health & safety reasons or to maintain structural integrity of the building, fabric or services.
- PRIORITY B:** Repair/replacement required within the next 1-2 years maintaining building elements and preventing further degradation.
- PRIORITY C:** Repair/replacement required within the next 3-5 years.
- PRIORITY D:** Repair/replacement required within the next 6-10 years.

The rates used within the report have been taken from a mixture of the Spon's Architects' and Builders' Price Book 2011 and the BCIS Maintenance Price Book 2010. The costs are budget costs only and do not form part of a contract for works. The building fabric rates are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

The life expectancy periods for the M&E services elements within the report have been taken from the Chartered Institute of Building Services Engineers (CIBSE) - Maintenance & Engineering Management Guide M 2008. The costs are budget costs and for information only. The services replacement costs are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

Annual planned preventative maintenance requirements have been based on CIBSE Guide M recommendations. Costs have been averaged across the estate and are based on the assumption that an element of the routine tasks will be undertaken by an 'in-house' team along with specialist contractors input.

## **4 CURRENT MAINTENANCE**

As part of our remit we assessed the current building fabric maintenance regimes being undertaken by Cairngorm Mountain Ltd on the property and found that only reactive maintenance was being undertaken albeit some decoration works were being carried out on a cyclical basis. The building has been closed to the public for a period of time and a lack of maintenance to areas is as a direct result of no funding being available or allocated to other areas. Consideration requires to be given to the future use of the premises.

Our planned maintenance schedule attached at Appendix 1 highlights the maintenance requirements over the next ten years and the associated costs. You should endeavour to ensure that these works are carried out to prevent any further deterioration of the property.

## **5 STATUTORY MATTERS**

### **5.1. FIRE**

Current fire safety legislation imposes various obligations on both owners and occupiers of property to assess, manage and reduce the risk of fire together with providing adequate means of escape. Whilst we have not undertaken a fire risk assessment for the property, this section highlights any associated issues that require attention. We would stress that that this does not obviate the need for a full Fire Risk Assessment to be undertaken.

#### **Comments**

1. We have not been provided with a fire risk assessment or fire certificate for the premises as they stand at present. We would recommend that you obtain a copy of the fire risk assessment which should be carried out by Cairngorm Mountain Ltd, as Tenants, to cover the premises.
2. We noted a number of areas where the existing fire compartmentation has been compromised due to alterations undertaken historically and service penetrations. You should ensure that works are undertaken to reinstate the appropriate fire stopping as part of any refurbishment works.

3. During our inspection we noted that the premises are provided with portable fire extinguishers. Cairngorm Mountain Ltd should be requested to provide confirmation of maintenance to ensure these are regularly tested for operation. It is understood that fire extinguishers should be checked annually and a certificate provided to demonstrate compliance.
  
4. Upon inspecting the doors throughout the premises we noted that in the majority of cases these either do not appear to have been fitted with appropriate smoke seals/intumescent strips as we would normally expect in a property of this nature or the existing ones are in poor condition or missing. Consideration should be given to installing appropriate seals and intumescent strips to all appropriate doors while also undertaking general repairs to the doors.

## **5.2. THE EQUALITY ACT 2010**

The Equality Act 2010 is designed to provide disabled people with rights in the areas of employment, access to goods, facilities and services, and buying or renting land and property. It imposes, directly and indirectly, responsibilities and obligations on the part of service providers as occupier, to ensure that those with disabilities are not unduly disadvantaged.

We have made reference below to principal deficiencies within the building:

### **Comments**

1. The premises are not provided with level access to any of the entrances with a step or step to each doorway. Works will be required to alter the existing main entrance to both the main building and the toilet accommodation as part of any refurbishment scheme.
  
2. Internally, the property is level in nature to the main servery and restaurant/packed lunch area however we noted that no accessible toilet for the disabled is provided to the premises. In addition the existing signage is poor and no visual alarms exist in terms of the main fire alarm. Works will be required as

part of any refurbishment scheme to include the formation of a new toilet facility along with tactile signs and colours to highlight escape routes and stairs.

Generally, we found that the premises are unacceptable for disabled persons at present with improvements requiring consideration should the building be reused. We have included appropriate costs within the 10 year maintenance plan attached in Appendix 1.

### **5.3. HEALTH & SAFETY**

#### **5.3.1. WORKPLACE REGULATIONS**

Under the Workplace (Health, Safety and Welfare) Regulations 1992, employers and building owners have a duty to ensure that the workplace under their control complies with the provisions set out therein. The Regulations describe a number of matters which have to be addressed to ensure that the workplace meets the health, safety and welfare needs of each member of the workforce, including people with disabilities.

We have not specifically assessed the premises in order to ensure full compliance with the Regulations. A comprehensive Health & Safety Audit would be necessary on a separate visit should you wish to establish whether any works may be required, in order to ensure that your obligations under the regulations are fulfilled.

#### **Comments**

1. The premises are not currently being used other than for the storage of mechanical plant and equipment. We did note that the external metal and timber balustrade is in poor condition throughout with rotten timber cladding and poor decorations. A number of the timber sections are loose or missing and all areas require to be repaired or replaced in early course. We have included costs for these works in Year 1.
2. We understand that CML in-house staff undertakes the annual Portable Appliance Test, however we did not see sight of any certification to confirm that this is up to

date. We would recommend that CML are requested to provide certification of the annual PAT Testing and that this is held centrally.

**5.3.2. HEALTH & SAFETY AT WORK ACT 1974**

We have not undertaken an Audit to assess the suitability of the premises and the associated working practices to ensure compliance with these regulations.

However you should ensure that a water hygiene risk assessment of all water sources within the premises is undertaken and the water is tested regularly. This will confirm whether Legionellas is present or not within the premises.

We would recommend that water samples are taken every year along with the formulation of a management plan in relation to the water supplies in the building.

**5.3.3. CONTROL OF ASBESTOS REGULATIONS**

The Control of Asbestos Regulations 2006 places a duty on occupiers, employees and owners to ensure that a suitable and sufficient assessment is carried out to determine whether asbestos containing materials (ACMs) are likely to be present in the premises. This information should be recorded by means of a Management Survey (formerly referred to as a Type 2 Survey) and the associated results contained within an Asbestos Register for the building. This should include essential information relating to location, condition, recommendations and implementation for management of the ACMs.

We have been provided with a copy of schedule of what Asbestos reports have been carried out at Cairngorm. It appears that a survey has been undertaken of the Sheiling building and that no asbestos exists within the premises. However we did note some pipework and tank insulation which appears suspicious and would recommend that clarification is obtained to confirm that this material is not asbestos. A demolition and refurbishment survey will also be required prior to any works being undertaken.

**6. SUMMARY AND RECOMMENDATIONS**

**6.1. PRINCIPAL CONSIDERATIONS**

The premises have been constructed to an average standard and specification commensurate with their use and age. We did not note any evidence of significant differential structural movement or settlement within the building. We did however note a number of items, which should be considered as part of your 10 Year maintenance programme, as highlighted below: -

1. The internal areas are generally in a poor condition with the building having been left vacant for a number of years with the exception of stored plant and equipment. A number of areas are suffering from water damage as a result of damaged rainwater downpipes including various plaster ceilings. In its current condition the building could not be used without significant refurbishment works being undertaken. We have included costs for general maintenance works and redecoration within Appendix 1 however have not included costs for significant refurbishment works. Redecoration should be carried out on a cyclical basis, which we have identified in year 2 and 7.
2. Generally, the external parts are in fair condition with minor maintenance works only being required to maintain a wind and watertight property and to prevent further or future building fabric decay. These include repairing the rainwater goods to prevent further water ingress, repairs to the perimeter balustrades along with repairs and redecoration to the external windows and doors.
3. The internal doors are all showing signs of heavy wear and tear particularly the double leaf doors to the funicular and workshop with ironmongery generally requiring attention. In addition the smoke seals and intumescent strips are poor. We have included costs for overhauling all of the doors and installing appropriate smoke seals and intumescent strips in year 2.
4. During our inspection we noted the external metal and timber balustrade is in poor condition throughout with rotten timber cladding and poor decorations. A number of the timber sections are loose or missing and all areas require to be

repaired or replaced in early course. We have included costs for these works in Year 1.

5. The premises in their current configuration do not allow for appropriate access or amenities for the disabled. As part of any refurbishment works and prior to the building being used by the general public alterations will be required to enable level access to the premises and the formation of an accessible toilet for the disabled.
6. Within the premises we noted areas where the fire compartmentation has been compromised due to alterations undertaken historically and service penetrations. You should ensure that works are undertaken to reinstate the appropriate fire stopping as part of any refurbishment works.
7. The condition of the Mechanical & Electrical (M&E), building services were found to be commensurate with their age and as such, beyond their recommended economic life expectancy. The condition of the pipework, ductwork & plant thermal insulation, sanitaryware and general electrical systems is poor. The main toilet areas being used as stores and a number of appliances disconnected from the water & drainage services.

We have included costs for installing replacement systems, on a like for like basis. System replacement works should coincide with the main buildings refurbishment program.

## **6.2. FUTURE MAINTENANCE OPTIONS**

Following our review, there appears to a lack of robust processes in place to review the maintenance and health and safety statutory requirements for such premises.

At the present time it would appear that CML undertake repairs to the properties on a reactive basis with planned works being limited to the redecoration of the externals using in-house labour.

We would suggest that CML are encouraged to review the condition survey on a yearly basis and appoint a professional representative to produce tender documentation to cover all works required and obtain competitive tenders from four local contractors. This will result in economies of scale in procuring the works as one entity and provide consistent quality.

The in-house labour force can then deal with day to day reactive repairs and possible external redecoration. It may also be possible for CML to employ the services of a centralised management company for reactive repairs, whereby the repairs required are reported to the company who then manage the works along with health and safety issues, this would incur a percentage mark-up on all repairs and therefore costs would be slightly higher, but the benefit is better allocated resources internally.

We would also suggest consideration is given to a central electronic system, such as 'TrackRecord' which provides a management tool for CML and HIE. The system provides an electronic diary which records the actions required for CML such as statutory requirements (Fire Risk Assessments, Water Risk Assessments, Health and Safety Review, Test Records for the Funicular Railway, Test Records for the Ski Tows, Electrical Tests, PAT Tests, and Water Temperature Readings etc). The system also acts as an electronic storage device for all records to be held in one place, which can be viewed by HIE.

Furthermore, such a system can monitor the progress of CML and provide data recording the compliance using charts and percentage readings that can be easily reviewed and followed up by HIE.

Our recommended on-going maintenance costs include for the required statutory testing and monitoring procedures.

### **6.3. SUMMARY OF COSTS**

The attached maintenance programme provides budget costings for expenditure in 2011 and the following ten years to 2021. These costs, assessed at 2011 rates, are budget costings only and in many instances the cost will vary once opening up and

further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT.

We recommend that a sum in the order of £15,000 which excludes VAT and Professional Fees, is included in the year 2011 repair budget to undertake the works included in the 10 Year Maintenance Plan.

In addition to the maintenance costs the premises require to be comprehensively refurbished. We would recommend that a sum in the order of £90,000 which excludes VAT and Professional Fees, is considered in year 2.

A summary of the costs are shown within Appendix 1.

