



Rhydycar West

Methodology Report

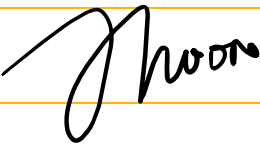
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Related project documents

Content

- 1.0 Executive Summary
- 2.0 Access to the Site
- 3.0 Proposed Development Plan
- 4.0 Site Constraints
- 5.0 Working practises & Mitigation
- 6.0 Construction & Civils Works
- 7.0 Forming of the Plateaus
- 8.0 Programme for the Works
- 9.0 Plant & Machinery
- 10.0 Working Hours

1.0 Executive Summary

The purpose of this document is to provide an overview of the proposed Rhydyar West development and describe how the scheme is anticipated be built, once the current level of design completion has been substantially advanced, a planning consent has been obtained and a competent main contractor has been subsequently procured.

This document has been prepared using relevant existing site information and the proposed design intent prepared by the Rhydyar West project team to date in support of the Outline Planning application for the development. As a result, the methodology, risks and associated mitigation measures outlined within the report are based on the available information at the time and are further supported by reasonable informed assumptions based on the current level of design completion achieved and professional expertise within the appointed team based on best practice and expected industry norms.

Accordingly, it is envisaged that further detail on the proposed methodology, risk management procedures and associated timelines outlined within this report will be further enhanced with additional levels of detail and accuracy following the progression of future design development and the relevant specialist main contractor and subcontractor expertise being appointed.

The proposed scheme is a mixed-use tourism and leisure led development. This consists of the construction of a mixed leisure development comprising of an indoor snow centre, waterpark, indoor activity centre, external activity areas, hotel accommodation (up to 418 bedrooms), forest lodge accommodation (up to 30 units), car parking (up to 830 spaces) and associated earthworks, access, drainage, servicing and utilities connections/infrastructure. The development includes the provision of all cut and fill, slope engineering operations, roads, parking, landscape drainage, and all other associated development necessary to deliver the above elements.

The document will capture construction risks and explain how they will be mitigated. An overview of the expected key risks associated with the proposed design solution include:

- Regulatory Approvals
- Slope Engineering with earth cuttings and filling
- Coal tips and contamination
- Working in and around the Site of Special Scientific Interest (SSSI)
- Civil engineering and construction work

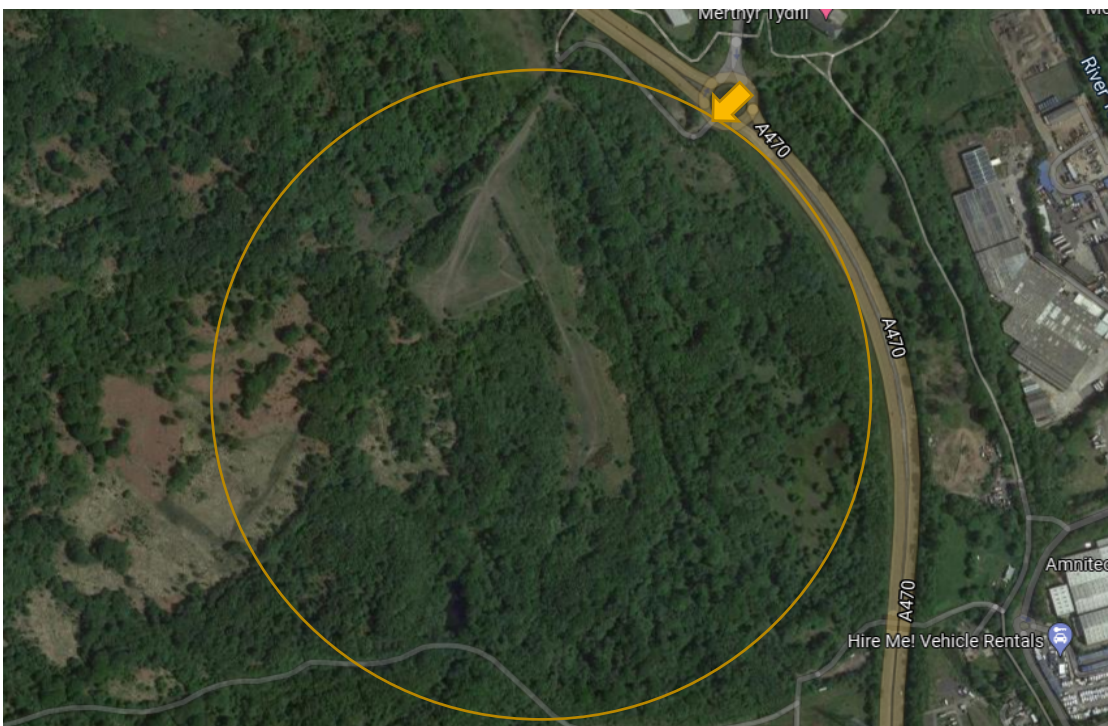
Subject to an approved Planning Consent, it is envisaged that the Rhydyar West development will be undertaken over an estimated three to five years which includes preconstruction and construction activities. The construction programme will consider the need for planning permissions and protective species licenses, together with seasonal and ecological constraints. The relevant permits and licences will be obtained prior to the commencement of the works. Construction access to the development will be agreed with the planning and highway authorities as part of a Traffic Management Plan. The project will be delivered to the highest standards with both the management and the construction works being at an exemplary level. This will be achieved with robust design and contractor selection with compliance to all relevant best practice guidelines. The management team will be highly competent and experienced in the delivery of world class quality buildings.

2.0 Access to the Site

The site is positioned adjacent to the existing A470 dual carriageway road network. Access is easily obtained to the site as an existing dedicated spur already exists. This spur allows plant, materials, and the workforce easy access to the site.



Access off A470



Current view of the site



3.0 Proposed Development Plan

The development will be constructed as one project with the envisaged sequence of the works progressing as follows:

- Infrastructure off the A470
- Infrastructure Earthworks
- Snow Centre & Hotel wings
- Tropical Water Park & Piazza
- Indoor Adventure Centre
- Outdoor Adventure Centre
- Woodland Lodges



4.0 Site Constraints

Ecology

The presence of protected and/or notable species across the site introduces strict prescribed ecological windows into the programme which govern when the proposed works can be undertaken.

