

Ptarmigan

Cairngorm Mountain

Pre-Planning Feasibility Documentation

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# 1 INTRODUCTION

Natural Retreats through Cairngorm Mountain Limited, has been operating the Cairngorm Mountain Ski Area since 2014 and in this period has gained a clear understanding of the challenges and opportunities faced by the operation.

Since the initial pre application consultations carried out in November 2015 the challenges faced by the business through lack of snow and subsequent winter operations has heightened. The need to alleviate the strong seasonal nature of the business has been made abundantly clear. As such Natural Retreats has reviewed the proposed masterplans and wish to recommence the consultation but with a revised focus. This focus will aim to cover the following aspects:-

- △ Create a world class visitor experience at the top station
- △ Introduce a year round snow school operation
- △ Postpone and reduce the scale of plans for the day lodge

As a review of the current operations and background to this focus has been summarised below.

## **Strengths of the Resort**

- △ 210,000 annual visitors (120,000 in winter and 90,000 in summer) with vast potential to increase
- △ UK's largest ski resort, 30 km of ski runs, 33% market share of winter visitor numbers.
- △ Only Funicular railway in Scotland.
- △ The Ptarmigan - UK's highest restaurant at 1,097m used by 66% of visitors
- △ Snow school operation
- △ Successful retail operation selling clothing, outdoor equipment and souvenirs

## **Challenges of the Resort**

- △ Unsustainable model of seasonal cash generation driven by low visitor numbers in summer
- △ Weather dependency of main winter operations and ancillary functions such as snow school
- △ Limited summer visitor experience with the funicular being the only significant offering
- △ Lack of exit at top station unenticing for visitors – visitors needing to feel like they are outside
- △ Below par family offering
- △ Disappointing sense of arrival – heightened in the summer
- △ Wider transport and connectivity challenges

## **Opportunities**

- △ Create a world class, year round offering in the heart of the Cairngorm National Park
- △ Stabilize and strengthen the business

- △ Improve the overall “bottom to the top” visitor experience.
- △ Take advantage of the unique assets - existing building at the top, views from the top station, the Ptarmigan Restaurant and spaces within the top station
- △ Strengthen summer attractions
- △ Protect snow school operations in the winter and create a year round snow school offering
- △ Increase staff retention and create further full time opportunities

There follows information on the possible design solutions along a desktop visual impact study. In addition to this there is also a summary of how key items already identified will be approached during the production and submission of a detailed planning application.



## 2 DESIGN TEAM

Below is a list of the relevant parties and contributors to this pre application submission

- △ **Tenant Operator:** Cairngorm Mountain Limited
- △ **Management Company:** Natural Retreats
- △ **Architect:** Threesixty Architecture
- △ **Interior Consultant:** 442 Design
- △ **Structure Engineer:** Ramsay and Chalmers
- △ **Services Engineer:** Callidus Design
- △ **Contractor:** William Gray Consulting
- △ **Quantity Surveyor:** CBA
- △ **Environmental Consultant:** Atmos
- △ **Transport Consultant:** JLM Consulting

### 3 ARTIFICIAL SKI SLOPE PROPOSAL

In line with the intention to increase family focussed facilities, whilst also protecting snow school revenues and establishing a snow school operation all year round, plans have been developed to introduce a beginners and intermediate, artificial ski slope. This would be located close to the base station, in a more protected area improving beginner experience and allowing lessons to take place when the rest of the ski area may be closed due to adverse weather.

Having considered numerous artificial ski surface options the current preferred option is to install Snowflex product. Snowflex is a high performance synthetic system which enables year round use. Snowflex® is recognized as the closest replication of snow. It is the first invention developed by a snowsports company from the end users perspective. Previous synthetic materials were by-products from the brush, plastic or carpet industry. Key product benefits are:-

- △ It is softer to fall on than hard pack snow and is therefore safer.
- △ It can be used all year round and located anywhere.
- △ It is consistent, never needs grooming and requires very little maintenance.
- △ It enables rapid skill development and as a result significate repeat users.
- △ It has very small energy demands.
- △ It has a low carbon footprint compared with alternatives and indoor facilities.

The Snowflex product is made up of a number of layers as shown in the graphic below.



Unlike “dry” slopes, the friction is reduced through the misting of water across the slopes during operation. This uses the BritonMist® slope lubrication system including a fully engineered water treatment and filtration systems for slope cleaning. This system also has a fully engineered water recycling system



The product is available in white or dark green.

The initial proposal is to install two slope areas – a beginners slope of approximately 30m long x 60m wide in plan view to suit the land/building constraints and alongside this to allow progression – an intermediate slope of approximately 60m x 30m in plan view.

The beginner’s area will be served by three Double sided QueueDodger® rope tow and the intermediate area served by a Doppelmayr Highline surface drag lift. The lifts would hold a maximum capacity of 135 people at any one time.

Future phases of the slope could include the expansion for a longer run and the addition of floodlights for extended use.

## Further product and process information

### Manufacture

There is nothing used in the Briton process of manufacturing the Snowflex® sliding surface that is toxic to the environment. The resin to bond the fibres used in the matrix is produced locally to us in the UK and is produced to ISO 9001 -2008 manufacturing standard. The resins also meet with all European chemical safety standards.

### Installation

Terrain shaping is done by mechanical means to Briton design and actual installation is all done manually.

### Operation

The Briton misting system together with lifts and floodlighting use electricity. The BritonMist system uses just water, and can be engineered to recycle the water (up to 70% recaptured depending on conditions) and the water will be treated/filtered to assist with slope cleaning and maintenance. The tanks can also be engineered to capture rain water for the misting operation. The surface is also inert and poses no danger to local wildlife.

### Maintenance

Maintenance includes the checking and replacing of mist nozzles as and when appropriate. The slope would also need some jet wash type maintenance a couple of times a year to keep it in pristine condition.

### Removal and remediation

The Snowflex® layers can be uninstalled, moved around the slope and re-laid giving a greater life cycle to the surface (e.g. low wear areas can replace high wear areas as and when necessary) and Snowflex® tiles and sublayers can be disposed of in a normal fashion when they have come to the end of their life. It is worth pointing out that all Snowflex® slopes that have been built over the past 20 years are still in operation.

## 4 ARTIFICIAL SKI SLOPE PHOTO MONTAGE

**Snowflex**



**Greenflex**





## 5 PTARMIGAN PROPOSALS

Natural Retreats have assembled a design team to assess the issues around the extension of the Ptarmigan building. The building is unique in Scotland; in its setting and in its functions, funicular station, resort exhibition centre and shop.

The location and environmental sensitivities have been considered in the early concept analysis undertaken by these teams leading up to the Pre-application process.

### **The perceived problems of the existing operation to be addressed**

At peak points the building is not comfortable due to congestion and capacity issues.

After an interesting journey the sense of arrival is rather underwhelming for such an important mountain setting. The building is robust but the way finding is not clear, the routes through the building are considered to be confusing and the journey at times disappointing.

The opportunity to exit the building is necessarily restricted. Once outside the vistas are limited to a small area.

The building's appearance is functional rather than inspiring and the existing vertical glazing causes reflection when viewed at certain points in the far distance.

### **The Concept Design Analysis of the Problem**

The concept seeks to wrap accommodation around the existing form reducing spread on the mountain by keeping within the area disturbed by the original construction as far as possible.

The structure is shown raking from the centre of the building to bring any construction bases closer to the building but also to tilt the planes to reduce reflection from afar and to reflect onto ground cover closer to the building. The raked glazing is then faceted, so no two planes are the same and the intention would be to analyse the glazing types closely to enhance the positives and reduce the reflections in this regard.

The raking structure also assists with the creation of the roof top walkway which we believe would greatly increase the potential to fully appreciate the unique environment whilst taking pressure off the desire to exit the building in the Summertime.

The concept works to explore these issues with options which would also allow viewing internally when weather conditions would preclude access to the roof terrace, in high winds for example, with the creation of an internal room or viewing area.

The final design stage would follow on from the feedback of the principles explored in this report.