#### **6.4. RECOMMENDATIONS**

Overall the Sheiling building at Cairngorm Mountain is in poor condition requiring remedial maintenance repairs externally in line with the 10 year maintenance plan including full redecoration in years 2 and 7 along with a total refurbishment internally.

**SHEILING BUILDING, CAIRNGORM MOUNTAIN, CAIRNGORM**

<p>[REDACTED]</p> <p><b>Partner</b> King Sturge LLP</p> <p>T [REDACTED] (Direct) F [REDACTED] (Direct) M [REDACTED] (Mobile)</p> <p>[REDACTED]@kingsturge.com</p>			
		<i>Prepared by</i>	[REDACTED]
		<i>Property Inspected by</i>	[REDACTED]
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<i>Report Status</i>	FINAL		
<i>Other Consultants Involved</i>			
<i>Name</i>	Davie and McCulloch	<i>Discipline</i>	Mechanical and Electrical
	Scott Wilson		Transport Engineers



**Highlands and Islands Enterprise**  
**Iomairt na Gàidhealtachd 's nan Eilean**

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## **PLANNED MAINTENANCE CONDITION SURVEY REPORT**

**ON**

**BUILDING CODE: 005  
COIRE NA CISTE BUILDING  
CAIRNGORM MOUNTAIN  
CAIRNGORM**

**FOR**

**HIGHLANDS AND ISLANDS ENTERPRISE**

**AS AT**

**JANUARY 2011  
REV – MARCH 2011**

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**King Sturge LLP**  
6th Floor  
145 St Vincent Street  
Glasgow G2 5JF

**T +44 (0)141 204 2221  
F +44 (0)141 204 2201**



**COIRE NA CISTE BUILDING, CAIRNGORM MOUNTAIN, CAIRNGORM**

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**FRONT ELEVATION**

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## **1 INTRODUCTION**

In accordance with your instructions, confirmed in the contract document dated 14 September 2010, we have undertaken a building surveyor's inspection of the Coire Na Ciste building at Cairngorm Mountain, Cairngorm, to advise you on its condition with the objective of providing a ten year maintenance programme. The inspection was carried out between 18 and 21 October 2010; and at the time of the inspection the weather was varied including snow, wet, fog and strong winds.

In accordance with your invitation to tender our survey inspection has included for all Mechanical and Electrical services within the premises and as-built drawings have been produced both of which are included in the appendices along with the layout drawings.

The inspection of the Mechanical & Electrical (M&E) building services was carried out on the 26<sup>th</sup> October 2010.

We must stress that this report is only for the use of the party to whom it is addressed and no responsibility is accepted to any other party for the whole or any part of its content. Neither the whole nor any part of this report or any reference thereto, may be included in any document or statement, nor published or reproduced in any way, without our prior approval in writing as to the form or content in which it will appear.

## **2 GENERAL DESCRIPTION & TENURE**

The Coire Na Ciste building forms a lower station adjacent to the lower overflow car park at the Cairngorm Mountain accessed off the main mountain road. We understand that the building was constructed in the early 1970's to provide a ticket office and restaurant for the ski area. The building is not currently used and has been unoccupied for a number of years.

The building has been formed over two storeys around a structural steel frame incorporating columns and beams supporting concrete floor slabs.

Ground floor areas comprise the former ticket office, control room/first aid room, male and female toilets and service areas including main switch room and sub station. Access to the first floor areas is by way of external access stairs and a balcony with a kitchen, restaurant and further WC facility provided.

The main roof over the first floor accommodation is finished with asphalt with painted timber fascias and uPVC rainwater goods. The upper elevations are timber clad with slat boarding which is paint decorated while timber framed single glazed windows with top opening casements and timber framed glazed doors are provided to the main north facing elevation.

The first floor balcony has been constructed using a concrete slab formed deck finished with asphalt with part of the balcony and ramp unfinished. A metal and timber slat finished balustrade is fitted to the perimeter of the balcony. A terrazzo finished entrance plat exists to the main entrance at first floor level.

The building has been constructed in front of an embankment with the south elevation acting as a retaining structure. The ground floor north, east and west elevations are masonry constructed with a painted render finished to all areas with timber framed single glazed windows to the ticket office and timber doors fitted to the ticket office, general office, gents and female toilets along with store areas.

Internally the ground floor areas have been finished to a basic standard with the front ticket office and Control Room/First Aid Room being stained timber clad internally to walls and ceilings with terrazzo flooring throughout. The main store and switch room has exposed finishes in the form of exposed concrete floor slabs, blockwork walls and concrete floor. All areas are fitted with timber doors.

Male and female toilet facilities for the public are located at ground floor level. However at present there is no accessible toilet for the disabled. The gents toilets are finished with painted plaster ceilings, painted plaster walls, terrazzo flooring, vitreous china wc's and whb's and preformed board cubicles and vanity units. We were unable to gain access to inspect the female toilet areas however understand these are similarly finished to the gents toilets.

First floor areas have been finished with varnish timber cladding to ceilings, painted plaster walls and terrazzo finished floors. The kitchen area is provided with basic base units and a single sink with drainer while a single WC is located to the west. Basic flush painted timber doors and double leaf glazed timber doors are fitted to all first floor areas.

The Mechanical & Electrical (M&E) building services appear to be of a similar age to the main building.

The mechanical services consist of the toilet ventilation systems, domestic hot & cold water storage systems, foul water drainage and electric space & water heating.

Our surveys indicated that the materials used for the installed domestic water pipework systems were copper & the above ground drainage systems were plastic (UPVC). The heating & ventilating systems controls are minimal and consist of local appliance controls only.

The main incoming water supply is thought to come from a local source and the below ground drainage is understood to discharge to a local sewage treatment plant. Hot water is provided by a central hot water cylinder, served by an electric immersion heater. There does not appear to be cold water storage in the building.

The main electrical switchgear consists of loose mounted bus-bars, isolators and distribution boards supplied from an adjacent meter cabinet via trunking. This supply cable is exposed before entering the trunking and there is no lid on the trunking.

Generally surface and recessed mounted electrical installation with decorative & fluorescent luminaires, electric heaters and general power outlets.

The M&E installations in the building had been isolated at the time of the survey and both the mechanical & electrical installations within the building would be classed as in a poor condition.

The external areas around the Coire Na Ciste building consist of extensive tarmacadam hardstanding and sand/hardcore finished areas. A redundant ski chairlift and associated hut is fitted to a large concrete base located adjacent to the east of the property. The remainder of the surrounding areas to the premises are not landscaped.

The as built drawings shown in Appendix 3 provide the layout for the premises which show individual room references which are referred to within this report and the maintenance schedule.

Access was available to all parts of the premises with the exception of limited secured storage rooms. In addition, we were unable to gain access to the main public toilet block as the key could not be located by any of the Cairngorm Mountain Operatives. All other parts of the building including the landscaped and hardstanding areas were accessible.

We understand that Highlands and Islands Enterprise lease this property to Cairngorm Mountain Limited under the overall FRI Lease.

### **3 TERMS OF REFERENCE**

The 10 Year Maintenance Programme describes the condition of the building fabric of each referenced room as shown on the as built plan, with associated budget costs and detailed within Appendix 1. To clarify the definition of description frequently used in the schedule, we give below a detailed description of their meaning: -

1. **SOUND:** Denotes almost perfect condition having regard to all circumstances of age, locality and use.
2. **GOOD:** Indicates that, although suffering from blemishes and faults attributable to wear and tear, the item is of reasonable standard and there are no major defects and that the particular item does not require attention unless it is specifically stated otherwise.
3. **FAIR:** Of a lesser standard than might reasonably be expected, having regards to the age and location of the property, its users and the

type of tenants likely to occupy it, although not seriously defective, the item requires attention to bring it to a reasonable standard.

4. **POOR:** Have exceptionally low standard, having regard even to the age and location of the property, its user and its tenant likely to occupy it.

Each item of repair to the building has been prioritised and the attached repair schedules provide the following classifications: -

**PRIORITY A:** Repair or replacement required immediately for health & safety reasons or to maintain structural integrity of the building, fabric or services.

**PRIORITY B:** Repair/replacement required within the next 1-2 years maintaining building elements and preventing further degradation.

**PRIORITY C:** Repair/replacement required within the next 3-5 years.

**PRIORITY D:** Repair/replacement required within the next 6-10 years.

The rates used within the report have been taken from a mixture of the Spon's Architects' and Builders' Price Book 2011 and the BCIS Maintenance Price Book 2010. The costs are budget costs only and do not form part of a contract for works. The building fabric rates are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

The life expectancy periods for the M&E services elements within the report have been taken from the Chartered Institute of Building Services Engineers (CIBSE) - Maintenance & Engineering Management Guide M 2008. The costs are budget costs and for information only. The services replacement costs are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

Annual planned preventative maintenance requirements have been based on CIBSE (Guide M) recommendations. Costs have been averaged across the estate and are based on the assumption that an element of the routine tasks will be undertaken by an 'in-house' team along with specialist contractors input.

#### **4 CURRENT MAINTENANCE**

As part of our remit we assessed the current building fabric maintenance regimes being undertaken by Cairngorm Mountain Ltd on the property and found that only reactive maintenance was being undertaken. The Coire Na Ciste building has been closed to the public for a period of time and a lack of maintenance to areas is as a direct result of no funding being available or it being allocated to other areas. Consideration requires to be given to the future use of the premises.

Our costs noted below highlight what works are now required to ensure the property is made wind and watertight and to allow the premises to be used by the public. You should endeavour to ensure that these works are carried out to prevent any further deterioration of the property.

It appears that on-going services maintenance in this building is not being carried out. There were no records available to confirm if maintenance procedures are being completed and we recommend that future costs are included in the 10 year plan.

#### **5 STATUTORY MATTERS**

##### **5.1. FIRE**

Current fire safety legislation imposes various obligations on both owners and occupiers of property to assess, manage and reduce the risk of fire together with providing adequate means of escape. Whilst we have not undertaken a fire risk assessment for the property, this section highlights any associated issues that require attention. We would stress that that this does not obviate the need for a full Fire Risk Assessment to be undertaken.

**Comments**

1. We have not been provided with a fire risk assessment or fire certificate for the premises as they stand at present. We would recommend that you obtain a copy of the fire risk assessment which should be carried out by Cairngorm Mountain Ltd, as Tenants, to cover the premises.
2. We noted a number of areas where the existing fire compartmentation has been compromised due to alterations undertaken historically and service penetrations. You should ensure that works are undertaken to reinstate the appropriate fire stopping as part of any refurbishment works.
3. The premises are not currently used and have been 'mothballed' requiring a significant refurbishment to bring them back into a safe condition. This work will inevitably involve the installation of appropriate fire installations such as a fire alarm and fire fighting equipment.

**5.2. THE EQUALITY ACT 2010**

The Equality Act 2010 is designed to provide disabled people with rights in the areas of employment, access to goods, facilities and services, and buying or renting land and property. It imposes, directly and indirectly, responsibilities and obligations on the part of service providers as occupier, to ensure that those with disabilities are not unduly disadvantaged.

We have made reference below to principal deficiencies within the building:

**Comments**

1. Due to the configuration of the premises the layout does not allow adequate access for the disabled including no accessible toilet. Alterations could be made to the premises to improve the access to the ground floor however significant alterations are required externally to enable access to the first floor areas while an accessible toilet requires to be formed internally.