Protected Species Licences (EPS licenses) will be required and will need to be obtained from Natural Resources Wales (NRW). This will have a significant effect on the programme and will not be granted until Planning is approved for the development. Such licences may require the enhancement of existing habitat to enable translocation, or the creation of additional habitats (e.g., ponds) in compensation for any lost.

Site of Special Scientific Interest (SSSI)

The majority of the build and infrastructure are located outside the SSSI. The proposed construction process associated with the respective buildings will utilise the proposed large main car park area to place contractors' compounds and material storage to construct the works.

The new proposed access road from the A470 intersects the SSSI. There are also areas of build that are within, are close or on the boundary to the SSSI.

These and similar areas of work would require detailed liaison, planning and agreement with NRW prior to any works being carried out.

At the detailed design stage, a construction phase Environmental Management Plan will be developed (subject to proposed conditions). This will involve liaison with Merthyr Tydfil County Borough Council (MTCBC) Environmental Health, Ecology and other departments together with further consultation with NRW.

An ecologist and Environmental Liaison Officer (ELO) will be appointed to supervise the implementation of the environmental mitigation measures contained in the strategy. Appropriate control measures will be detailed in a pre-contract Environmental Management Plan for inclusion in the contract documents for the construction works.

This will include a list of those activities that shall only be undertaken under the control of a "Permit to Work" system. This approach is used on construction projects where the risks associated with specific activities are such that it is considered that the level of detail planning, supervision and management are required to be of a higher order than those associated with routine construction operations.

In advance of the works, the relevant contractor will submit a detailed method statement and programme that incorporates all the precautions planned to reduce the risks associated with that work. A permit is issued when that individual is satisfied that proper methodology is in place. Work may only proceed on the basis of the defined methodology and permission may be withdrawn in the event of breaches or departures from that agreed. The permit is often time specific in relation to particular "windows" when activities may proceed.

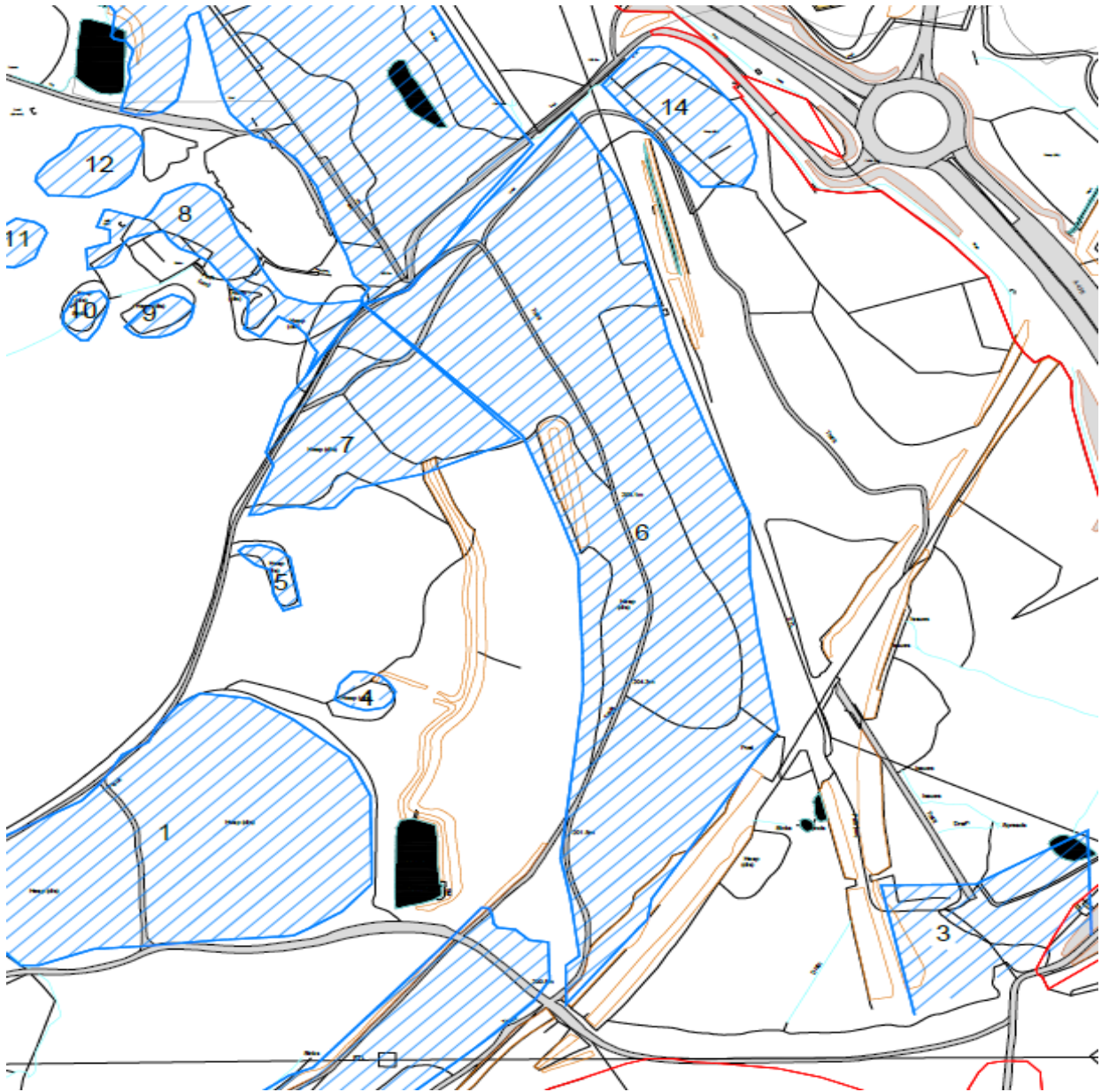
All construction activities that take place inside the SSSI or are likely to encroach within three metres of the boundary of the SSSI should be subject to the requirement for a "Permit to Work". There may also be other specific "high risk" activities where this approach may prove beneficial and engender confidence in the level of control. All permits will be agreed by the ELO in respect of environmental aspects of the planned work. A process of regular monitoring and inspection would be adopted for the SSSI.