## 6 PTARMIGAN INTERIOR CONCEPTS

As part of the proposals it is intended to carry out a makeover of the visitor experience and the current exhibition space within the top station. The concept proposals have been produced as a demonstration of what can be created in the top station and add to the appeal of the building on a year round basis. The concepts cover the entire guest journey and will delivered in phases as the building develops.

The completion of this scheme will allow for a versatile visitor attraction that can provide an infinite variety of stories, themes and commissions to reflect the broad spectrum of our visitors and the unique and ever changing environment and location.

Please refer to the appendix for the detailed interior concept document.

## 7 PTARMIGAN VISUAL IMPACT STUDY

An initial visual impact study has been carried out, using the assumed mass and position of the proposed extension. The building used for this study shows the maximum foot print that would be considered for the development, with various heights and materials to allow the visual impact to feed back into the design process prior to any future planning application. Due to the prominent nature of the site the visual impact has been considered from three separate viewing positions; these are where the views are expected to be most significant.

### **Loch Morlich Beach**



As viewed from Loch Morlich on a day with good visibility, the base station buildings are clearly visible. The mass of the Ptarmigan building is also visible, although with no distinct details, the increase of mass in the building will not have any significant impact on the view from this distance. The materials used need to be carefully considered; as direct sunlight reflections from the glazing on the existing building can be seen from a great distance. In light of this, great care will be taken to ensure that this issue is not replicated in the new



development, having been highlighted at an early stage this will be resolved through detailed design, with investigations into materials and forms currently being undertaken.

### **Base Station and Car Park**



When viewed from the base station buildings the Ptarmigan is clearly visible. The mass proposed extends the building to the left when viewed from this point, any additional height added to the building will be to the rear and will have a minimal impact when viewed from here. In the context of the other development and structures on the mountain, the altered mass of the Ptarmigan will have little impact on the views from the Base Station.

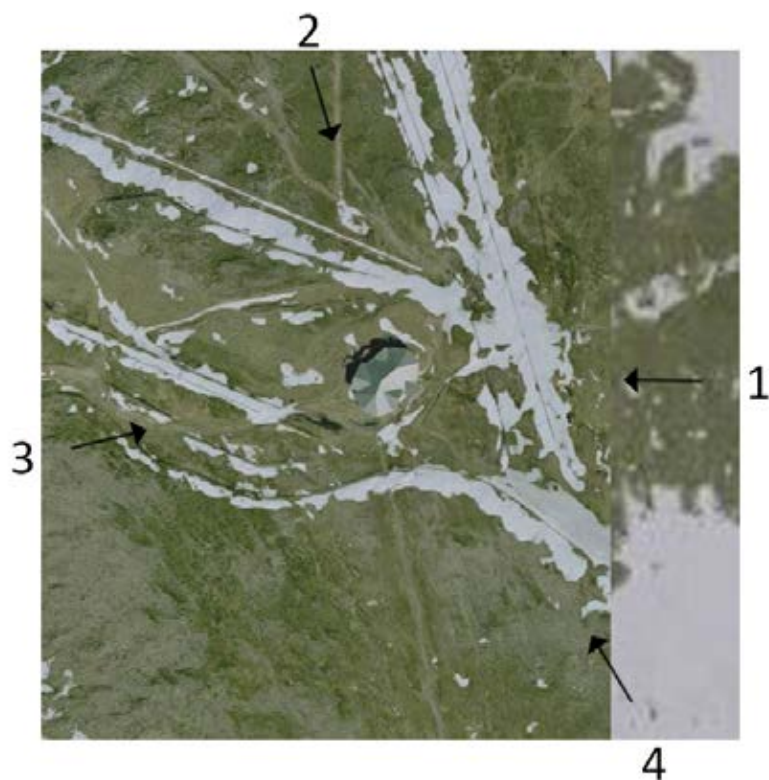
### **Immediate views**

Any alterations will be clearly visible from the immediate surrounding mountain scape, multiple views are shown demonstrating the current views and an example of the suggested proposal. It should be noted that the proposal shown demonstrates the likely mass and maximum heights of the proposal, and is indicative only, this does not represent a finalised design.

By restricting the development to a narrow perimeter round the existing footprint, and keeping any additional height to the rear of the building, facing up to the summit, we can minimise the additional impact that the proposal will have on the views for those on the mountain. The landscape here already has many man-made

interventions including the Ptarmigan building, with careful consideration of form and materials the proposed design can become a harmonious addition to this landscape without having an adverse impact on the views to and from the mountain.

**Locations of views studied**



View 1 - Option 1





View 1 - Option 2





View 2





View 3





View 4 - Option 1





View 4 - Option 2





## 8 ENVIRONMENTAL IMPACT

A formal screening request was submitted for the wider development at Cairngorm and a screening response received 26 January 2016. The response notes that an EIA is not required, however, it makes a number of recommendations of further study to appropriately assess potential impact on the surroundings.

It is noted that the location of the development is particularly sensitive as it lies within the Cairngorms National Scenic Area (NSA) and the Cairngorms National Park and in close proximity to the Cairngorms Special Protection Area (SPA), Special Area of Conservation, the Northern Corries, Cairngorms Site of Special Scientific Interest (SSSI) and the Glenmore National Nature Reserve.

Having considered the screening response, site history and location, we propose to first focus on the impact to **ecology/ornithology, hydrology and cultural heritage**.

Given the history of the project and general advice provided in relation to the wider scheme, the pre-application process will be key to clearly define what advice relates to this specific element of development plans. In addition the clear 'red line boundary' for the development area will be defined. This will include the access into the site and the development footprint.

Based on our professional expertise and the pre-application advice provided to inform initial discussion, we propose to undertake desktop studies to present initial information on the following:

- △ **Ecology/Ornithology:** A desk study will be undertaken to collate existing ecological data within appropriate distances from the development site to better understand constraints and likely survey requirements. This will include search of publicly available free data sets, such as those held on the National Biodiversity Network Gateway. A targeted data consultation will also be carried out with specific groups to provide better data resolution and accuracy. Requests for data will be sent to Scottish Natural Heritage, the Cairngorms National Park, the Highland Raptor Study Group, the British Trust for Ornithology and the Highland Biological Recording Group as well as interrogating Atmos in-house data sets. We will interpret the ecological data received and provide recommendations on likely survey and assessment requirements and on any associated timing restrictions.
- △ **Cultural Heritage;** A desktop review and constraints mapping exercise will be carried out to identify listed buildings, scheduled monuments, designated Garden Landscapes and other heritage assets with 5km of the development. The previously received pre-application advice pack notes that no heritage assets are located in the vicinity of the proposal. This initial assessment would confirm this and is expected to demonstrate

that the potential impact on cultural heritage is negligible and can, therefore, be scoped out of further assessment.

- △ **Hydrology:** A desk study and data consultation exercise will be undertaken to gather geological, historical, and hydrological information relating to the site. Online SEPA data will be consulted including Flood Maps and River Basin Management Plans. This provides focus and context for initial survey work and will help to highlight issues which may need to be resolved during the course of the project.

## 9 STRUCTURAL REPORT

### PTARMIGAN BUILDING STRUCTURE

#### Existing building structure

The Ptarmigan Building was constructed between 1999 and 2001 as part of the Cairngorm Mountain Funicular Railway project. It replaced the original Ptarmigan Restaurant building. The Ptarmigan building is located near the top of Cairngorm Mountain at NJ 00481 04890 and approximately 1,100m elevation.

Due to the topography and its function as the top station of the Funicular Railway the building is partially set into the surrounding landscape.

The building is multifaceted, has pitched roofs and is set over two main levels. The lower level provides retail, exhibition, storage and plant areas. The upper level provides restaurant, ski-patrol, plant and external/internal viewing areas. A plantroom in the roof space is a third, smaller footprint level. A double height zone centrally in the building provides space for the Funicular Railway platform which run on a broadly an east-west axis.

The building is of steel framed construction generally, with concrete upper floors and a composite metal roof supported on steel purlins and steel rafters. Where the building is cut into the surrounding land substantial reinforced concrete walls provide retention. Foundations are set directly on the strong granite bedrock of the Cairngorm range.