Generally, we found that the premises are unacceptable for disabled persons at present with improvements requiring consideration should the building be reused. We have included appropriate costs within the refurbishment budget detailed below.

### **5.3. HEALTH & SAFETY**

#### **5.3.1. WORKPLACE REGULATIONS**

Under the Workplace (Health, Safety and Welfare) Regulations 1992, employers and building owners have a duty to ensure that the workplace under their control complies with the provisions set out therein. The Regulations describe a number of matters which have to be addressed to ensure that the workplace meets the health, safety and welfare needs of each member of the workforce, including people with disabilities.

We have not specifically assessed the premises in order to ensure full compliance with the Regulations. A comprehensive Health & Safety Audit would be necessary on a separate visit should you wish to establish whether any works may be required, in order to ensure that your obligations under the regulations are fulfilled.

#### **Comments**

1. The premises are not currently being used having been boarded up and secured however they are currently in an unsafe condition. The elevations are in poor condition, the external balustrade are rotting and loose and the ground floor areas are extensively water damaged throughout as the building is not watertight. We also noted that the electricity is still live within the premises particularly to the severely water affected rooms at ground floor level which is a Health and Safety issue. The electricity to these areas should be switched off with immediate effect.

#### **5.3.2. HEALTH & SAFETY AT WORK ACT 1974**

We have not undertaken an Audit to assess the suitability of the premises and the associated working practices to ensure compliance with these regulations.

However you should ensure that a water hygiene risk assessment of all water sources within the premises is undertaken and the water is tested regularly. This will confirm whether Legionellas is present or not within the premises.

We would recommend that water samples are taken every year along with the formulation of a management plan in relation to the water supplies in the building.

### **5.3.3. CONTROL OF ASBESTOS REGULATIONS**

The Control of Asbestos Regulations 2006 places a duty on occupiers, employees and owners to ensure that a suitable and sufficient assessment is carried out to determine whether asbestos containing materials (ACMs) are likely to be present in the premises. This information should be recorded by means of a Management Survey (formerly referred to as a Type 2 Survey) and the associated results contained within an Asbestos Register for the building. This should include essential information relating to location, condition, recommendations and implementation for management of the ACMs.

We have been provided with a copy of schedule of what Asbestos reports have been carried out at Cairngorm. It appears that no survey has been undertaken of the Coire Na Ciste building and therefore asbestos may exist within the premises particularly to the sink pad within the kitchen. An appropriate Management Survey should be carried out as soon as possible to confirm whether asbestos does exist to the premises. A demolition and refurbishment survey will also be required prior to any works being undertaken.

## **6 SUMMARY AND RECOMMENDATIONS**

### **6.1. PRINCIPAL CONSIDERATIONS**

The premises have been constructed to an average standard and specification commensurate with their use and age. We did not note any evidence of significant differential structural movement or settlement within the building. We did however note the following which should be considered :-

1. The Coire Na Ciste building is in particularly poor condition with extensive ongoing water penetration to all ground floor areas. This has badly damaged both the ticket office and Control Room/First Aid Room to the front and the main toilet accommodation. The building is generally in poor repair externally with bossed and cracked render finishes, poorly maintained roof areas and roof slabs which have allowed water to affect a store beneath the balcony. The building has also been subjected to some vandalism with the windows having been smashed.

The building currently requires extensive refurbishment to enable it to become wind and watertight and subsequently reused.

2. The condition of the Mechanical & Electrical (M&E), building services were found to be commensurate with their age and as such, beyond their recommended economic life expectancy. The general condition of the pipework, ductwork, plant thermal insulation and electrical services was poor. The condition of the sanitaryware was poor with the main toilet areas being used as stores and a number of appliances disconnected from the water & drainage services.

## **6.2. FUTURE MAINTENANCE OPTIONS**

Following our review, there appears to a lack of robust processes in place to review the maintenance and health and safety statutory requirements for such premises.

At the present time it would appear that CML undertake repairs to the properties on a reactive basis with planned works being limited to the redecoration of the externals using in-house labour.

We would suggest that CML are encouraged to review the condition survey on a yearly basis and appoint a professional representative to produce tender documentation to cover all works required and obtain competitive tenders from four local contractors. This will result in economies of scale in procuring the works as one entity and provide consistent quality.

The in-house labour force can then deal with day to day reactive repairs and possible external redecoration. It may also be possible for CML to employ the services of a centralised management company for reactive repairs, whereby the repairs required are reported to the company who then manage the works along with health and safety issues, this would incur a percentage mark-up on all repairs and therefore costs would be slightly higher, but the benefit is better allocated resources internally.

We would also suggest consideration is given to a central electronic system, such as 'TrackRecord' which provides a management tool for CML and HIE. The system provides an electronic diary which records the actions required for CML such as statutory requirements (Fire Risk Assessments, Water Risk Assessments, Health and Safety Review, Test Records for the Funicular Railway, Test Records for the Ski Tows, Electrical Tests, PAT Tests, and Water Temperature Readings etc). The system also acts as an electronic storage device for all records to be held in one place, which can be viewed by HIE.

Furthermore, such a system can monitor the progress of CML and provide data recording the compliance using charts and percentage readings that can be easily reviewed and followed up by HIE.

Our recommended on-going maintenance costs include for the required statutory testing and monitoring procedures.

### **6.3. SUMMARY OF COSTS**

We have not prepared a maintenance programme for these premises due to their poor condition, however we have detailed the costs for refurbishment and demolition. These costs, assessed at 2011 rates, are budget costings only and may vary once opening up and further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT.

We recommend that a sum in the order of £130,000 which excludes VAT and Professional Fees is included in the year 2011 repair budget to undertake a refurbishment of the premises.

An alternative would be to demolish the premises and prepare the site for a new structure to allow future use of the surrounding areas. You should allow a sum of £35,000 which excludes VAT and Professional Fees to demolish the premises in their entirety to leave a clean site with the underlying services capped ready to receive a new structure.

**6.4 RECOMMENDATIONS**

Overall the Coire Na Ciste building at Cairngorm Mountain is in extremely poor condition requiring a complete refurbishment or demolition depending on its future use.

COIRE NA CISTE BUILDING, CAIRNGORM MOUNTAIN, CAIRNGORM

<p>██████████  <b>Partner</b>                  King Sturge LLP</p> <p>T ██████████ (Direct)                  F ██████████ (Direct)                  M ██████████ (Mobile)                  ██████████@kingsturge.com</p>		<i>Prepared by</i> ██████████	
		<i>Property Inspected by</i> ██████████	
<i>Date of Issue</i> 28 January 2011 Rev March 2011		<i>Authorised by</i> ██████████	
<i>Report Status</i>		FINAL	
<i>Other Consultants Involved</i>			
<i>Name</i>	Davie and McCulloch  Scott Wilson	<i>Discipline</i>	Mechanical and Electrical  Transport Engineers



**Highlands and Islands Enterprise**  
Iomairt na Gàidhealtachd 's nan Eilean

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**PLANNED MAINTENANCE CONDITION  
SURVEY REPORT**

ON

**BUILDING CODE: 006  
KASSBOHRER WORKSHOP  
CAIRNGORM MOUNTAIN  
CAIRNGORM**

FOR

**HIGHLANDS AND ISLANDS ENTERPRISE**

AS AT

**JANUARY 2011  
REV – MARCH 2011**

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**King Sturge LLP**  
6th Floor  
145 St Vincent Street  
Glasgow G2 5JF

T +44 (0)141 204 2221  
F +44 (0)141 204 2201



**KASSBOHRER WORKSHOP, CAIRNGORM MOUNTAIN, CAIRNGORM**

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## **1 INTRODUCTION**

In accordance with your instructions, confirmed in the contract document dated 14 September 2010, we have undertaken a building surveyor's inspection of the Kassbohrer Workshop building at Cairngorm Mountain, Cairngorm, to advise you on its condition with the objective of providing a ten year maintenance programme. The inspection was carried out between 18 and 21 October 2010; and at the time of the inspection the weather was varied including snow, wet, fog and strong winds.

In accordance with your invitation to tender our survey inspection has included for all Mechanical and Electrical services within the premises and as-built drawings have been produced both of which are included in the appendices along with the layout drawings.

The inspection of the Mechanical & Electrical (M&E) building services was carried out on the 26<sup>th</sup> October 2010.

We must stress that this report is only for the use of the party to whom it is addressed and no responsibility is accepted to any other party for the whole or any part of its content. Neither the whole nor any part of this report or any reference thereto, may be included in any document or statement, nor published or reproduced in any way, without our prior approval in writing as to the form or content in which it will appear.

## **2 GENERAL DESCRIPTION & TENURE**

The Kassbohrer Workshop is located at an approximate mid point on the hillside between the Base Station and Ptarmigan buildings within the Cairngorm Ski area. We believe that the building was constructed in the late 1980's specifically to house the piste grooming equipment and act as a repair and maintenance workshop for the same.

The building has been formed around a structural steel frame incorporating columns, beams and roof trusses providing a mono pitched roof structure.

Externally the roofs are clad with a powder coated profiled metal sheeting fixed to the internal steel frame, and with a perimeter metal flashing. Rainwater goods comprise a box section powder coated pressed metal gutter to the front elevation feeding into two full round uPVC downpipes.

The main elevations have been constructed with blockwork at low level, which has a wet dash render finish, and with plywood cladding with softwood battens above. The blockwork wall to the rear elevation is of heavier, damp proofed construction as this is a retaining wall.

Access is provided by a single timber pedestrian door and vehicular access is provided by two electrically operated up and over section doors

The external areas around the base station consist of a concrete apron and hard standing to the front and north elevations and a concrete formed bund and ramp to the south elevation. The concrete apron to the front elevation incorporates embedded metal channels to assist in the turning of vehicles in winter conditions.

The premises internally comprise a workshop facility with an in situ concrete floor slab and exposed structural elements to both the walls and ceiling. To the rear of the unit a mezzanine office and store has been formed with timber joists supported on the structural frame and finished with plywood flooring. The area is accessed via a metal and timber ladder stair.

The mechanical services consist of an external diesel storage tank, electric heating units, general & local extract ventilation (LEV) systems, a compressed air system and domestic water & drainage. It appears that the systems may be original (i.e. 23 years old), although the oil storage tank has been installed more recently.

The main incoming water supply is thought to come from a local source and the below ground drainage is understood to discharge to a local sewage treatment plant – reported separately. Hot water is provided by a local point of use water heater.

It was noted that a radiant electric heater unit was being used as a 'portable' heater in the garage area. This unit should be fixed to the structure in a suitable location.

The general electrical installation is surface mounted trunking / conduit to lighting and small power accessories. Lighting is via high level batten lamp luminaires incorporating a mixture of old lamps.

The as built drawings shown in Appendix 3 provide the layout for the premises which show individual room references which are referred to within this report and the maintenance schedule.

Access was available to all parts of the premises with the exception of limited secured storage rooms. In addition, we were unable to gain access to the roof areas due to the lack of suitable internal access points. All other parts of the building including the landscaped and hardstanding areas were accessible.