Contamination

There may be a risk of specific on-site or off-site sources of pollution that may have resulted in the contamination of the ground or groundwater. In the event that any contaminated ground was encountered, the appropriate action will be either to carry out remediation on site or to remove the material off-site. In any event, this work would be undertaken under a strict permit to work system and no spoil heaps of such material would be established within 15 metres of the demarcation line with the Site of Special Scientific Interest (SSSI).

Coal Deposit and Tips

The area in and around the site has a history of mining for coal. The site has a number of coal tips within its boundary. The two main tips are shown below which are identified as item 6 and 7. Coal tip 6 is Glyndyrys Tip and 7 is Fan Tip. Both of these coal tips were documented by the engineers Ove Arup in their 2008 report and were quantified at 620,00m² and 75,000m² respectively.



Approval for the cut and fill works in line with current engineering standards and guidance will be gained prior to the works commencing. Any major water courses that would influence the stability of the ground associated with the development would be managed via diversions to an alternative route or piped to an outfall.

Whilst carrying out excavation works on the site, it is likely that coal deposits will be encountered. This would be managed in accordance with a risk assessment where any coal excavated would be reused on site and placed in an appropriate location. The re-use of this material will be undertaken in agreement with the Coal Authority and in line with their requirements for re-use including placement at a distance greater than 1m from any heat source..

5.0 Working Practises & Mitigation

The construction of the works will include the following elements:

- Construction site security perimeter fencing, SSSI and heritage asset protective fencing and initial site set up
- Connection to the A470 spur
- On site infrastructure – services, roads, and foul/surface water drainage
- Site set up of cabins, workers parking areas and storage
- Site clearance, reduced level and import of materials
- Structures and land drainage
- Foundations – type dependant on site ground conditions and building loads
- Structure frames and envelope – linked to building use and clients' requirements
- Electrical and mechanical installations
- Internal fit out and FF&E
- External works, parking, and landscaping

Whilst working within the site the contractor will have a duty to ensure that the risk of unapproved SSSI impact, heritage asset impact and the risk of an environmental pollution incident is prevented. The contractor will develop and gain approval of their method and control procedures from the Planning department, Environmental Health Department, County Ecologist, Heritage Officer, Cadw and NRW (including by discharging relevant planning conditions). Specific robust measures will be put in place to mitigate and manage these potential construction impacts.

The discharge of water from the site will not exceed limits set by the NRW in terms of water quality and will comply with the relevant legislation. The Contractor will be required to ensure adequate provision to cater for any flood situation which may occur during the construction period is in place. Imported construction fill material must be inert and have no detrimental impact on the area and be free of contamination.

Control of Japanese Knotweed in particular will be of paramount importance. A specialist will be employed to advise on the best eradication strategy and to supervise the works. Different strategies will be implemented once the extent and depth of infestation is fully understood. This will consist of either, spraying on site over several seasons, excavation of the root system with destruction on site or the disposal of the root systems off site.