The steel frame and its detailing are robust with substantial columns and beams throughout. It is galvanised for protection against moisture induced corrosion and where required is intumescent painted for fire protection. It is noted that in the restaurant many of the steel roof beams have been substituted for glue-laminated timbers. These are also substantial and are inherently capable with regards to moisture and fire.



2.1a – Galv roof steelwork, non loadbearing block, bracing.



2.1b – Glulam roof beams in lieu of steelwork.

The upper floors slabs are all concrete but have been formed in a variety of designs to suit the use of the area and therefore the applied loads. The floors supporting the heavy plant room adopt a deep composite metal/concrete deck, and the floors supporting the lighter functions adopt a shallow composite metal/concrete deck. An area of flooring immediately above Funicular Railway pulley wheel is from precast concrete planks to facilitate removal and access for maintenance. The lowest floors are ground supported reinforced insitu concrete.



2.1c – Precast floor above pulley wheel, external retaining wall.



2.1d – Typical composite floor on steel frame.

The overall stability of the building under wind and other lateral loads is provided by the provision of steel frames with moment connections (ie stiff joints between columns/beams) and the ‘building-in’ of part of the lower level. These lateral loads are transferred from the external envelope to the stability systems via diaphragm action of the upper floor slabs and bracing in the roof plane.

Internally, partitions are formed in lightweight metal or timber stud and non-loadbearing masonry to suit robustness requirements.

The external envelope of the building is formed in a variety of cladding materials along with large viewing windows. These external cladding materials vary from random coursed stone to timber linings. In general they are formed externally to the primary frame and members.

### **Proposed extension structure**

The proposed extension broadly consists of extending the upper level to the north and east elevations to provide additional restaurant, lobby and viewing areas. The roof of this extension will be accessible to provide further

viewing opportunities. To the extreme east a small pod will rise from the roof providing a high level viewing platform.

It is likely that the proposed extension will take the same structural form of the existing Ptarmigan building. Subject to detailed design a new moment connection based steel frame will wrap around the building providing a robust and, broadly, standalone structure. Tie-ins between the new and existing structure will be provided where required to control movements. However by generally separating the structure it will avoid unnecessary work to the existing frame. A benefit of this is that it permits greater off-site fabrication therefore better streamlining the construction process and minimising time on site. Steelwork can be detailed in short, manageable sections to minimise the transport and handling requirements, again reducing the impact on the surroundings.

Floors and walk on roof decks will be of concrete construction to provide robustness and diaphragm action. The final design of the decks will be subject to analysis of the respective benefits of either insitu composite deck or precast floor planks.

Foundations will be constructed from insitu concrete placed on/in the granite bedrock. Due to the strength and near to surface nature of the bedrock, foundations are likely to be small in size therefore minimising the extent of construction work.

With the extension wrapping around the north and east elevation there will be interaction between the new structure and the existing external envelope. As a framed building the external envelope provides weather protection but is not integral to the stability of the building overall. Therefore subject to detailed design the current external envelope will be incorporated, removed or altered as required.

## **PTARMIGAN AND SITE DRAINAGE**

### **Existing storm and foul drainage**

The existing storm water roof catchment is collected by hidden gutters and discharges, via a piped network, to both the ground and to the burn approximately south of the building.

The existing foul water is collected locally around the building and is conveyed by a network of pipes and manholes to a large treatment works to the south west of the Daylodge building at lower level. The treatment works treats the foul water in a number of settlement and chemical treatment tanks prior to discharge to the adjacent burn. The treatment work deals with foul water from both the Ptarmigan building and the Daylodge building which, when combined, provide facilities for up to 3,000 visitors per day during the snow sports season.

The existing foul drainage system functions well during the winter period when it generally has a high load. However during other seasons when the load is greatly reduced it does not function as efficiently



3.1a – Treatment works to to south west of the Daylodge.



3.1b – Outfall watercourse

### **Proposed extension storm and foul drainage**

It is proposed that the storm water from the extension roof catchment is collected by gutters and gulley and is then discharged to either ground or the burn (or both) subject to detailed designs and agreements. This solution continues the current principles and meets the requirement of a sustainable drainage solution by dealing with the catchment locally and sympathetically.

As the project aims are to improve the customer experience during the snow sports season and to increase the number of visitors during the off-season there is no negative impact on the foul drainage system.

Specifically during the snow sports season the number of visitors per day will still be capped at the current level therefore the load on the treatment works will remain the same. However the load distribution between the extended Ptarmigan building and the Day Lodge building will change and sensitivity checks will be required to understand the capacity of the drainage runs linking the Ptarmigan building to the treatment works. Should this highlight an issue with the capacity of the drainage runs a foul balancing tank will be provided as part of the Ptarmigan building extension.

Outwith the snow sport season the additional visitors will increase the load on the foul drainage system. However this load will still be significantly less than the foul load generated during the snow sport season. This will improve the efficient of the treatment plant by maintaining a more level load throughout the year.

### **SUMMARY**

The existing structure is a robust steel framed building which is seen to have performed well. By designing the extension to be isolated from the existing structure the risks associated with working with existing buildings are

minimised. In addition this has the benefit of maximising the opportunity for offsite construction thereby reducing the time on site as far as possible and minimising the impact on the landscape. Shallow, strong rock head ensures that foundations and the interaction with the landscape are minimised.

The storm drainage catchment increases with the extension but by dealing with this locally the impact on the surroundings is minimised.

The foul drainage load may increase locally at the Ptarmigan building. However as part of a shared system with the Day Lodge building there are no negative effects on the site treatment works as overall the visitor numbers at peak times during the snow sports season remains the same. During the off-season, more visitors are a benefit as this improves the efficiency of the treatment works by increasing the baseline flow.



## 10 ENERGY STATEMENT

### **Mains Water Supply**

The majority of the water use on site emanates from a spring and is directed to a storage tank and treatment plant before being distributed around the building. It is our considered opinion that the water supply will be adequate for the proposed development since the consumption is unlikely to increase. The distribution system around the building will require to be modified to match the new layout, we foresee no issues in achieving this.

### **Heating System**

The heating for the existing building is provided by electrically powered panel and storage heaters. It is not proposed to change this philosophy and the heat load is unlikely to rise as a result of the proposed development. The locations of the electrical heaters will require to be modified to match the new layout but we foresee no issues in achieving this.

### **Ventilation Systems**

The various ventilation systems currently installed provide the building occupants with Fresh Air and extract systems reject the air to the outside ambient. It is our considered opinion that the modified ventilation systems will be adequate for the proposed development since the numbers of occupants is unlikely to change. The distribution systems will need to be modified to match the new layout but we foresee no issues in achieving this.

### **Above ground Drainage**

The existing drainage provision serves the plant, kitchen and canteen areas and culminates at the outfall from the building for onward transmission to the base station. It is our considered opinion that the above ground drainage system will be adequate for the proposed development since the numbers of occupants is unlikely to change. The drainage collection pipework will require to be modified to match the new layout but we foresee no issues in achieving this.

### **Electrical Supply and Distribution**

It is our considered opinion that there is sufficient capacity available to accommodate the proposed development. Although there is only one spare fuse switch available on the low voltage switchboard, the distribution boards located around the building have a good number of spare ways. The spare fuse switch and the spare circuits available in local distribution boards will be sufficient for the proposed works.



## Ancillary Systems

The various electrical systems such as the fire detection and alarm system, the public announcement system, background music system and data system all have the capacity to accommodate the additional field equipment for the proposed development.

## 11 CONSTRUCTION METHOD STATEMENT – PTARMIGAN

Along with the specific construction method statements the works will be carried out in accordance with the pre-existing method statements currently in place and being reviewed with the statutory bodies. Samples of these can be found within the appendix.

### **Safety risks**

#### **Delivery and removal of materials and work equipment**

Due to the elevated and remote location of the site, delivery of materials required for construction of the extension and viewing area will be one of the more challenging aspects of the project. William Gray Construction Ltd propose the follow methods of delivery to ensure safety throughout the works and minimal impact to the surrounding land and wildlife. Small materials and equipment such as consumables, coatings and tooling required will be taken up to the top station by means of either the funicular railway or a 4x4 forklift. If required, the funicular carriages will be protected with ply to prevent any damage. Heavy equipment/materials will be securely fastened down whilst being transported in the funicular.