We understand that Highlands and Islands Enterprise lease the properties, infrastructure, ski tows and funicular railway to Cairngorm Mountain Limited under an FRI Lease.

### **3 TERMS OF REFERENCE**

The 10 Year Maintenance Programme describes the condition of the building fabric of each referenced room as shown on the as built plan, with associated budget costs and detailed within Appendix 1. To clarify the definition of description frequently used in the schedule, we give below a detailed description of their meaning: -

1. **SOUND:** Denotes almost perfect condition having regard to all circumstances of age, locality and use.
2. **GOOD:** Indicates that, although suffering from blemishes and faults attributable to wear and tear, the item is of reasonable standard and there are no major defects and that the particular item does not require attention unless it is specifically stated otherwise.
3. **FAIR:** Of a lesser standard than might reasonably be expected, having

regards to the age and location of the property, its users and the type of tenants likely to occupy it, although not seriously defective, the item requires attention to bring it to a reasonable standard.

4. **POOR:** Have exceptionally low standard, having regard even to the age and location of the property, its user and its tenant likely to occupy it.

Each item of repair to the building has been prioritised and the attached repair schedules provide the following classifications: -

**PRIORITY A:** Repair or replacement required immediately for health & safety reasons or to maintain structural integrity of the building, fabric or services.

**PRIORITY B:** Repair/replacement required within the next 1-2 years maintaining building elements and preventing further degradation.

**PRIORITY C:** Repair/replacement required within the next 3-5 years.

**PRIORITY D:** Repair/replacement required within the next 6-10 years.

The rates used within the report have been taken from a mixture of the Spon's Architects' and Builders' Price Book 2011 and the BCIS Maintenance Price Book 2010. The costs are budget costs only and do not form part of a contract for works. The building fabric rates are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

The life expectancy periods for the M&E services elements within the report have been taken from the Chartered Institute of Building Services Engineers (CIBSE) - Maintenance & Engineering Management Guide M 2008. The costs are budget costs and for information only. The services replacement costs are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

Annual planned preventative maintenance requirements have been based on CIBSE Guide M recommendations. Costs have been averaged across the estate and are based on the assumption that an element of the routine tasks will be undertaken by an 'in-house' team along with specialist contractors input.

#### **4 CURRENT MAINTENANCE**

As part of our remit we assessed the current building fabric maintenance regimes being undertaken by Cairngorm Mountain Ltd on the property and found that only reactive maintenance was being undertaken albeit some decoration works were being carried out on a cyclical basis. No formal maintenance programme has previously been prepared for this building. The lack of maintenance to areas is as a direct result of no funding being available or allocated to other areas, however we did note during our inspection that more significant infrastructure maintenance and alterations were being undertaken as a result of funding being available following a successful ski season.

Our planned maintenance schedule attached at Appendix 1 highlights the maintenance requirements over the next ten years and the associated costs. You should endeavour to ensure that these works are carried out to prevent any further deterioration of the property.

It has been reported that on-going maintenance is being carried out, including electrical systems inspection & testing, water quality monitoring, etc. There were no records available to confirm if maintenance procedures are being completed and we recommend that future costs for this are included in the 10 year plan.

#### **5 STATUTORY MATTERS**

##### **5.1 FIRE**

Current fire safety legislation imposes various obligations on both owners and occupiers of property to assess, manage and reduce the risk of fire together with providing adequate means of escape. Whilst we have not undertaken a fire risk assessment for the property, this section highlights any associated issues that require attention. We would stress that that this does not obviate the need for a full Fire Risk Assessment to be undertaken.

**Comments**

1. We have not been provided with a fire risk assessment or fire certificate for the premises as they stand at present. We would recommend that you obtain a copy of the fire risk assessment which should be carried out by Cairngorm Mountain Ltd, as Tenants, to cover the premises.
2. During our inspection we noted that the premises are provided with portable fire extinguishers. Cairngorm Mountain Ltd should be requested to provide confirmation of maintenance to ensure these are regularly tested for operation. It is understood that fire extinguishers should be checked annually and a certificate provided to demonstrate compliance.

**5.2 THE EQUALITY ACT 2010**

The Equality Act 2010 is designed to provide disabled people with rights in the areas of employment, access to goods, facilities and services, and buying or renting land and property. It imposes, directly and indirectly, responsibilities and obligations on the part of service providers as occupier, to ensure that those with disabilities are not unduly disadvantaged.

We have made reference below to principal deficiencies within the building:

**Comments**

1. Given the nature of operations carried out from this property and the fact that this is not accessible to the general public we have no significant concerns with regards this legislation.

**5.3 HEALTH & SAFETY**

**5.3.1 WORKPLACE REGULATIONS**

Under the Workplace (Health, Safety and Welfare) Regulations 1992, employers and building owners have a duty to ensure that the workplace under their control complies with the provisions set out therein. The Regulations describe a number of matters

which have to be addressed to ensure that the workplace meets the health, safety and welfare needs of each member of the workforce, including people with disabilities.

We have not specifically assessed the premises in order to ensure full compliance with the Regulations. A comprehensive Health & Safety Audit would be necessary on a separate visit should you wish to establish whether any works may be required, in order to ensure that your obligations under the regulations are fulfilled.

#### **Comments**

1. We did not note any areas of significant concern in relation Health and Safety issues at the premises.
  
2. We understand that CML in-house staff undertakes the annual Portable Appliance Test, however we did not see sight of any certification to confirm that this is up to date. We would recommend that CML are requested to provide certification of the annual PAT Testing and that this is held centrally.

#### **5.3.2 HEALTH & SAFETY AT WORK ACT 1974**

We have not undertaken an Audit to assess the suitability of the premises and the associated working practices to ensure compliance with these regulations.

However you should ensure that a water hygiene risk assessment of all water sources within the premises is undertaken and the water tested regularly. These will confirm whether Legionellas is present or not within the premises.

We would recommend that water samples are taken every year along with the formulation of a management plan in relation to the water supplies in the building.

#### **5.3.3 CONTROL OF ASBESTOS REGULATIONS**

The Control of Asbestos Regulations 2006 places a duty on occupiers, employees and owners to ensure that a suitable and sufficient assessment is carried out to determine whether asbestos containing materials (ACMs) are likely to be present in the

premises. This information should be recorded by means of a Management Survey (formerly referred to as a Type 2 Survey) and the associated results contained within an Asbestos Register for the building. This should include essential information relating to location, condition, recommendations and implementation for management of the ACMs.

We have been provided with a copy of schedule of what Asbestos reports have been carried out at Cairngorm. It appears that no survey has been undertaken of the Kassbohrer Workshop however in our opinion it is unlikely that any asbestos containing materials exist due to the age of construction and we did not note any suspicious materials on site during our inspection.

Despite the above a regulations still require a statement to be kept on site to confirm that there is no asbestos containing materials on site. You should ensure that this is provided in early course.

## **6 SUMMARY AND RECOMMENDATIONS**

### **6.1 PRINCIPAL CONSIDERATIONS**

The premises have been constructed to an average standard and specification and are in a condition commensurate with their use and age. We did not note any evidence of significant differential structural movement or settlement within the building. We did however note a number of minor items, which should be considered as part of your 10 Year maintenance programme, as highlighted below: -

1. We do not believe that the installation of the mezzanine office and store complies with the current Building Standards Regulations nor indeed that a Building Warrant was applied for prior to their construction. We would recommend that a retrospective application be made with any alterations made as directed by Building Control.
2. The diesel oil storage tank is positioned such that any failure of the tank, resulting in leakage of contaminants, would not be contained in the bunded storage area. It should be confirmed that this installation is in accordance with

the Water Environment (Oil Storage) (Scotland) Regulations 2006 and all other applicable legislation.

3. The internal decorations to the property are in a fair condition with general minor marking and soiling noted to areas as would normally be expected. The workshop,
4. Generally, the external parts are in good condition with minor maintenance works only being required to maintain a wind and watertight property and to prevent further or future building fabric decay.
5. The concrete floor within the workshop is heavily worn due to movement of the piste groomer equipment which have aluminium tracks. This wear is inevitable however consideration should be given to renewing the floor in year 5.
6. The concrete apron to the front elevation is considerably worn and degraded, again due to turning of the piste groomers but also due to exposure to extreme temperatures. Consideration should be given to renewing this concrete apron in year 1.
7. The extract ventilation, heating & compressed air systems are beyond their recommended economical life expectancy and should be considered for replacement. We have included costs for upgrading works in year 3.
8. The electrical installation is beyond the recommended economical life expectancy and should be considered for replacement. We have included costs for upgrading works in year 3.
9. On-going planned preventative maintenance procedures from year 1 to Year 10.

## 6.2 FUTURE MAINTENANCE OPTIONS

Following our review, there appears to a lack of robust processes in place to review the maintenance and health and safety statutory requirements for such premises.

At the present time it would appear that CML undertake repairs to the properties on a reactive basis with planned works being limited to the redecoration of the externals using in-house labour.

We would suggest that CML are encouraged to review the condition survey on a yearly basis and appoint a professional representative to produce tender documentation to cover all works required and obtain competitive tenders from four local contractors. This will result in economies of scale in procuring the works as one entity and provide consistent quality.

The in-house labour force can then deal with day to day reactive repairs and possible external redecoration. It may also be possible for CML to employ the services of a centralised management company for reactive repairs, whereby the repairs required are reported to the company who then manage the works along with health and safety issues, this would incur a percentage mark-up on all repairs and therefore costs would be slightly higher, but the benefit is better allocated resources internally.

We would also suggest consideration is given to a central electronic system, such as 'TrackRecord' which provides a management tool for CML and HIE. The system provides an electronic diary which records the actions required for CML such as statutory requirements (Fire Risk Assessments, Water Risk Assessments, Health and Safety Review, Test Records for the Funicular Railway, Test Records for the Ski Tows, Electrical Tests, PAT Tests, and Water Temperature Readings etc). The system also acts as an electronic storage device for all records to be held in one place, which can be viewed by HIE.

Furthermore, such a system can monitor the progress of CML and provide data recording the compliance using charts and percentage readings that can be easily reviewed and followed up by HIE.

Our recommended on-going maintenance costs include for the required statutory testing and monitoring procedures.

### **6.3 SUMMARY OF COSTS**

The attached maintenance programme provides budget costings for expenditure in 2010 and the following ten years to 2020. These costs, assessed at 2011 rates, are budget costings only and in many instances the cost will vary once opening up and further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT.

We recommend that a sum in the order of £12,500.00 which excludes VAT and Professional Fees, is included in the year 2011 repair budget to undertake the works included in the 10 Year Maintenance Plan.

A summary of the costs are shown within Appendix 1.

### **6.4 RECOMMENDATIONS**

Overall the Kassbohrer Workshop premises at Cairngorm Mountain are in fair condition; however we would recommend that you undertake the remedial maintenance repairs in line with the 10 year Maintenance Plan.