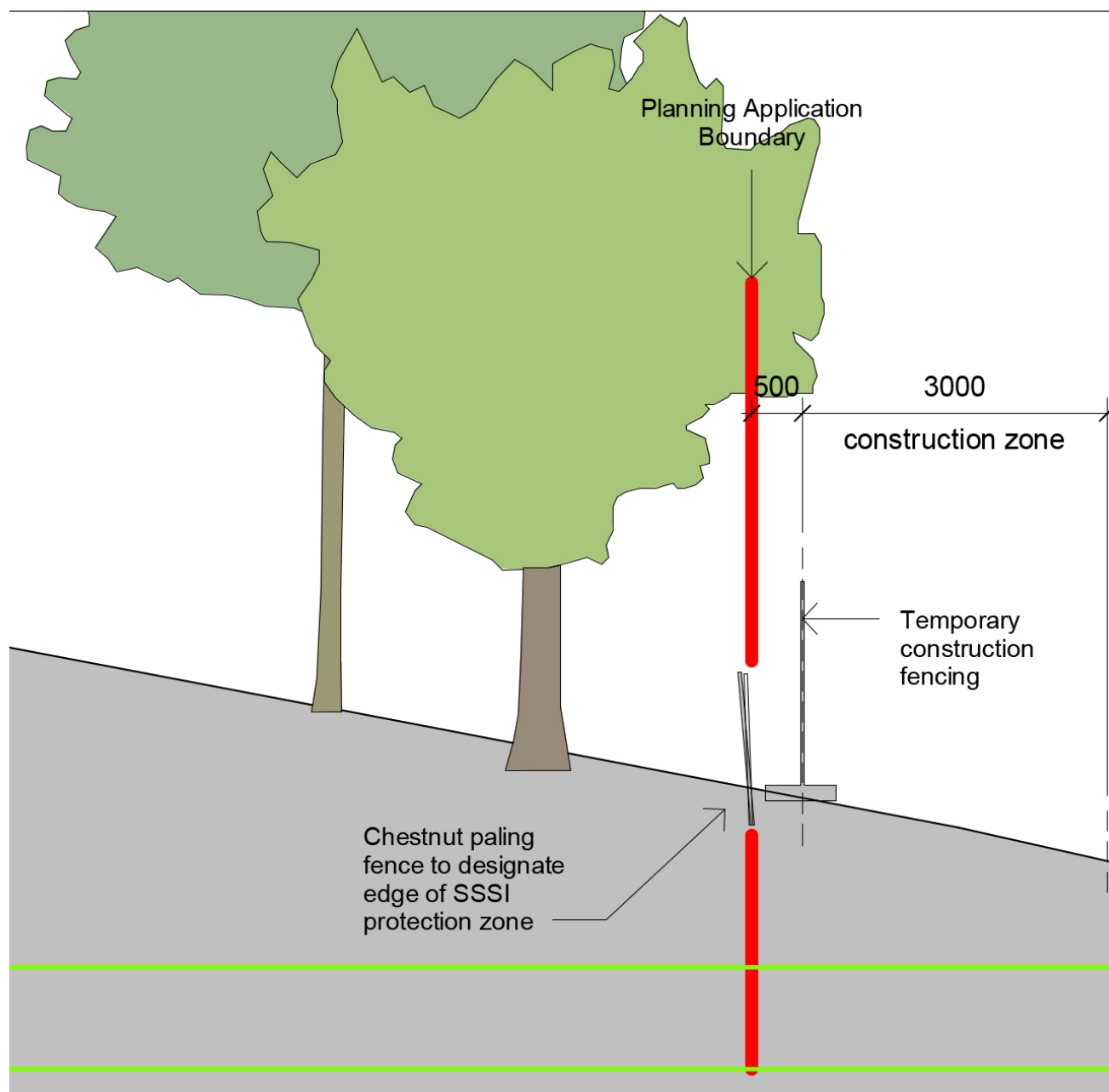
6.0 Construction and Civils Works

The works to enable the site for the building development will adopt the following sequence:

1. Erect the Chestnut Paling fencing marking the site boundary and the boundary of the retained SSSI.
2. Erect the temporary construction fencing inside the Chestnut Paling fencing creating a protection zone and securing the site.
3. Create the access road from the A470 on the main site as noted elsewhere within this section. This will also involve the installation of construction cabins, offices, parking areas and storage set up for welfare and safety. The extent of this area will be small and outside the retained SSSI.
4. Forming of the main plateau (car park area) which will involve the most significant volumes of cut and fill as shown on pages 11 – 13.
5. Construction of the plateaus to form the individual building plots.
6. Ongoing installation of drainage, service routes and haul roads.
7. Erection and construction of the Snow Centre followed by backfilling with further cut material.
8. Sequence of buildings:
 - Infrastructure off the A470
 - Infrastructure Earthworks
 - Snow Centre & Hotel wings
 - Water Park & Piazza
 - Indoor Activity
 - Outdoor Activity
 - Forest Lodges
9. Construction of the permanent roads, fencing and landscaping.

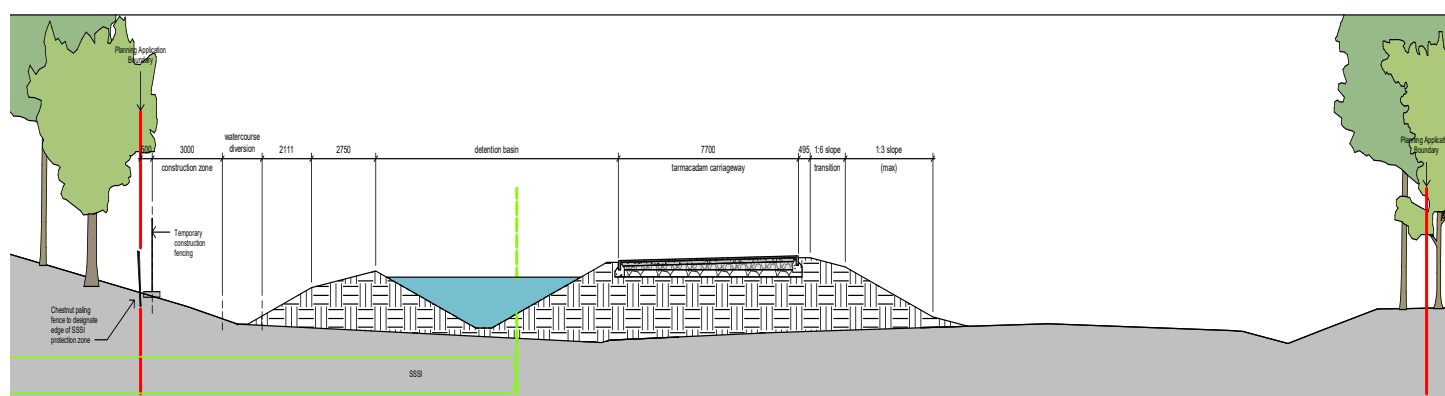
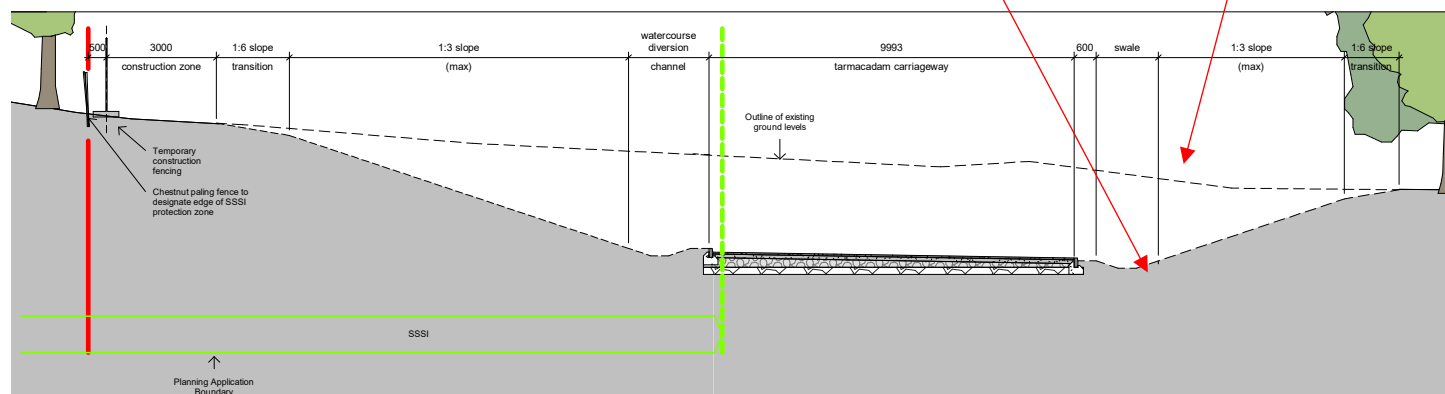
7.0 Forming of the Plateaus

This section aims to explain the strategies that will be implemented to form the plateaus where the buildings will be constructed plus the stability of the perimeter of the site. In all cases there will be two fences circling the perimeter or an area of the site. Chestnut Paling would be used to mark the retained SSSI with a Temporary Construction Fence inside. An example with a minimum distance of 500mm is shown below. No works will take place until both fences are in place. These fences would be inspected regularly to ensure they are maintained in good order.