Larger parts of the kit such as structural steel, pre-cast concrete flooring, curtain walling (lego build design) and glazing would ideally be airlifted by helicopter. WGC suggest that a helicopter is hired for one full day to ship all large items up to the work site. This would be planned and agreed upon by all concerned parties in advance to ensure closure of the top station can be communicated to employees and public as required, weather conditions are safe and ideal for helicopter operations and all materials are ready at the base station to maximise chopper usage and complete transportation of the materials at minimal cost.

WGC understand that the use of a helicopter may not be cost effective, therefore the alternative would be a purpose-designed and built tractor trailer to shuttle the goods to the top station via the existing access road.

However, several factors must be addressed prior to this method being utilised;

- Modifications to existing, or manufacture of any specifically designed trailers will need to be thoroughly examined and certified by a competent and qualified organisation/individual.
- The existing access road will need to be dressed and graded to the best possible standard before work starts.
- Reasonably practical precautions will be taken to protect the materials (in particular, the glazing's) from damage during transit by means of shock absorbers, packers, spacers and insulation but it must be noted that transport by this means will almost inevitably result in damage to key materials required for the construction which may lead to time delays and added costs

## **Construction Restraints**

To avoid the requirement of transporting a mobile crane up to the top station; a 4x4 Telescopic Handler, complete with allocated Banksman, will be utilised for both movements of materials and to lift items to heights as the build progresses vertically.

Scaffold will be built around structures in phases to provide personnel with access to the particular work area as the build moves on. A full scaffold design plan will be put in place prior to the project start.

## **Dealing with services:- Water, Electricity and Gas, including overhead powerlines and temporary electrical installation**

All service drawing will be required prior to operations commencing. Isolations will be agreed upon and authorised by the Operations Management Team at the station.

## **Traffic routes and segregation of vehicles and pedestrians**

All vehicles will be parked in the carpark at the base station.

Workers will use the designated pedestrian access routes to gain access to the funicular base station, where they will be transported up to the top station.

There will be clear segregation in place by way of hoarding and warning signage to ensure segregation of pedestrians and the plant required to execute the works.

There will no other vehicles within the area which will require routing.

## **Storage of materials particularly hazardous materials and work equipment**

Due to the magnitude of the works, a storage area will be required up at the top station.

To avoid the need to transport any storage cabins up the mountain, the PC would request a laydown area and secured area for hazardous materials within the existing building.

All tools and equipment will be left in a safe and secure manner out with working hours.

## **Health risks**

### **The removal of asbestos**

Details of any Asbestos Containing Materials (ACM's) held by the client should be forwarded to the PC for review prior to works. If the present building was constructed prior to the year 2000, a full Asbestos Survey by a qualified

and competent individual will be required and all suggested actions complete before structural works commence.

### **Use of hazardous substances and any requirement for health monitoring**

Material Safety Data Sheets and COSHH Assessments will be provided for all substances to be used on site.

Dust generation will be minimised as far as practicable to protect workers and visitors, and prevent nuisance contamination to other areas within the top station.

### **Reducing noise and vibration**

Although excessive noise and vibration are not expected to be a concern as part of this project, some exposure to noise and vibration is an inevitable part of construction/project work. It is WGC policy to try and reduce these exposures to as low as is reasonably practicable in accordance with the Noise at Work Regulations 2005 and the Control of Vibration Regulations 2005, and in line with standard operating procedure 023 of the Health & Safety Policy Arrangements Document, and the WGC Controlling Vibration at Work Policy WGC-HSEQ-006.

Where possible equipment will be used which minimises the risks of noise and vibration to the operator and other affected personnel.

WGC will maintain an inventory of powered tools which produce noise and vibration hazards, with noise and vibration ratings annotated for each, and as such each sub-contractor must submit the same to the PC Site Management for their own tools and equipment. This information can usually be found in manufacturers' information/instructions or by contacting the manufacturer/supplier in question.

Any equipment that produces noise/vibration levels exceeding the lower exposure action values stated in the relevant regulations will be identified and control measures implemented to reduce exposures.

Where noise could potentially be harmful, noise assessments will be carried out and any area in which levels exceed the upper exposure action value of 85dB will be designated as a mandatory hearing protection zone. This area will be marked by the appropriate mandatory signs.

Appropriate hearing protection will be supplied to the workforce and the use of PPE will be monitored at all times.

Any work which may produce excessive noise which could potentially fear neighbouring wildlife will be planned and controlled by way of dampening/screening if required and authorisation to proceed gained by all parties concerned.

## **Environmental risks**

### **Waste Generation & Disposal**

Throughout the project, WGC will ensure, so as far as reasonably practicable, that waste generated is kept to an absolute minimum. Material orders will be strategically managed to reduce excess waste, reused where possible and recycled where this is not an option in line with the company environmental policy. Further to this, sustainability certification will be insisted upon from suppliers of such items.

All waste generated during the project will be moved down to skips located at the base station by means of a tractor and dump trailer where a licenced waste carrier and disposal contractor will uplift the waste and dispose of in accordance with local and national guidelines and legislation.

WGC will also ensure that during operations, the site and surrounding area are regularly monitored and maintained and a thorough sweep of the work boundaries carried out on completion to ensure no foreign objects are left behind which may impact the National Park negatively.

Where possible, structural materials will be pre cast or cut to reduce airborne dust production on site.

### **Consideration of National Park Plants & Wildlife**

The Cairngorms National Park is home to around 25% of Britain's threatened species. Baring this in mind, there is a real potential for contact with, disturbance or negative impact on nesting birds including, but not limited to, red grouse or ptarmigan and/or mammals such as mountain hare, deer, mice, vole, stoat, fox or rabbits that reside in the surrounding area at various times of the year. Care will be taken to ensure these creatures are not affected by operations throughout the works.

Plant life such as heather, deer grass and moss are also situated in the area and will require monitoring of the condition to ensure unaffected.

Any concerns will be reported to the Natural Retreats Management Team and controlled appropriately based on the advice received.

William Gray Construction Ltd will take all reasonable steps to ensure zero impact to landscape and wildlife and where this is not possible, minimized to an acceptable level. WGC will seek advice of National Parks Environmental personnel prior to works commencing to make sure all practices and processes are aligned with the park standards.

## 12 TRANSPORT STATEMENT

The Cairngorm Mountain is no stranger to challenges but in the main these are weather related however the more subtle can be even harder to solve. The present transport situation is just a case in point, as access to 'the hill' is mainly by car, supposing one has access and the ability to afford such transport. For families and visitors to the area it is not uncommon to find poor bus timetabling information even to the extent that outwith the school term time there is no bus and when one does turn up there are no bike or ski racks available. Alternatively should cycling or walking be a chosen method of transport, all safe off road tracks stop at Glenmore, such as 'The logging Way'. The Cairngorm Mountain realise this fragmented picture is unsustainable and although this pre planning application is to develop the facilities on site, the visitor numbers are not expected to surpass even the most busy of ski days. That said, stronger transport links working in partnership with local stakeholders will open up the opportunity to groups, particularly families that currently face challenges in visiting the mountain due to the reliance and need for a car.

The Cairngorms National Park transport system has a complex civic structure involving five councils and three Regional Transport Partnerships (RTPS). Accordingly, delivery of public transport and information is focused on boundaries rather than on the opportunity presented by over 1.5 million visitors coming to the Aviemore area and nearly 20,000 residents. Enhanced mobility is identified as a means of promoting economic development, better customer and visitor service experience and helping issues of social inclusion and fuel poverty. Natural Retreats understand the complexity of the situation for both visitors and employees and thus for the purposes of this pre-application submission would like to address the barriers.

### **Current Situation**

The picture at present relies heavily on car ownership and availability as currently the sustainable transport infrastructure consists of a fixed route bus (no.31), National Cycle Route 7 (Aviemore to Coylumbridge), 'The Old Logging Way' multi-use path (Aviemore to Glenmore), Community Demand Response Transport operated by Badenoch and Strathspey Community Transport, (BSCTC) and privately operated are taxi's, car and bike hire systems. As the 2015 Cairngorm Business Partnership Visitor Survey reported, over 90% of visitors to the area use a car to 'get about' and this evidence confirms the disjointed approach to sustainable travel delivery.