The Mechanical & Electrical (M&E) building services were found to be generally operational but nearing the end of their normal life expectancy. We would recommend that remedial and upgrading works are undertaken in line with the 10 year Maintenance Plan

<p>[REDACTED]</p> <p><b>Partner</b> King Sturge LLP</p> <p>T [REDACTED] (Direct) F [REDACTED] (Direct) M [REDACTED] (Mobile) [REDACTED]@kingsturge.com</p>		<p><i>Prepared by</i> [REDACTED]</p> <p><i>Property Inspected by</i> [REDACTED]</p>	
<i>Date of Issue</i>	28 January 2011	<i>Authorised by</i>	[REDACTED]
<i>Report Status</i>	FINAL		
<i>Other Consultants Involved</i>			
<i>Name</i>	Davie and McCulloch	<i>Discipline</i>	Mechanical and Electrical
	Scott Wilson		Transport Engineers



**Highlands and Islands Enterprise**  
**Iomairt na Gàidhealtachd 's nan Eilean**

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**PLANNED MAINTENANCE CONDITION  
SURVEY REPORT**

ON

**BUILDING CODE: 007  
GLENMORE GARAGE  
CAIRNGORM MOUNTAIN  
CAIRNGORM**

FOR

**HIGHLANDS AND ISLANDS ENTERPRISE**

AS AT

**JANUARY 2011  
REV – MARCH 2011**

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**King Sturge LLP**  
6th Floor  
145 St Vincent Street  
Glasgow G2 5JF

T +44 (0)141 204 2221  
F +44 (0)141 204 2201



**GLENMORE GARAGE, CAIRNGORM MOUNTAIN, CAIRNGORM**

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## **1 INTRODUCTION**

In accordance with your instructions, confirmed in the contract document dated 14 September 2010, we have undertaken a building surveyor's inspection of the Glenmore Garage building at Cairngorm Mountain, Cairngorm, to advise you on its condition with the objective of providing a ten year maintenance programme. The inspection was carried out between 18 and 21 October 2010; and at the time of the inspection the weather was varied including snow, wet, fog and strong winds.

In accordance with your invitation to tender our survey inspection has included for all Mechanical and Electrical services within the premises and as-built drawings have been produced both of which are included in the appendices along with the layout drawings.

The inspection of the Mechanical & Electrical (M&E) building services was carried out on the 26<sup>th</sup> October 2010.

We must stress that this report is only for the use of the party to whom it is addressed and no responsibility is accepted to any other party for the whole or any part of its content. Neither the whole nor any part of this report or any reference thereto, may be included in any document or statement, nor published or reproduced in any way, without our prior approval in writing as to the form or content in which it will appear.

## **2 GENERAL DESCRIPTION & TENURE**

The Glenmore Garage is located at on the access road to Cairngorm Mountain. We believe that the building was constructed in the late 1970's by the Forestry Commission and that the building is leased from this party.

The Glenmore snow clearing vehicle garage building was constructed approximately 35 years ago. The associated Mechanical & Electrical (M&E) building services were found to be in a poor but operational condition.

The mechanical services consist of an external diesel storage tank, electric heating (office area), general & local extract ventilation (LEV) systems and a compressed air

system. It appears that the LEV systems, heater units and compressor may be original (i.e. >35 years), but that the oil storage tank has been replaced more recently.

The existing distribution board was last inspected in February 2010 and due for next inspection in February 2015.

The general electrical installation is surface mounted trunking / conduit to lighting and small power accessories. Signs of rust are apparent on these outlets. Lighting is via high bay chain suspended MBF lamp luminaires. The mezzanine floor area has surface mounted fluorescent batten luminaires and electric heaters.

The building has been formed around a structural steel frame incorporating columns, beams and roof trusses providing a pitched roof structure. Low level walls are constructed in blockwork and are rendered.

Externally the roofs are clad with profiled cementitious sheeting fixed to the internal steel frame, and incorporating profiled translucent rooflights. Rainwater goods comprise half round cementitious units feeding into full round uPVC downpipes.

The main elevations have been constructed with rendered blockwork at low level with profiled paint finished cement sheeting above.

Vehicular access is provided by a sliding double door to the front elevation, with integrated pedestrian pass door, and a further double timber door to the side elevation.

The external areas consist of a concrete apron and hard standing to the front elevations and a concrete formed ramp and retaining wall to the side and yard areas.

The premises internally comprise a workshop facility with an in situ concrete floor slab and exposed structural elements to both the walls and ceiling. To the front of the unit a mezzanine office and store has been formed with timber joists supported on the

structural frame and finished with plywood flooring. The area is accessed via a metal and timber ladder stair.

The as built drawings shown in Appendix 3 provide the layout for the premises which show individual room references which are referred to within this report and the maintenance schedule.

Access was available to all parts of the premises with the exception of limited secured storage rooms. In addition, we were unable to gain access to the roof areas due to the lack of suitable internal access points. All other parts of the building including the landscaped and hardstanding areas were accessible.

We understand that the Forestry Commission lease the property and yard to Cairngorm Mountain Limited under an FRI Lease.

### **3 TERMS OF REFERENCE**

The 10 Year Maintenance Programme describes the condition of the building fabric of each referenced room as shown on the as built plan, with associated budget costs and detailed within Appendix 1. To clarify the definition of description frequently used in the schedule, we give below a detailed description of their meaning: -

1. **SOUND:** Denotes almost perfect condition having regard to all circumstances of age, locality and use.
2. **GOOD:** Indicates that, although suffering from blemishes and faults attributable to wear and tear, the item is of reasonable standard and there are no major defects and that the particular item does not require attention unless it is specifically stated otherwise.
3. **FAIR:** Of a lesser standard than might reasonably be expected, having regards to the age and location of the property, its users and the type of tenants likely to occupy it, although not seriously defective, the item requires attention to bring it to a reasonable standard.
4. **POOR:** Have exceptionally low standard, having regard even to the age

and location of the property, its user and its tenant likely to occupy it.

Each item of repair to the building has been prioritised and the attached repair schedules provide the following classifications: -

- PRIORITY A:** Repair or replacement required immediately for health & safety reasons or to maintain structural integrity of the building, fabric or services.
- PRIORITY B:** Repair/replacement required within the next 1-2 years maintaining building elements and preventing further degradation.
- PRIORITY C:** Repair/replacement required within the next 3-5 years.
- PRIORITY D:** Repair/replacement required within the next 6-10 years.

The rates used within the report have been taken from a mixture of the Spon's Architects' and Builders' Price Book 2011 and the BCIS Maintenance Price Book 2010. The costs are budget costs only and do not form part of a contract for works. The building fabric rates are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

The life expectancy periods for the M&E services elements within the report have been taken from the Chartered Institute of Building Services Engineers (CIBSE) - Maintenance & Engineering Management Guide M 2008. The costs are budget costs and for information only. The services replacement costs are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

Annual planned preventative maintenance requirements have been based on CIBSE Guide M recommendations. Costs have been averaged across the estate and are based on the assumption that an element of the routine tasks will be undertaken by an 'in-house' team along with specialist contractors input.

#### **4 CURRENT MAINTENANCE**

As part of our remit we assessed the current building fabric maintenance regimes being undertaken by Cairngorm Mountain Ltd on the property and found that only reactive maintenance was being undertaken albeit some decoration works were being carried out on a cyclical basis. No formal maintenance programme has previously been prepared for this building. The lack of maintenance to areas is as a direct result of no funding being available or allocated to other areas, however we did note during our inspection that more significant infrastructure maintenance and alterations were being undertaken as a result of funding being available following a successful ski season.

Our planned maintenance schedule attached at Appendix 1 highlights the maintenance requirements over the next ten years and the associated costs. You should endeavour to ensure that these works are carried out to prevent any further deterioration of the property.

It has been reported that on-going maintenance is being carried out, including electrical systems inspection & testing, water quality monitoring, etc. There were no records available to confirm if maintenance procedures are being completed and we recommend that future costs for this are included in the 10 year plan.

#### **5 STATUTORY MATTERS**

##### **5.1 FIRE**

Current fire safety legislation imposes various obligations on both owners and occupiers of property to assess, manage and reduce the risk of fire together with providing adequate means of escape. Whilst we have not undertaken a fire risk assessment for the property, this section highlights any associated issues that require attention. We would stress that that this does not obviate the need for a full Fire Risk Assessment to be undertaken.

**Comments**

1. We have not been provided with a fire risk assessment for the premises as they stand at present. We would recommend that you obtain a copy of the fire risk assessment which should be carried out by Cairngorm Mountain Ltd, as Tenants, to cover the premises.
2. During our inspection we noted that the premises are provided with portable fire extinguishers. Cairngorm Mountain Ltd should be requested to provide confirmation of maintenance to ensure these are regularly tested for operation. It is understood that fire extinguishers should be checked annually and a certificate provided to demonstrate compliance.

**5.2 THE EQUALITY ACT 2010**

The Equality Act 2010 is designed to provide disabled people with rights in the areas of employment, access to goods, facilities and services, and buying or renting land and property. It imposes, directly and indirectly, responsibilities and obligations on the part of service providers as occupier, to ensure that those with disabilities are not unduly disadvantaged.

We have made reference below to principal deficiencies within the building:

**Comments**

1. Given the nature of operations carried out from this property and the fact that this is not accessible to the general public we have no significant concerns with regards this legislation.

**5.3 HEALTH & SAFETY**

**5.3.1 WORKPLACE REGULATIONS**

Under the Workplace (Health, Safety and Welfare) Regulations 1992, employers and building owners have a duty to ensure that the workplace under their control complies with the provisions set out therein. The Regulations describe a number of matters

which have to be addressed to ensure that the workplace meets the health, safety and welfare needs of each member of the workforce, including people with disabilities.

We have not specifically assessed the premises in order to ensure full compliance with the Regulations. A comprehensive Health & Safety Audit would be necessary on a separate visit should you wish to establish whether any works may be required, in order to ensure that your obligations under the regulations are fulfilled.

**Comments**

1. We did not note any areas of significant concern in relation Health and Safety issues at the premises.
  
2. We understand that CML in-house staff undertakes the annual Portable Appliance Test, however we did not see sight of any certification to confirm that this is up to date. We would recommend that CML are requested to provide certification of the annual PAT Testing and that this is held centrally.

**5.3.2 HEALTH & SAFETY AT WORK ACT 1974**

We have not undertaken an Audit to assess the suitability of the premises and the associated working practices to ensure compliance with these regulations.

However you should ensure that a water hygiene risk assessment of all water sources within the premises is undertaken and the water tested regularly. These will confirm whether Legionellas is present or not within the premises.

We would recommend that water samples are taken every year along with the formulation of a management plan in relation to the water supplies in the building.

**5.3.3 CONTROL OF ASBESTOS REGULATIONS**

The Control of Asbestos Regulations 2006 places a duty on occupiers, employees and owners to ensure that a suitable and sufficient assessment is carried out to determine whether asbestos containing materials (ACMs) are likely to be present in the premises. This information should be recorded by means of a Management Survey

(formerly referred to as a Type 2 Survey) and the associated results contained within an Asbestos Register for the building. This should include essential information relating to location, condition, recommendations and implementation for management of the ACMs.

We have been provided with a copy of schedule of what Asbestos reports have been carried out at Cairngorm. It appears that no survey has been undertaken of the Glenmore Garage and in our opinion it is probable that asbestos containing materials exist due to the age of construction.