Site Entrance Boundary

Note: The following section images show the new proposed design levels as dark grey. There is also a dotted line which indicates the current level on site.



The two sections on the above are typical for the works needed at the entrance of the site as shown on the plan to the left.

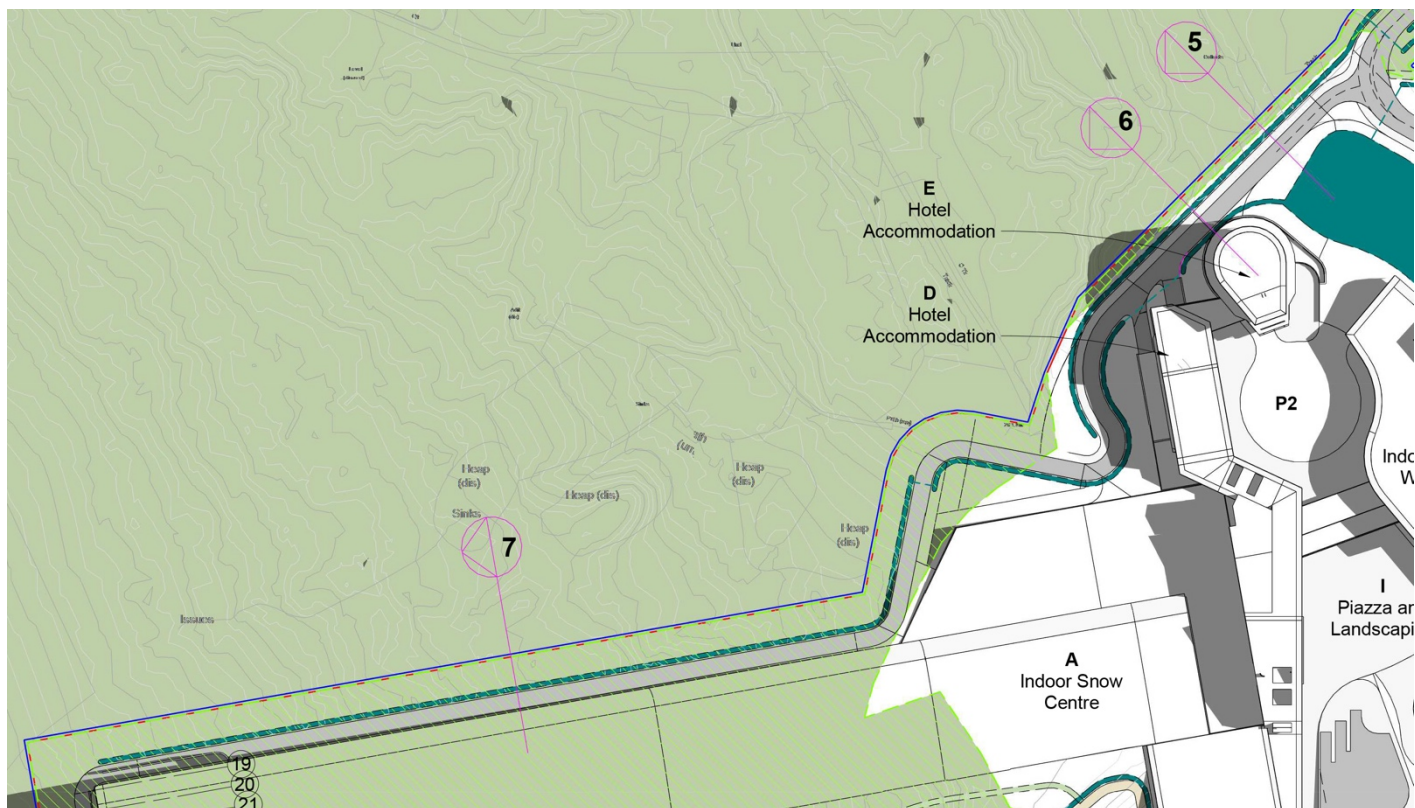
The contractor will carry out a refined cut and fill exercise removing material where it needs to be reduced in level and placing to an engineers specification where the ground needs to be raised. The first section shows an area of cut and the second an area of fill.

Once the entrance into the site is formed, storm and surface water drainage will be installed including channels for rain water run off from the battered slopes that have been formed.

The road construction would be constructed as the engineers specification and the final road wearing course would be placed towards completion of the development.