The analysis also highlights one electric vehicle charging point at the top car park, the reliance on the no 31 bus service being operational out-with school holidays, few cycle/ski racks equipped on buses, very little public information on services, no 'joined-up' approach in information provision on multi modes of transport, no active car sharing and little partnership working. That said Natural Retreats are part of consortium called 'Cairngorm

Connected’ which involves the key stakeholders in transport provision in the wider Park area, and to that end, will be part of the solution.

### Transport Proposals

Innovation, technology and personalisation are key to future sustainable travel. The proposals outlined are wide ranging and are designed to stimulate discussion and assist with a strategic vision for the next ten years. Working in collaboration with a number of stakeholders and communities including CNPA, Cairngorm Connected, the Glenmore Masterplan, Active Cairngorms, there are some affordable ideas that can be scalable in the short term as per the table below, thus offering the public choice in travel.

Proposal	Time Scale
Implementation of ski/bike racks to no. 31 Stagecoach bus	Short term
Collaboration with BSCTC to promote existing visitor service	Short term
Undertake survey of customer database on travel needs/ requirements/ expectations	Short term
Priority parking for High Vehicle Occupancy	Short term
Installation of Electronic displays for multi modal information	Short Term
Offer reward to clients not using car or offering car sharing	Short Term
Updating NR website offering on 'how to get to us'	Short-Term
Highlight EV charging and points	Short term
Introduction of Electric Bike/s	Short to Medium term
Introduce bike station with connected wifi hub and bike counters.	Short to Medium Term
App/website for personalised data for travel and working with partners and Cairngorm Connected to provide better information.	Medium Term
Implementation of parking Charges	Medium Term
Facilitate car sharing and introduce a car club website/app	Medium Term
Introduce tailored transport services for collection of guided walking/skiing classes/programmes from Aviemore	Medium Term
Invest in hybrid bus to operate in the local area or provide a shuttle from Glenmore to the Top of the hill for walkers/cyclists from Aviemore	Medium to Long Term
Shared ride for commuters / visitors (similar to the SLIDE project in Bristol)	Medium to Long Term
Adapting current bus timetabling to meet demand/need	Medium to Long Term
Develop an Integrated travel hub	Long Term
Invest in Electric / hybrid Vehicles such as the Twizy (currently in Lake District)	Medium to Long Term
Tourism train like that seen in Chamonix/ York	Long Term
Implement Smart parking with Integrated Ticketing for train/bus/bike etc	Long Term



## Conclusion

This brief report summarises many of the current transport challenges facing the mountain and visitors/employees in the area. The focus is to offer an affordable but personalised alternative alongside a choice in travel to those accessing the mountain working in partnership with the community and other stakeholders. Natural Retreats are a strategic partner within the Cairngorm Connected project and realise that ‘mobility as a service’ is an offering and concept that can be embraced to deliver joined-up travel to match the local need.

13 APPENDICES

All levels and dimensions to be checked on site prior to construction / fabrication; report discrepancies immediately.  
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REVISION



**Lower Plan**  
Scale - 1 : 200

**Department Legend**

- Circulation
- Exhibition
- Funicular
- Plant and Storage
- Shop
- Staff
- WC

SCALE	DATE	DRAWN	CHECKED
1:200	11.09.16		

PROJECT  
**Ptarmigan**

DRAWING  
**Existing Plan**  
**Lower Floor**

**Threesixty**  
**Architecture**

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PERTH  
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Department Legend

- Circulation
- Exhibition
- F&B
- Funicular
- Grab + Go
- Kitchen
- Plant and Storage
- Shop
- Ski Partol
- Staff
- Viewing
- Viewing Deck
- WC

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PROJECT

Ptarmigan

DRAWING

Existing Plan  
Upper Level

Threesixty  
Architecture

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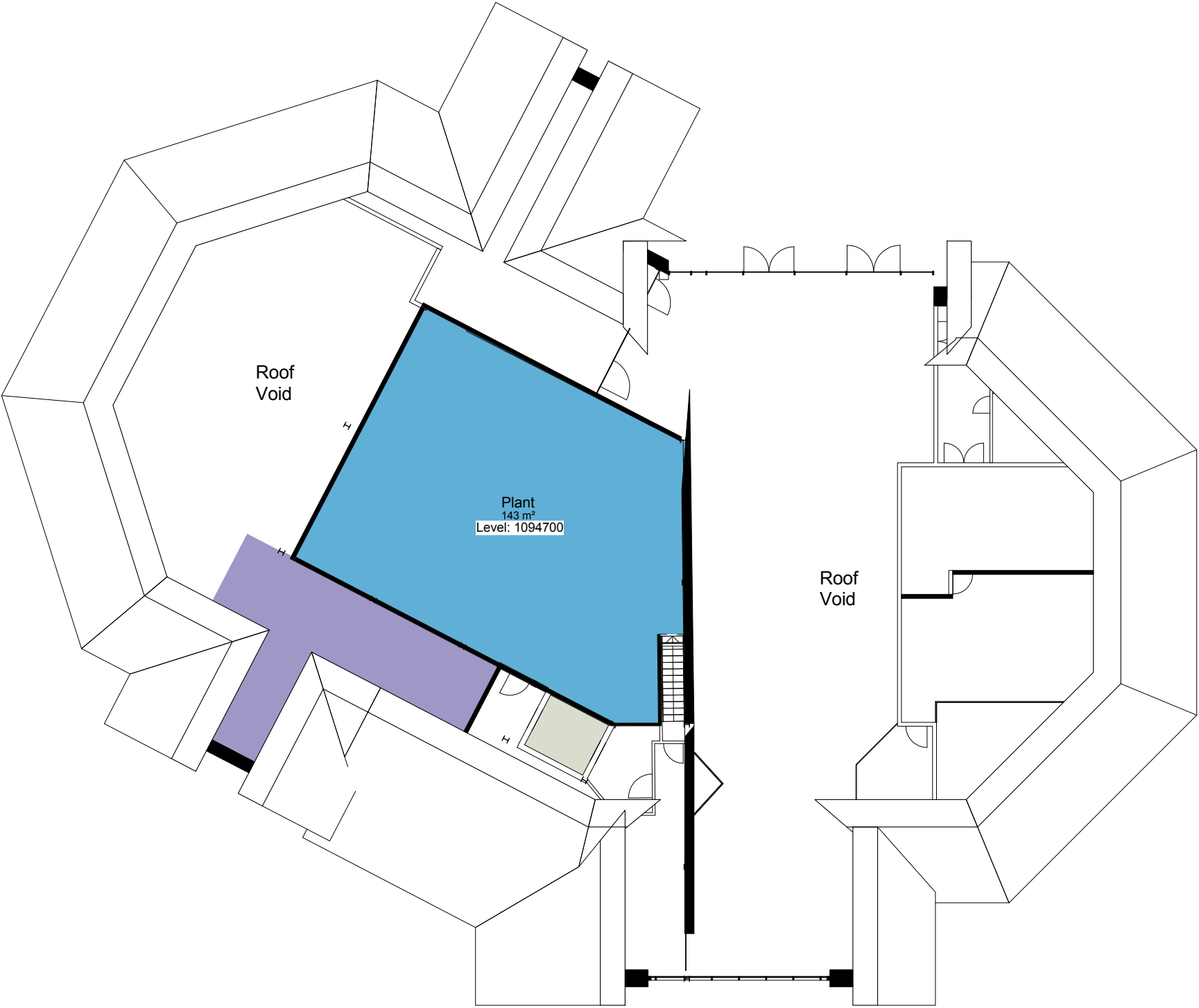
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Existing - Upper Plan

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Department Legend

- Circulation
- F&B
- Plant and Storage

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PROJECT  
Ptarmigan

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Existing Plans  
Plant Level

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Architecture  
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Plant Plan  
Scale - 1 : 200