## **6 SUMMARY AND RECOMMENDATIONS**

### **6.1 PRINCIPAL CONSIDERATIONS**

The premises have been constructed to an average standard and specification and are in a condition commensurate with their use and age. We did not note any evidence of significant differential structural movement or settlement within the building. We did however note a number of items, which should be considered as part of your 10 Year maintenance programme, as highlighted below: -

1. We do not believe that the installation of the mezzanine office and store complies with the current Building Standards Regulations nor indeed that a Building Warrant was applied for prior to their construction. We would recommend that a retrospective application be made with any alterations made as directed by Building Control.
2. The diesel oil storage tank is positioned such that any failure of the tank, resulting in leakage of contaminants. It should be confirmed that this installation is in accordance with the Water Environment (Oil Storage) (Scotland) Regulations 2006 and all other applicable legislation.
3. The internal decorations to the property are in a fair condition with general minor marking and soiling noted to areas as would normally be expected.

4. Generally, the external parts are in poor condition with major maintenance works being required to maintain a wind and watertight property and to prevent further or future building fabric decay. This in the short term should include renewal of the roof coverings or repair and redecoration with a suitable proprietary product.
5. The concrete floor within the workshop is heavily worn due to age. This wear is inevitable however consideration should be given to renewing the floor in year.
6. The concrete apron to the front elevation is considerably worn and degraded. This wear is inevitable however consideration should be given to renewing the floor in year.
7. The extract ventilation, heating & compressed air systems are beyond their recommended economical life expectancy and should be considered for replacement. We have included costs for upgrading works in year 4.
8. The electrical installation is beyond the recommended economical life expectancy and should be considered for replacement. We have included costs for upgrading works in year 4.
9. On-going planned preventative maintenance procedures from year 1 to Year 10.

## **6.2 FUTURE MAINTENANCE OPTIONS**

Following our review, there appears to a lack of robust processes in place to review the maintenance and health and safety statutory requirements for such premises.

At the present time it would appear that CML undertake repairs to the properties on a reactive basis with planned works being limited to the redecoration of the externals using in-house labour.

We would suggest that CML are encouraged to review the condition survey on a yearly basis and appoint a professional representative to produce tender

documentation to cover all works required and obtain competitive tenders from four local contractors. This will result in economies of scale in procuring the works as one entity and provide consistent quality.

The in-house labour force can then deal with day to day reactive repairs and possible external redecoration. It may also be possible for CML to employ the services of a centralised management company for reactive repairs, whereby the repairs required are reported to the company who then manage the works along with health and safety issues, this would incur a percentage mark-up on all repairs and therefore costs would be slightly higher, but the benefit is better allocated resources internally.

We would also suggest consideration is given to a central electronic system, such as 'TrackRecord' which provides a management tool for CML and HIE. The system provides an electronic diary which records the actions required for CML such as statutory requirements (Fire Risk Assessments, Water Risk Assessments, Health and Safety Review, Test Records for the Funicular Railway, Test Records for the Ski Tows, Electrical Tests, PAT Tests, and Water Temperature Readings etc). The system also acts as an electronic storage device for all records to be held in one place, which can be viewed by HIE.

Furthermore, such a system can monitor the progress of CML and provide data recording the compliance using charts and percentage readings that can be easily reviewed and followed up by HIE.

Our recommended on-going maintenance costs include for the required statutory testing and monitoring procedures.

### **6.3 SUMMARY OF COSTS**

The attached maintenance programme provides budget costings for expenditure in 2010 and the following ten years to 2020. These costs, assessed at 2011 rates, are budget costings only and in many instances the cost will vary once opening up and further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT.

We recommend that a sum in the order of £30,000 which excludes VAT and Professional Fees, is included in the year 2011 repair budget to undertake the works included in the 10 Year Maintenance Plan.

A summary of the costs are shown within Appendix 1.

#### **6.4 RECOMMENDATIONS**

Overall the Glenmore Garage premises at Cairngorm Mountain are in fair/poor condition though generally fit for purpose if the year 1 works noted are executed; we would recommend that you undertake the remedial maintenance repairs in line with the 10 year maintenance plan.

The Mechanical & Electrical (M&E), building services were found to be in a poor but operational condition. The services installations are at the end of their normal life expectancy and require upgrading, which should coincide with the main building refurbishments program.

<p>Partner King Sturge LLP</p> <p>T (Direct) F (Direct) M (Mobile) @kingsturge.com</p>		<p><i>Prepared by</i></p>	
		<p><i>Property Inspected by</i></p>	
<p><i>Date of Issue</i> 28 January 2011 Rev March 2011</p>		<p><i>Authorised by</i></p>	
<p><i>Report Status</i></p>		<p>FINAL</p>	
<p><i>Other Consultants Involved</i></p>			
<p><i>Name</i> Davie and McCulloch</p>		<p><i>Discipline</i> Mechanical and Electrical</p>	
<p>Scott Wilson</p>		<p>Transport Engineers</p>	



## **CML – Fresh Water Pump Station**

**Briefing Note prepared on behalf of Highlands & Islands Enterprise**

**Prepared by – [REDACTED] Synergie Environ Ltd**

### **Issues Raised:**

- Stamping on fittings are PN16 which would indicate that they are rated for a maximum working pressure of 16 bar and are therefore under-rated for the environment in which they are fitted
- The potential that pipework uphill from the site is insufficiently rated for the pressures in the pipeline

### **Evidence:**

#### **Pipe Ratings**

- In October 2000, Ferrier Pumps asked Saint Gobain/Stanton to confirm that although the fittings supplied were stamped as PN16 they were designed to operate at a higher pressure rating.
- The reply from Saint Gobain [REDACTED] (also in October 2000) stated that *“as you are aware in the case of DN80 flanges, the dimensions are the same for PN10, PN16, PN25 and PN40. Therefore the fittings supplied to you are capable of being operated at a maximum of 50 bar with a max site pressure test of 45 bar. The straight pipes with weld on flanges require the hubs to be longer for PN25 and PN40 flanges, but these have already been supplied to you with the correct flanges for these pressures.”*
- The question was asked again in June 2010 when this issue was raised again and according to Saint-Gobain [REDACTED] (Technical Support Engineer) *“Having looked at the photographs I can confirm that the fittings are suitable for 40 Bar working pressure and 45 Bar test pressure. As per our Product Guide pages 72-73 the flanges for DN80 PN10 to PN40 are all the same. The 50 Bar rating in Alan Lowe’s letter seems to have been a typo error because the test pressure matches the above advice.”*
- [REDACTED] was also contacted with regard to the “Y” branch piece which has no markings stamped on it to confirm the pressure rating the fitting was certified to. He has confirmed that if the fitting is a Saint Gobain one, and is DN80 (which it is) then the same pressure rating would apply as for the remainder of the fittings.

- A number of photographs were taken of the “Y” branch and sent to [REDACTED] at Saint Gobain. Subsequent to this an e-mail received from [REDACTED] confirmed this following a review of the photographs:

*“I believe that the Y pipe is a Saint-Gobain Product. The fitting would be manufactured from K14 thickness ductile iron. We can confirm that there are no issues with this. As I have previously confirmed with you the flange ratings are the same for PN10 all the way up to PN40. A calculation run on a DN80 K14 thickness fitting confirms the body of the fitting will take over 120 Bar”*

- As the “Y” Branch was previously the only remaining fitting that Saint Gobain had to verify its pressure limits, it can now be concluded that Saint Gobain are satisfied that all pipe fittings within the pump house are suitable for the design pressures for the installation.

#### Pipe construction material

- Design drawings from Crudens which were used for the construction, show that the pipe exits the pump house in 80mm ductile iron and continues up the hill to the start of the traverse where it is changed to 90mm HPPE pipe for the last section up the hill to the Ptarmigan. This point is about 100 m – 120 m from the Ptarmigan and the pressure on the pipeline will be therefore less than at the pump house.
- From discussions with Crudens the designers, this method of construction would not be considered abnormal and would probably have been utilised for both ease of construction and cost savings.
- Ian Livingston at Crudens has undertaken an examination of the specification which underpinned the drawings and has made the following comment *“The specified grade for the HPPE pipe is class SDR11, which is rated at 16 bar. The pressure at the point that the water main changes from ductile iron to HPPE as shown on drawing CA150/3/33C, taking into account pipe losses and static head loss from its elevation above the pump station, will be less than 16 bar”.*

#### Conclusions:

##### Pipe Ratings

- It would appear that the issue of the pipe stampings and concern over their rating was raised by Ferrier Pumps during construction in 2000 and addressed by Saint Gobain (apparently to everyone’s satisfaction) at that time.
- The question of pressure ratings was raised again with both parties in June 2010 and once again it was confirmed that the pressure ratings of the fittings was suitable for the required working pressures.
- The only exception to this at that time was the “Y” branch which was not fully identified. Saint Gobain has now confirmed from a visual inspection of photographs provided by CML that the fitting is one of theirs and is suitable for the design pressure rating of the installation.

- As all fittings within the pump house have now been confirmed as suitable for the design pressures for the system, it can be concluded that this issue can now be closed off.

#### Pipeline Rating

- It would appear from drawings that the pipeline has been designed to start in ductile iron and then change to HPPE at a point where the pressure on the pipe line will have dropped sufficiently to allow this change in pipe material.
- This change would likely have been made for ease of construction and probably to help reduce construction costs.
- Crudens have confirmed from a review of the specification accompanying the drawing that the change in material is within the pressure limits of the pipe materials used.
- Provided that the pipeline has been constructed in accordance with the drawings, and there is no reason to suspect that this is not the case, there can be no issue with this installation as it is designed to work with the pressures present within the pipe line.

#### Summary

It would appear that all fittings supplied within the fresh water pump house are suitable for the pressure rating of the installation and that the pipeline up to the top station has been designed to meet the required pressure ratings. It can be concluded therefore that there is no reason not to re-open and recommence use of the pump house facility.



**Highlands and Islands Enterprise**  
Iomairt na Gàidhealtachd 's nan Eilean

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## PLANNED MAINTENANCE CONDITION SURVEY REPORT

ON

**BUILDING CODE: 008**  
**EXTERNALS**  
**CAIRNGORM MOUNTAIN**  
**CAIRNGORM**

FOR

**HIGHLANDS AND ISLANDS ENTERPRISE**

AS AT

**JANUARY 2011**  
**REVISED MARCH 2011**

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**King Sturge LLP**  
6th Floor  
145 St Vincent Street  
Glasgow G2 5JF

T +44 (0)141 204 2221  
F +44 (0)141 204 2201



**EXTERNALS, CAIRNGORM MOUNTAIN, CAIRNGORM**

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**UPPER BASE STATION CAR PARK**

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## **EXTERNALS, CAIRNGORM MOUNTAIN, CAIRNGORM**

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**1 INTRODUCTION**

In accordance with your instructions, confirmed in the contract document dated 14 September 2010, we have undertaken a building surveyor's inspection of the external areas and car parking at Cairngorm Mountain, Cairngorm, to advise you on its condition with the objective of providing a ten year maintenance programme. The inspection was carried out between 18 and 21 October 2010; and at the time of the inspection the weather was varied including snow, wet, fog and strong winds.

In accordance with your invitation to tender our survey inspection has included for all Mechanical and Electrical services.

The inspection of the Electrical services within the undernoted Ski Tow Huts / Buildings was carried out on the 26th October 2010. There were no mechanical services within the huts / buildings.