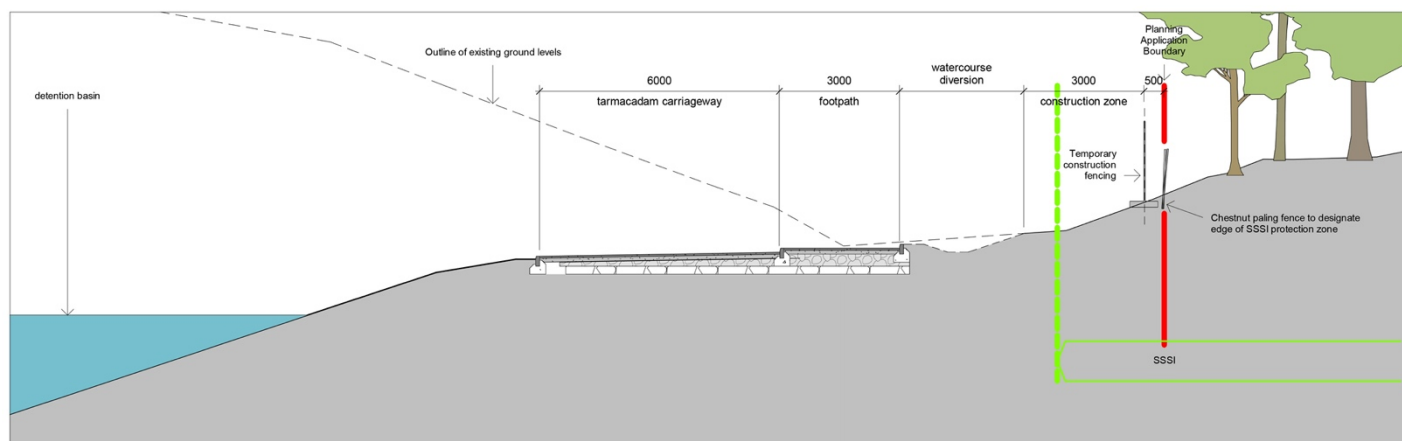
Spa & Snow Centre – North Boundary

The image below shows sections 5, 6 & 7



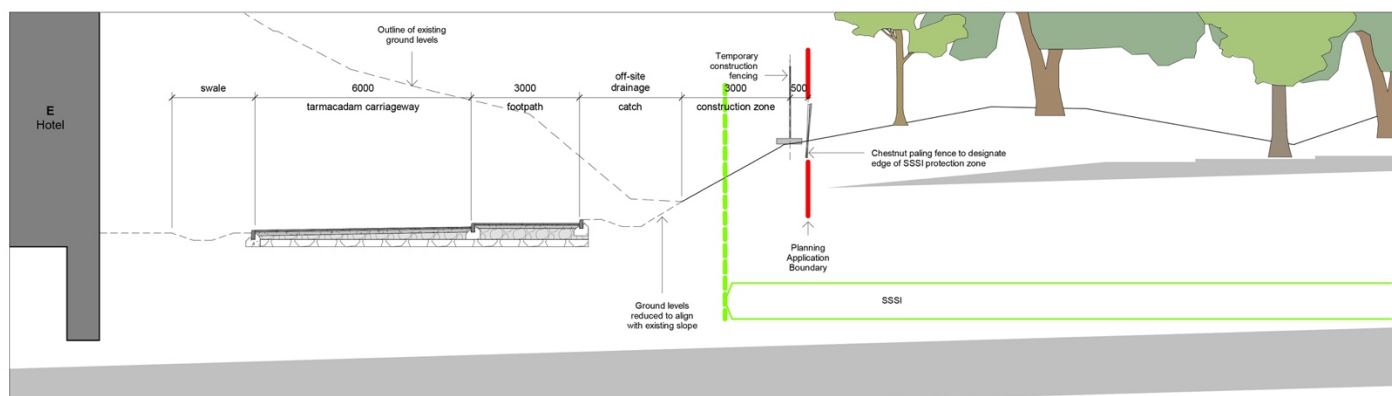
The sections below are shown on the plan above as section 5, 6 & 7.

This area of the development has significant areas of cut which will be relocated in other areas of the site where fill is needed. This is typically shown on page 10 within section 8.



Section 5

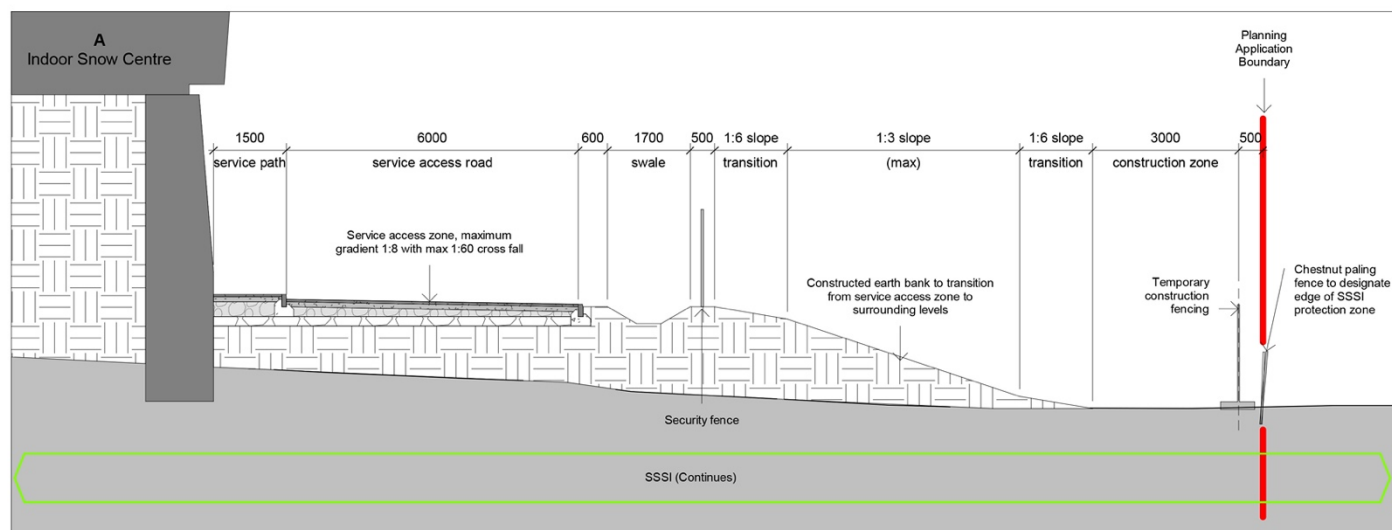
Section 6 and 7 below would be constructed by excavators where the ground would be reduced (cut) to the level as shown. In this area of the site, temporary haul roads and working platforms of stone would be installed to construct the buildings (Hotel wings and Snow Centre) with the drainage and services to be installed later followed by the road construction. Adequate room for protective boundary fencing and construction activities has been allowed for within the site boundary.