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North Elevation



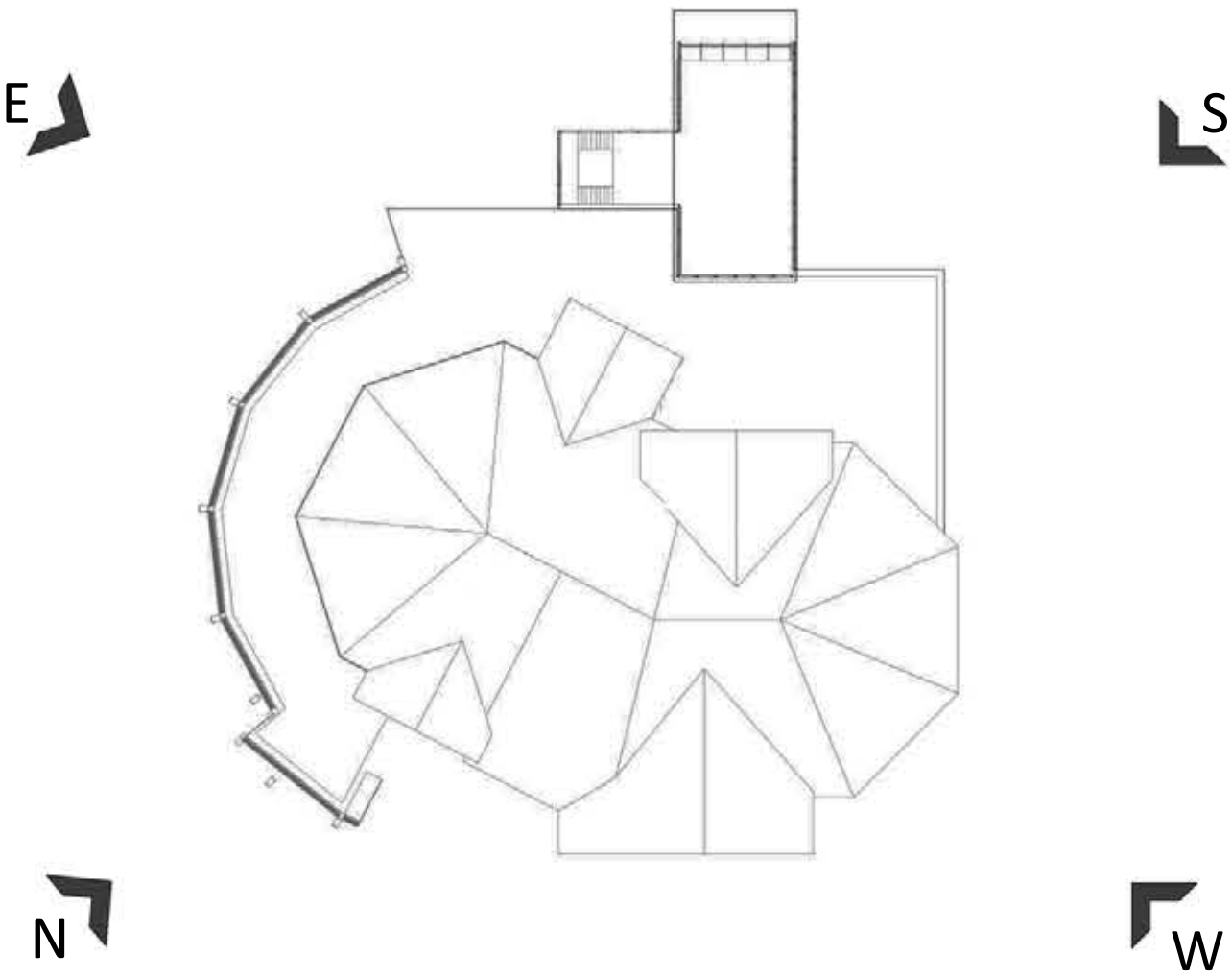
South Elevation



West Elevation



East Elevation



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PROJECT  
Ptarmigan

DRAWING  
Existing Elevations

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REVISION



Proposed - Lower Plan  
Scale - 1 : 200

Department Legend

- Circulation
- Exhibition
- Funicular
- Plant and Storage
- Shop
- Staff
- WC

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PROJECT  
Ptarmigan

DRAWING  
Proposed Plans

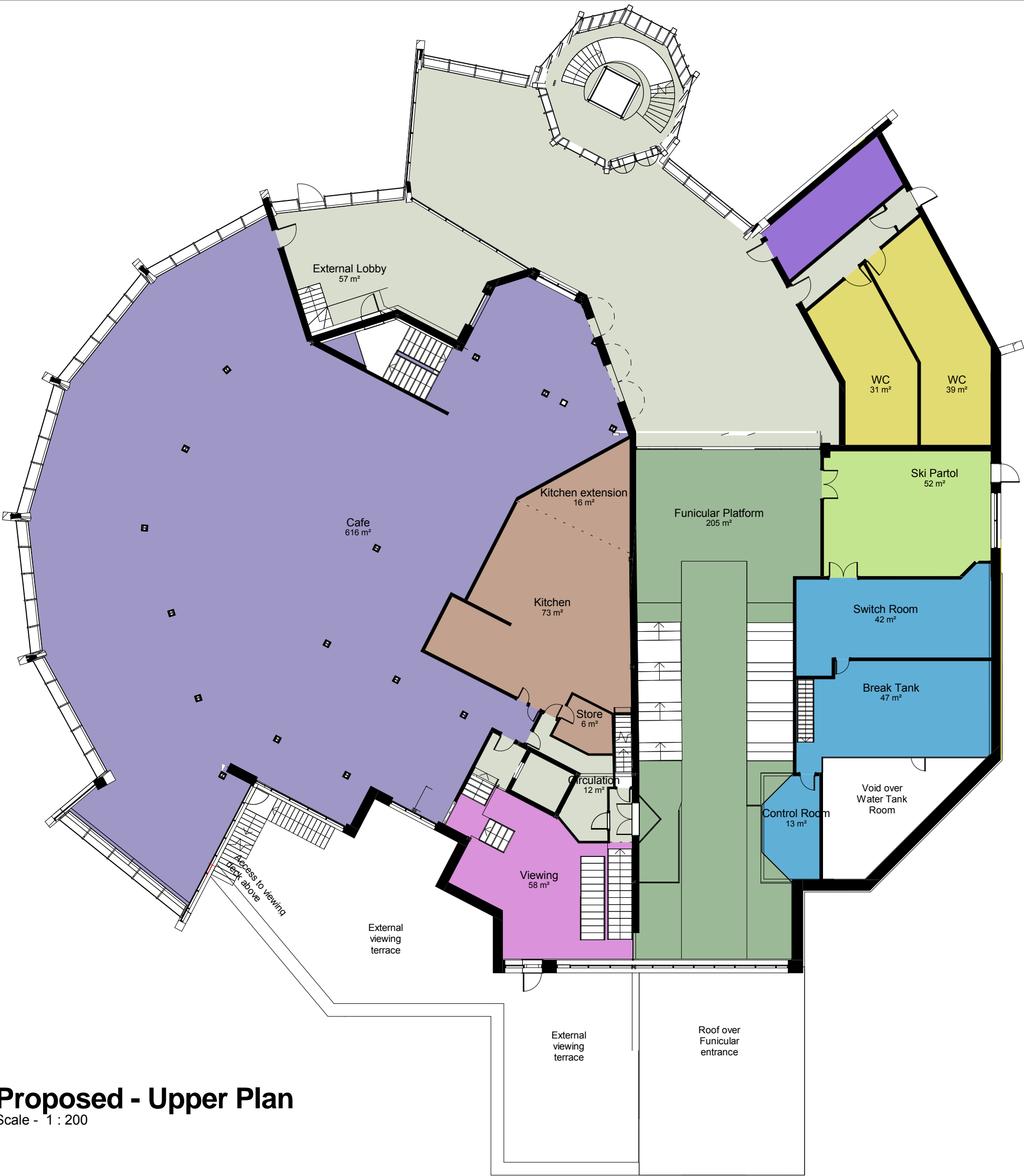
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REVISION



Proposed - Upper Plan  
Scale - 1 : 200

Department Legend

- Circulation
- F&B
- Funicular
- Grab + Go
- Kitchen
- Plant and Storage
- Ski Partol
- Viewing
- WC