Ptarmigan Hut  
Coire na Ciste (Base 4)  
Bothy  
West Wall  
Weast Wall Poma  
Aonach Chair  
Anoach Chair 2  
Aonach Building  
Bottom Aonach Chair

We must stress that this report is only for the use of the party to whom it is addressed and no responsibility is accepted to any other party for the whole or any part of its content. Neither the whole nor any part of this report or any reference thereto, may be included in any document or statement, nor published or reproduced in any way, without our prior approval in writing as to the form or content in which it will appear.

**2 GENERAL DESCRIPTION & TENURE**

All car parks generally comprise of tarmacadam access roads with compacted gravel used to form the car parking bays.

The upper car park to the Base Station has been provided with recent additional channel drainage to the junction between the car park and tarmacadam hard standing in front of the Daylodge. The upper car park also has a pedestrian walkway leading from the disabled car parking spaces to the Daylodge using block paving, timber clad perimeter barriers and lampposts at strategic locations.

Various water features have been created from water run off streams which are directed under the upper and lower car parking facilities. The features have generally been formed using stone layered to form steps and walls, to which the natural water streams run over.

The lower car park is of matching construction to the upper and is accessed via a mixture of galvanised tubular metal formed staircase with open meshed tread plates and handrails. Adjacent to the staircase is a granite stone lined ramp, overlaid with loose gravel.

The Coire Na Ciste car parking facility is standalone and is of similar construction to the Base Station car parks, although a the majority of the car park is of 'made up' land. Where the carp park boundary meets with access road a galvanised metal square box barrier has been installed.

The main access road between the Base Station and Ptarmigan has been constructed using compacted gravel with a mixture of timber, rock and galvanised metal channels to try and divert surface water run off and prevent erosion of the road surface. At the Base Station a gloss painted metal barrier has been installed to prevent unauthorised access.

A number of timber formed sheds are located to each tow to the ski area which are generally paint decorated or stained. In some instances these have been secured to the ground using tension wires fixed to the ground and over the roof.

### **Mechanical and Electrical**

The electrical services in the Ski Tow Huts / Buildings appear to be of a similar age, which is reported to be 20 - 30 years old.

Generally in each of the huts the electrical switchgear consists of loose mounted distribution boards with surface mounted installations comprising luminaires, electric heaters and general power outlets. Condition of most of these installations is poor. The following huts / buildings house Hydro Board transformers.

Coire na Ciste (Base 4) – Equipment located under building.

West Wall – Equipment screened off inside building.

Aonach Building – Equipment inside building and 1 leg of ring main supply cable has been cut.

The External Fresh Water System installed in the mid-station level (adjacent to the Shelling Building) serve the upper station Ptarmigan building, and consist of a surface water feed tank, main storage tanks, booster pumps and automatic controls systems. The system is approximately 11 years old.

Our surveys indicated that the materials used for the installed systems were Ductile Iron for the internal pipework and Poly-Eurethane (PE), for the external services pipework.

The main incoming water supply is from a natural stream which serves a small below ground feed tank. This in turn serves the lower level main tanks, situated in a purpose build tank & pump housing building. Booster pumps draw water from the main tanks

## EXTERNALS, CAIRNGORM MOUNTAIN, CAIRNGORM

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and transfer it to the upper level Ptarmigan building to serve the domestic water and fire suppression systems.

We note that the feed tank wooden lid was damaged and that one of the pumps had been removed for repair. Otherwise, the condition of the tanks, pumps and controls at the time of survey was found to be reasonable and the systems were operational.

The external services, in the main, consist of Hydro Board 11kv feeder cabling between sub-stations and power supplies to buildings. Record drawings indicate there is a ring main feeder and a radial feeder. From the information available this cabling appears to be adequately sized / rated for the loads being supplied.

It was noted during our survey that there are lengthy sections of Hydro Board ring main cabling very close to the surface of trenches. These are currently covered by sand bags. The section of cabling noted runs between the Coire na Ciste (Base 4) building and the Aonach building, where 1 leg of the cabling has been cut. This may mean that the ring main facility is not operating and this was reported to staff at the time of the survey.

An issue was raised during our subsequent visit on 13th December 2010 with regard to the maximum demand capacity of the transformer within the Day Lodge Building. This related to the recent installation of a new inverter drive motor, however the staff at Cairngorm are dealing directly with Scottish Hydro regarding this.

We understand that Highlands and Islands Enterprise lease the properties, infrastructure, ski tows and funicular railway to Cairngorm Mountain Limited under an FRI Lease.

**3 TERMS OF REFERENCE**

The 10 Year Maintenance Programme describes the condition of the building fabric of each referenced room as shown on the as built plan, with associated budget costs and detailed within Appendix 1. To clarify the definition of description frequently used in the schedule, we give below a detailed description of their meaning: -

1. **SOUND:** Denotes almost perfect condition having regard to all circumstances of age, locality and use.
2. **GOOD:** Indicates that, although suffering from blemishes and faults attributable to wear and tear, the item is of reasonable standard and there are no major defects and that the particular item does not require attention unless it is specifically stated otherwise.
3. **FAIR:** Of a lesser standard than might reasonably be expected, having regards to the age and location of the property, its users and the type of tenants likely to occupy it, although not seriously defective, the item requires attention to bring it to a reasonable standard.
4. **POOR:** Have exceptionally low standard, having regard even to the age and location of the property, its user and its tenant likely to occupy it.

Each item of repair to the building has been prioritised and the attached repair schedules provide the following classifications: -

- PRIORITY A:** Repair or replacement required immediately for health & safety reasons or to maintain structural integrity of the building, fabric or services.
- PRIORITY B:** Repair/replacement required within the next 1-2 years maintaining building elements and preventing further degradation.
- PRIORITY C:** Repair/replacement required within the next 3-5 years.

**PRIORITY D:** Repair/replacement required within the next 6-10 years.

The rates used within the report have been taken from a mixture of the Spon's Architects' and Builders' Price Book 2011 and the BCIS Maintenance Price Book 2011. The costs are budget costs only and do not form part of a contract for works. The building fabric rates are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

The life expectancy periods for the M&E services elements within the report have been taken from the Chartered Institute of Building Services Engineers (CIBSE) - Maintenance & Engineering Management Guide M 2008. The costs are budget costs and for information only. The services replacement costs are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

Annual planned preventative maintenance requirements have been based on CIBSE Guide M recommendations. Costs have been averaged across the estate and are based on the assumption that an element of the routine tasks will be undertaken by an 'in-house' team along with specialist contractors input.

#### **4 STATUTORY MATTERS**

Our recommended on-going maintenance costs include for the required statutory testing and monitoring procedures.

#### **5 FUTURE MAINTENANCE OPTIONS**

Following our review, there appears to a lack of robust process in place to review the maintenance and health and safety statutory requirements for such premises.

## EXTERNALS, CAIRNGORM MOUNTAIN, CAIRNGORM

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At the present time it would appear that CML undertake repairs to the properties on a reactive basis with planned works being limited to the redecoration of the externals using in-house labour.

We would suggest that CML are encouraged to review the condition survey on a yearly basis and appoint a professional representative to produce tender documentation to cover all works required and obtain competitive tenders from four local contractors. This will result in economies of scale in procuring the works as one entity and provide consistent quality.

The in-house labour force can then deal with day to day reactive repairs and possible external redecoration. It may also be possible for CML to employ the services of a centralised management company for reactive repairs, whereby the repairs required are reported to the company who then manage the works along with health and safety issues, this would incur a percentage mark-up on all repairs and therefore costs would be slightly higher, but the benefit is better allocated resources internally.

We would also suggest consideration is given to a central electronic system, such as 'TrackRecord' which provides a management tool for CML and HIE. The system provides an electronic diary which records the actions required for CML such as statutory requirements (Fire Risk Assessments, Water Risk Assessments, Health and Safety Review, Test Records for the Funicular Railway, Test Records for the Ski Tows, Electrical Tests, PAT Tests, and Water Temperature Readings etc). The system also acts as an electronic storage device for all records to be held in one place, which can be viewed by HIE.

Furthermore, such a system can monitor the progress of CML and provide data recording the compliance using charts and percentage readings that can be easily reviewed and followed up by HIE.

## **6 SUMMARY AND RECOMMENDATIONS**

### **6.1 PRINCIPAL CONSIDERATIONS**

The external areas have been constructed to an average standard and specification commensurate with their use and age. We did not note any evidence of significant differential structural movement or settlement within the car parks. We did however note a number of items, which should be considered as part of your 10 year maintenance programme, as highlighted below: -

1. The tarmac surfaces to all car parks are generally worn and damaged as a result of the extreme weather conditions and heavy use during the winter months. We would suggest and understand that cyclical repairs are undertaken on a regular basis to prevent further deterioration of the car parking facilities.
2. The compacted gravel car parking bays are generally suffering from surface water run off eroding the surfaces causing pot holes and areas of uneven and washed out gravel. We would suggest and understand that cyclical repairs are undertaken on a regular basis to prevent further deterioration of the car parking facilities.
3. We would suggest that a full length handrail is provided to the ramped footpath leading from the Base Station upper and lower car parks to ensure compliance with the current Building Regulations.
4. The main access road between the Base Station and Ptarmigan is suffering from lack of maintenance and extensive erosion as a result of surface water run off from the mountain. We have allowed for greater repairs in the initial years with costs to reflect ongoing maintenance thereafter.
5. There appears to be a number of drainage runs beneath the car parking facilities of the Base Station, we have been unable to investigate these and can not confirm if there are any defects noted within the drainage. We understand that CCTV Surveys may have been procured by HIE and passed to CML but

have not seen sight of these. A sum has been allowed for further investigation of the drainage runs within the initial years to establish the exact locations of any blockages or drainage problems.

6. The sheds to each of the tows are all heavily weathered and wind damaged with some timber areas rotten. Similarly the workshops are only in a fair condition showing signs of heavy wear throughout and general damage. We have included a periodic sum in each case to cover repairs and redecoration.
7. We note that the maximum working pressure of the internal pipe systems between the tanks, pumps and external services may be exceeded by the actual working pressure of the pumps and system. This may also be the case for the external pipework. We understand HIE have received a number of reports regarding this, the latest report is enclosed within Appendix 2. In summary the report advises "in the case of DN80 flanges, the dimensions are the same for PN10, PN16, PN25 and PN40. Therefore the fittings supplied to you are capable of being operated at a maximum of 50 bar.". Davie and McCulloch still have a slight concern regarding the fittings as despite the assurances within the report, Davie & McCulloch have been unable to obtain written confirmation from the manufacturer of the pressure that these fittings would have been tested to prior to leaving the factory.
8. We also recommend that the feed tank lid is replaced with a suitable reinforced plastic one. The tanks, internal pipework and controls life cycle should be 25 years and so extend beyond the period under consideration in this report. The pumps are nearing the end of their recommended economical life expectancy and we have included costs for the replacement of these in year 5, as well as on-going maintenance costs.
9. The issue regarding the exposed external Hydro Board ring main cabling should be addressed as soon as possible and the cabling re-instated in trenches with suitable ground cover. Detailed investigation should also be made of the entire route length of these cabling, covering areas out with our current scope of works. It is not possible to estimate the cost of any remedial works

until a full and detailed survey establishes the extent of the problem. At this stage only ongoing maintenance costs over the 10 year plan have been provided. The conditions of the electrical services were found to be commensurate with their age and as such, beyond their recommended economic life expectancy. The general condition of the electrical services was poor. We have therefore included costs for installing replacement systems, on a like for like basis (as per the existing systems). We have based our costs on the replacement works taking place in the following years within the 10 year plan.