Section 6

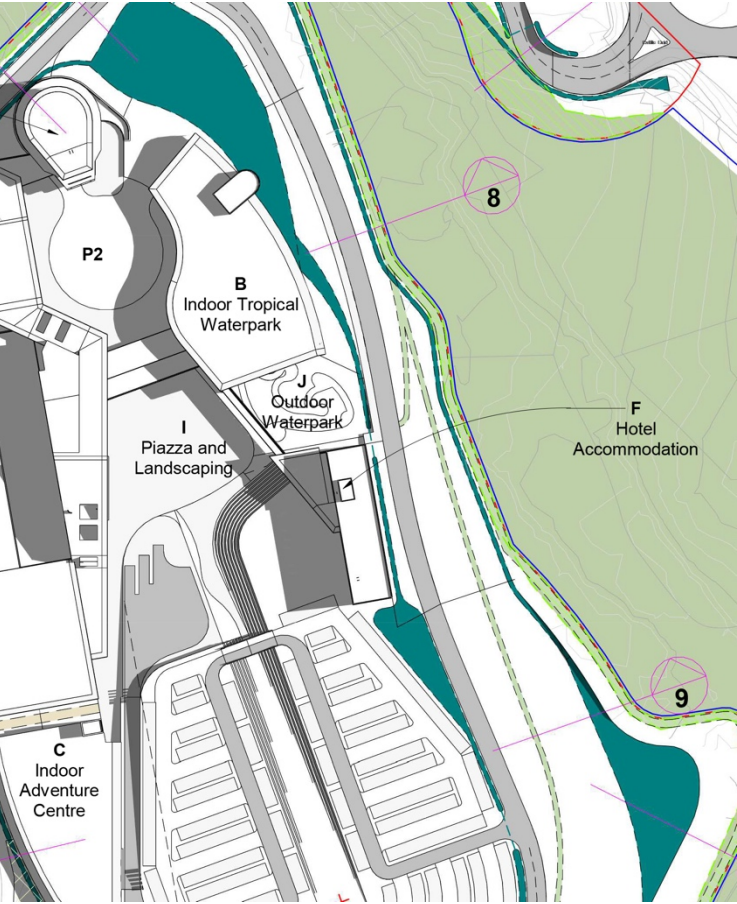
Based on current knowledge, the building would be expected to comprise either piled or mass concrete foundations, depending upon the outcome of a full site investigation report and corresponding structural design solution. Once the buildings were erected, in some areas fill materials would be installed as the section below.

The section below shows the Snow Centre with the service road and a swale to capture any storm water run-off. To construct this area of the site, there is a 3m construction zone at the base of the slope allowing access for machinery. This area would then be landscaped appropriately for its location and not used in the operation of the site.



Section 7

Eastern Boundary (with Main Car Park & Access Road)



Sections 8 and 9 below border the SSSI, encroaching by approximately 3m.

Section 8 has significant areas of fill where large areas are raised in level. This material will be taken from cut areas around the north of the site as discussed above.

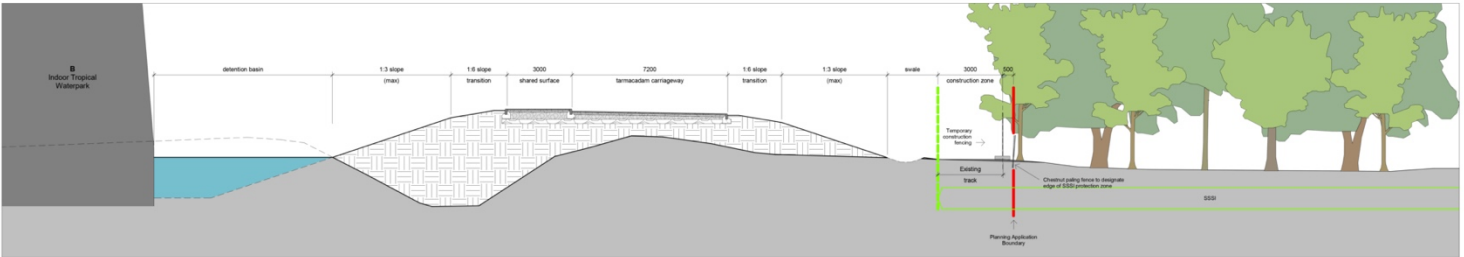
Prior to installing fill material, the existing ground would be scraped back with any topsoil removed. The ground would then be tested for its compaction quality and agreed with the design engineer.

The material would be excavated from its current position, moved with trucks, and laid with dozers. The material would be placed in layers and rolled as the engineers' specification.

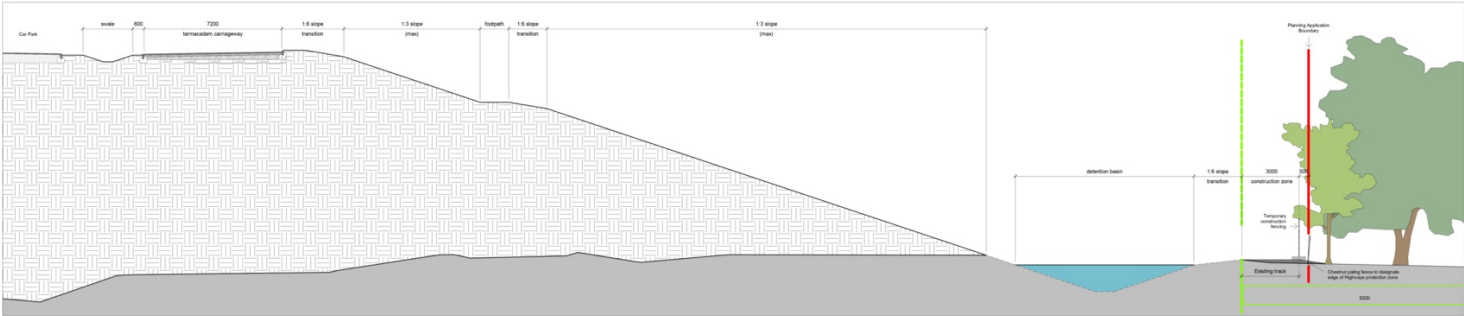
The material would be overfilled and cut back to the batter lines as shown. Drainage, service runs, and road construction would follow later in the development programme. Any excavated material would be used in fill areas of the site as shown on above sections.