SCALE	DATE	DRAWN	CHECKED
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PROJECT  
Ptarmigan

DRAWING  
Proposed Upper Plans

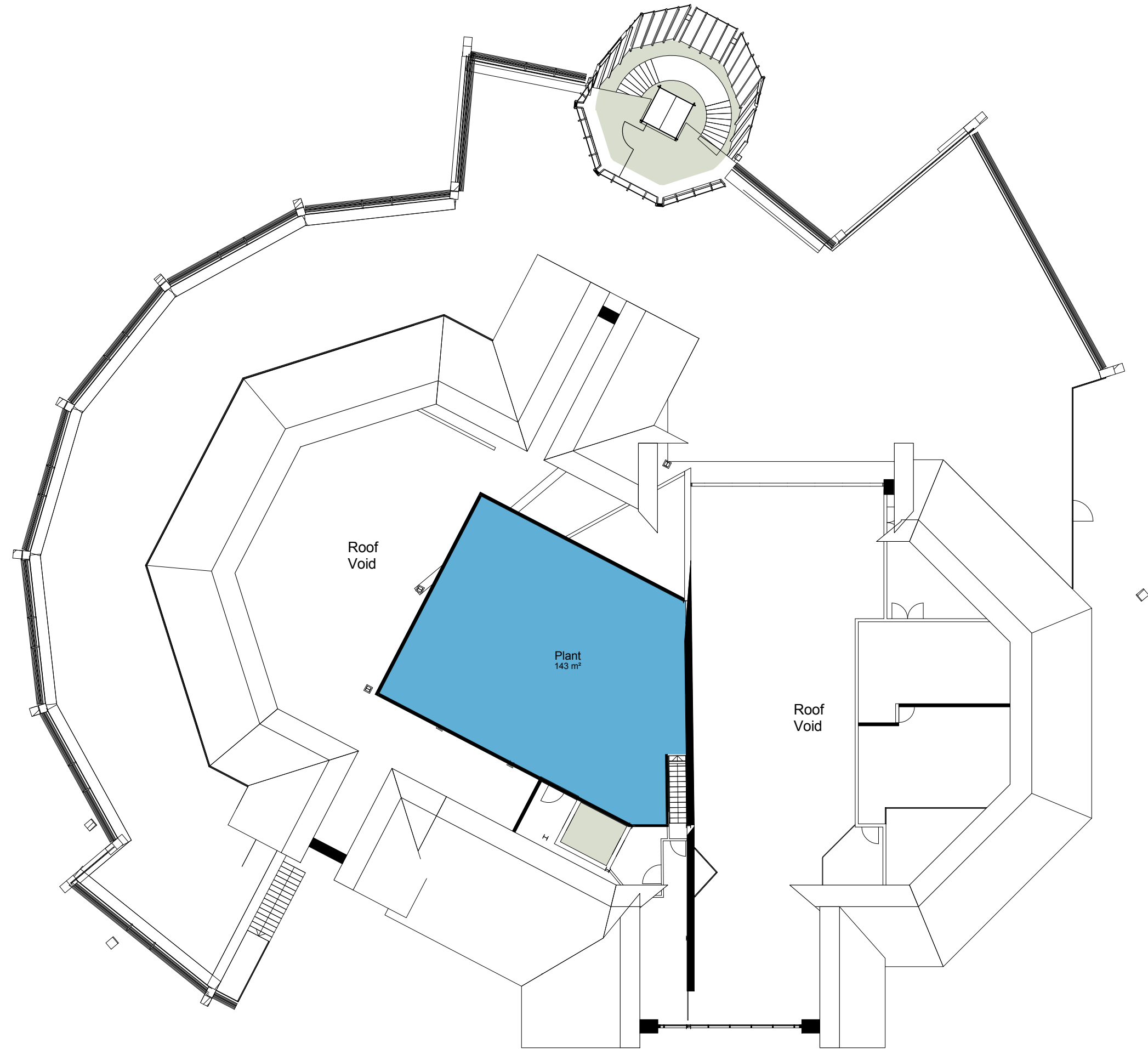
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Department Legend