Ptarmigan Hut	Year 4
Coire na Ciste (Base 4)	Year 2
Bothy	Year 3
West Wall	Year 5
Weast Wall Poma	Year 5
Aonach Chair	Year 6
Anoach Chair 2	Year 6
Aonach Building	Year 7
Bottom Aonach Chair	Year 3

### 6.2 SUMMARY OF COSTS

The attached maintenance programme provides budget costings for expenditure in 2010 and the following ten years to 2020. These costs, assessed at 2010 rates, are budget costings only and in many instances the cost will vary once opening up and further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT.

We recommend that a sum in the order of £140,000 which excludes VAT and Professional Fees, is included in the year 2011 repair budget to undertake the works included in the 10 Year Maintenance Plan.

A summary of the costs are shown within Appendix 1.

6.3 RECOMMENDATIONS

Overall the external areas of Cairngorm Mountain are in fair condition; however we would recommend that you undertake the remedial maintenance repairs in line with the 10 year maintenance plan with repairs likely each year to prevent accelerated deterioration of the car parking facilities.

<p>[Redacted]</p> <p><b>Partner</b> King Sturge LLP</p> <p>T [Redacted] (Direct) F [Redacted] (Direct) M [Redacted] (Mobile)</p> <p>[Redacted]@kingsturge.com</p>		<i>Prepared by</i>		[Redacted]	
		<i>Property Inspected by</i>		[Redacted]	
		<i>Date of Issue</i>		28 January 2011 Rev March 2011	<i>Authorised by</i>
<i>Report Status</i>		FINAL			
<i>Other Consultants Involved</i>					
<i>Name</i>	Davie and McCulloch		<i>Discipline</i>	Mechanical and Electrical	
	Scott Wilson			Transport Engineers	



**Highlands and Islands Enterprise**  
**Iomairt na Gàidhealtachd 's nan Eilean**

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**PLANNED MAINTENANCE CONDITION  
SURVEY REPORT**

ON

**BUILDING CODE:  
WASTE WATER TREATMENT PLANT (BOTTOM  
CAR PARK) CAIRNGORM MOUNTAIN  
CAIRNGORM**

FOR

**HIGHLANDS AND ISLANDS ENTERPRISE**

AS AT

**MARCH 2011**

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**King Sturge LLP**  
6th Floor  
145 St Vincent Street  
Glasgow G2 5JF

T +44 (0)141 204 2221  
F +44 (0)141 204 2201

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## **APPENDICES**

<b>1</b>	<b>10 YEAR MAINTENANCE PROGRAMME</b>
<b>2</b>	<b>PHOTOGRAPHS</b>

## **1 INTRODUCTION**

In accordance with your instructions, confirmed in the contract document dated 14 September 2010, we have undertaken a building surveyor's inspection of the Waste Water Treatment Plant at Cairngorm Mountain, Cairngorm, to advise you on its condition with the objective of providing a ten year maintenance programme. The inspection was carried out on 20<sup>th</sup> & 27<sup>th</sup> October 2010; and at the time of the inspection the weather was varied including snow, wet, fog and strong winds.

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## **2 GENERAL DESCRIPTION & TENURE**

The Waste Water Treatment Plant is located to the South of the lower Day Lodge Car Park at the foot of the Cairngorm ski area was constructed in 2000 as part of the major redevelopment of Cairngorm at that time to allow the introduction of the Funicular Railway.

## **3 TERMS OF REFERENCE**

The 10 Year Maintenance Programme describes the condition of the plant with associated budget costs detailed within Appendix 1. To clarify the definition of description frequently used in the schedule, we give below a detailed description of their meaning: -

1. **SOUND:** Denotes almost perfect condition having regard to all circumstances of age, locality and use.

2. **GOOD:** Indicates that, although suffering from blemishes and faults attributable to wear and tear, the item is of reasonable standard and there are no major defects and that the particular item does not require attention unless it is specifically stated otherwise.
3. **FAIR:** Of a lesser standard than might reasonably be expected, having regards to the age and location of the property, its users and the type of tenants likely to occupy it, although not seriously defective, the item requires attention to bring it to a reasonable standard.
4. **POOR:** Have exceptionally low standard, having regard even to the age and location of the property, its user and its tenant likely to occupy it.

Each item of repair to the building has been prioritised and the attached repair schedules provide the following classifications: -

- PRIORITY A:** Repair or replacement required immediately for health & safety reasons or to maintain structural integrity of the building, fabric or services.
- PRIORITY B:** Repair/replacement required within the next 1-2 years maintaining building elements and preventing further degradation.
- PRIORITY C:** Repair/replacement required within the next 3-5 years.
- PRIORITY D:** Repair/replacement required within the next 6-10 years.

The costs included within the report are budget costs only and do not form part of a contract for works. The costs are assessed at January 2011 rates and therefore do not account for inflation over the 10 years and exclude contract preliminaries, professional fees and VAT.

## **4 CURRENT MAINTENANCE**

As part of our remit we assessed the current maintenance regimes being undertaken by Cairngorm Mountain Ltd on the property and found that this was generally on a reactive maintenance basis albeit some works were being carried out on a cyclical basis. The lack of maintenance to areas is as a direct result of funding being unavailable or allocated to other areas, however we did note during our inspection that more significant infrastructure maintenance and alterations were being undertaken as a result of funding being available following a successful ski season.

Our planned maintenance schedule attached at appendix 1 highlights the maintenance requirements over the next ten years and the associated costs. You should endeavour to ensure that these works are carried out to prevent any further deterioration of the plant.

### **4.1 HEALTH & SAFETY**

#### **4.1.1 WORKPLACE REGULATIONS**

Under the Workplace (Health, Safety and Welfare) Regulations 1992, employers and building owners have a duty to ensure that the workplace under their control complies with the provisions set out therein. The Regulations describe a number of matters which have to be addressed to ensure that the workplace meets the health, safety and welfare needs of each member of the workforce, including people with disabilities.

We have not specifically assessed the premises in order to ensure full compliance with the Regulations. A comprehensive Health & Safety Audit would be necessary on a separate visit should you wish to establish whether any works may be required, in order to ensure that your obligations under the regulations are fulfilled.

**4.1.2 HEALTH & SAFETY AT WORK ACT 1974**

We have not undertaken an Audit to assess the suitability of the premises and the associated working practices to ensure compliance with these regulations.

However you should ensure that a water hygiene risk assessment of all water sources within the premises is undertaken and the water tested regularly. These will confirm whether Legionellas is present or not within the premises.

We would recommend that water samples are taken every year along with the formulation of a management plan in relation to the water supplies in the building.

**4.1.3 CONTROL OF ASBESTOS REGULATIONS**

The Control of Asbestos Regulations 2006 places a duty on occupiers, employees and owners to ensure that a suitable and sufficient assessment is carried out to determine whether asbestos containing materials (ACMs) are likely to be present in the premises. This information should be recorded by means of a Type 2 Survey and the associated results contained within an Asbestos Register for the building. This should include essential information relating to location, condition, recommendations and implementation for management of the ACMs.

Despite the above regulations still require a statement to be kept on site to confirm that there is no asbestos containing materials on site. You should ensure that this is provided in early course.

## 5 SUMMARY AND RECOMMENDATIONS

### 5.1 PRINCIPAL CONSIDERATIONS

The plant was constructed to an average standard and specification commensurate with their use and age. While there have been various historical issues with regards the operation of the plant, Operations staff have confirmed that the system is currently operating well and meeting the SEPA discharge consent level. We did however note a number of minor items, which should be considered as part of your 10 Year maintenance programme, as highlighted below: -

1. Maintenance records indicated that there may have been a recent problem with the build up of sludge in the Final Settlement Tank. Sludge level controls and RAS pump controls should be checked / upgraded to ensure these are fully operational and allow regular removal of RAS from the settlement tank.
2. Due to the relatively low load on the plant consideration should be given to returning a percentage of the RAS to the Distribution Chamber / RBC inlet to increase the efficiency of the RBC plant.
3. Operations personnel have advised that all RBC main bearings have been recently replaced however the motor / gearbox assemblies on the units appear to be the original equipment. Manufacturers recommend a normal life expectancy of 5-10 years and it has therefore been assumed that these shall require replaced / refurbishment in the near future. Costs for the work have been included in the maintenance program.
4. The pump, pipework and associated controls in both the Balance Tank transfer pump chamber and RAS pump chamber have a limited life expectancy and will require refurbishment within the next five years.
5. Chemical dosing pumps and associated control have a limited life expectancy due to the corrosive material of the chemical and will require refurbishment / replacement in the next few years.

In addition chemical storage facilities should be reviewed to ensure that chemicals are being stored in accordance with manufacturers recommendations.

6. Automatic Controls, instrumentation and telemetry systems require major refurbishment, calibration and re-commissioning to ensure that all equipment is fully operational and giving accurate readings.
7. Consideration should be given to installing temperature monitoring equipment at the Final Effluent Sampling Chamber to record discharge temperatures as this would assist to demonstrating compliance with the discharge consent.

## **5.2 SUMMARY OF COSTS**

The attached maintenance programme provides budget costings for expenditure in 2011 and the following ten years to 2020. These costs, assessed at 2011 rates, are budget costings only and in many instances the cost will vary once opening up and further investigation works have been carried out. The costs exclude contractor's preliminaries, professional fees to manage the work and VAT. The cost also excludes any costs associated with regular sludge removal and chemical usage.

We recommend that a sum in the order of £31,000 which excludes VAT and Professional Fees, is included in the year 2011 repair budget to undertake the works included in the 10 Year Maintenance Plan.

A summary of the costs are shown within Appendix 1:-

## **5.3 RECOMMENDATIONS**

Overall the Waste Water Treatment Plant at Cairngorm Mountain is in reasonable condition; however we would recommend that you undertake the remedial maintenance repairs in line with the 10 year maintenance plan.

WASTE WATER TREATMENT PLANT, CAIRNGORM MOUNTAIN, CAIRNGORM

<p><b>Partner</b> King Sturge LLP</p> <p>T [REDACTED] (Direct) F [REDACTED] (Direct) M [REDACTED] (Mobile) [REDACTED]@kingsturge.com</p>		<i>Prepared by</i>	[REDACTED]
		<i>Property Inspected by</i>	[REDACTED]
<i>Date of Issue</i>	29 March 2011	<i>Authorised by</i>	[REDACTED]
<i>Report Status</i>	Final		
<i>Other Consultants Involved</i>			
<i>Name</i>	Davie and McCulloch Scott Wilson	<i>Discipline</i>	Mechanical and Electrical Transport Engineers

**APPENDIX 2**  
**PHOTOGRAPHS**



RBC Unit



RBC Media



RBC Motor / Gearbox



RBC corner damaged



Final Settlement Tank



RAS Pump Chamber



Final Effluent Settlement Chamber



Balance Tank Pump Chamber