- Circulation
- Plant and Storage
- Viewing Deck

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PROJECT

Ptarmigan

DRAWING

Proposed Plan  
Plant Level



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Proposed - Plant Level

Scale - 1 : 200

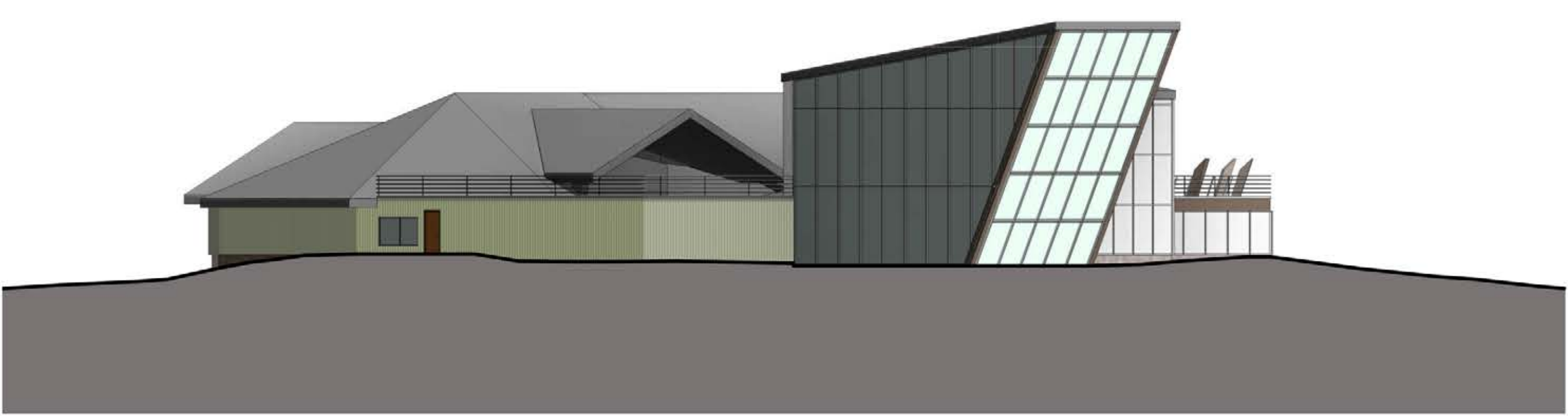


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North Elevation



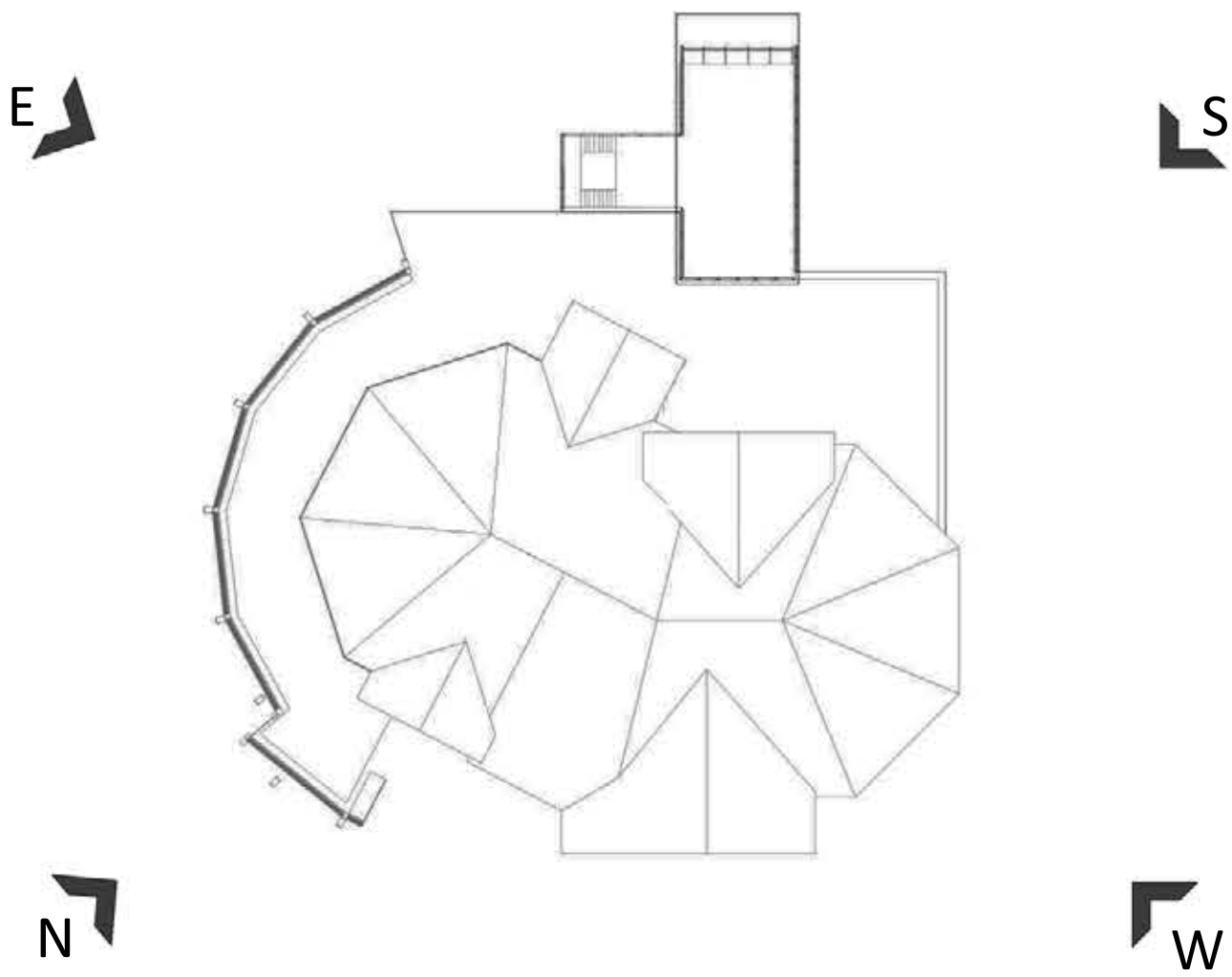
South Elevation



West Elevation



East Elevation



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PROJECT  
Ptarmigan

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Proposed Elevations Option A

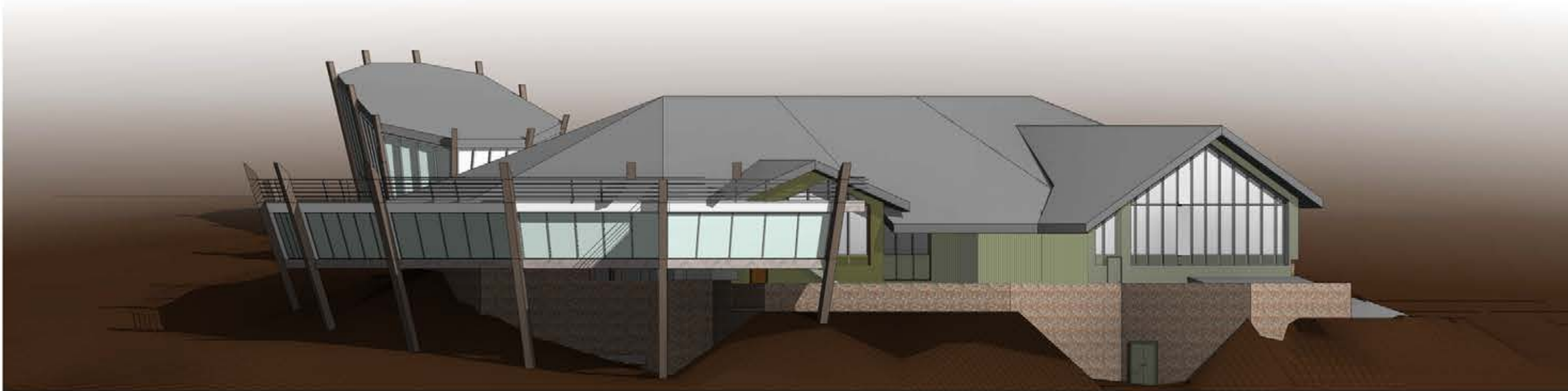
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North Elevation



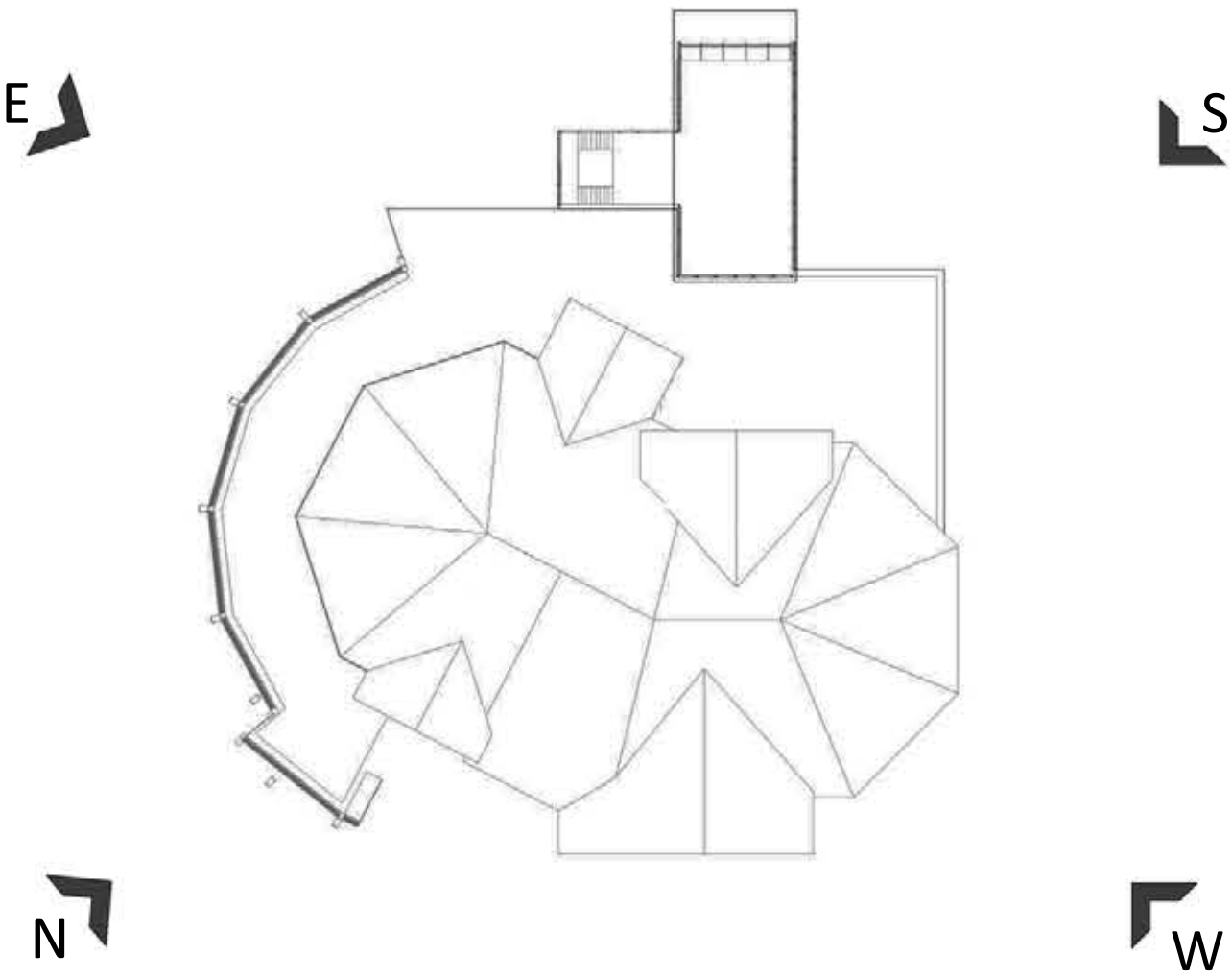
South Elevation



West Elevation



East Elevation



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PROJECT  
Ptarmigan

DRAWING  
Proposed Elevations Option B

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