In all cases the Chestnut Paling and temporary construction fencing would be in place to ensure no access is possible into the retained area of SSSI. These fences would be inspected regularly and maintained accordingly.

South Boundary – Snow Centre & Indoor Activity

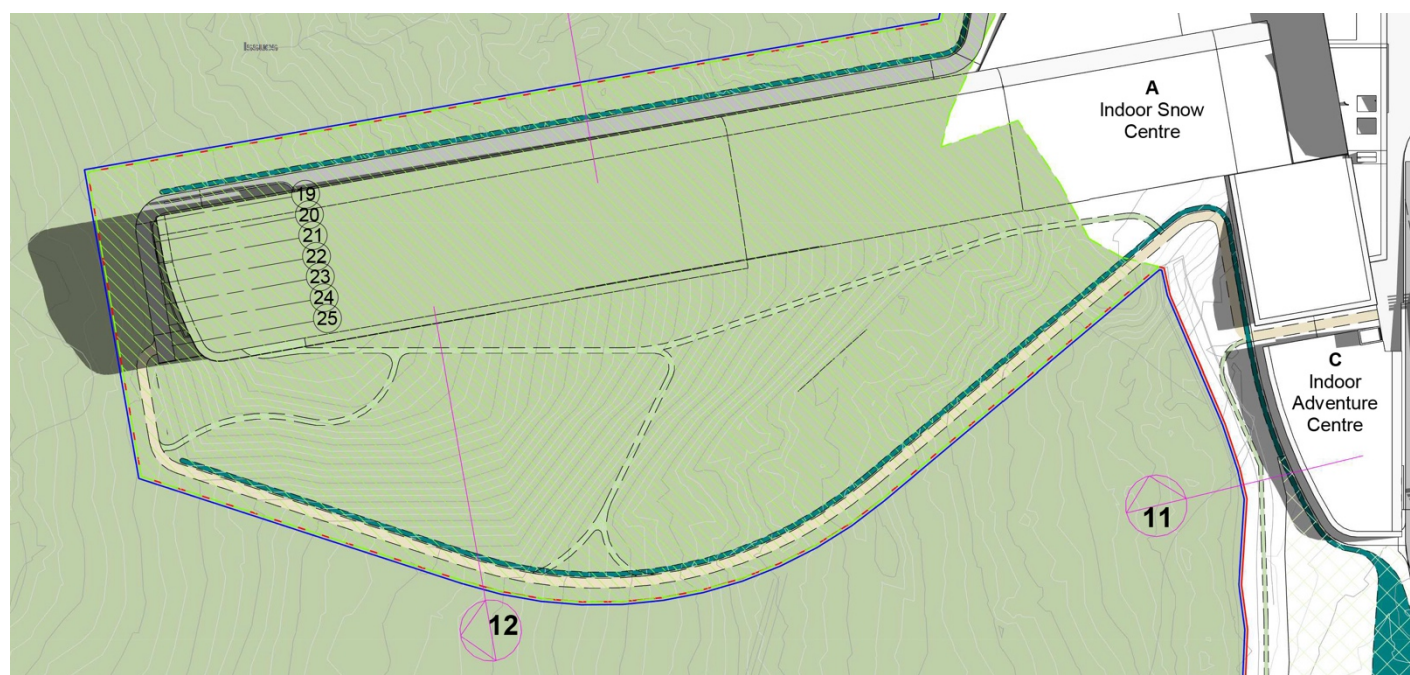


Section 8



Section 9

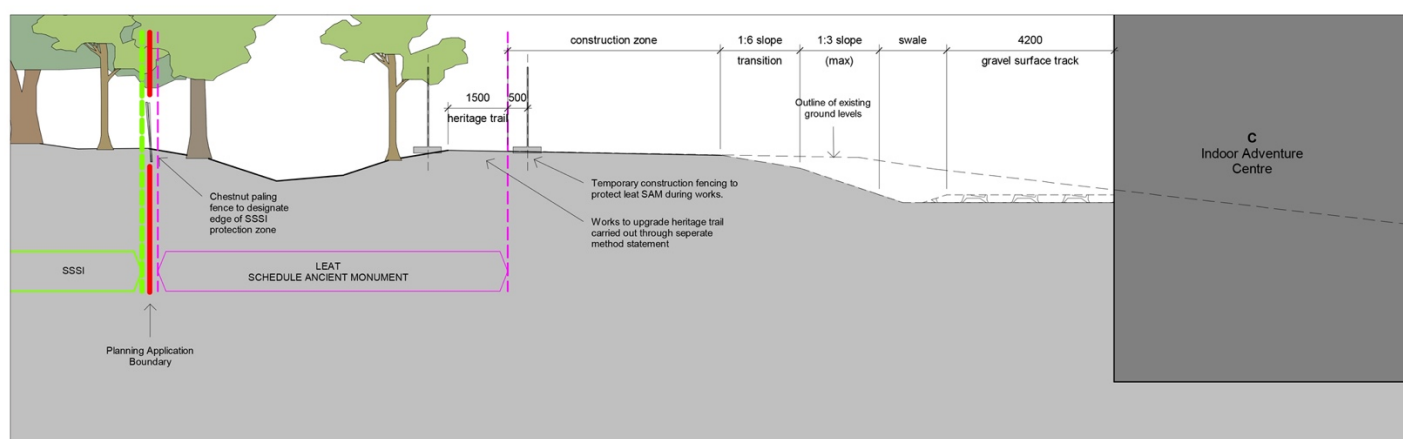
South Boundary – Snow Centre & Indoor Activity



Section 11 below shows a small element of cut to achieve the permanent levels. Nevertheless, the contractor will either over cut or install temporary works to retain the ground, allowing them to erect the Indoor Activity building. Once the building is erected, fill can be placed against the external walls to form the level profiled as shown.

This area of the site shows the Cyfarthfa Balance Pond and Leat which is Scheduled Ancient Monument (SAM). It is to be noted that in this area there is a double fence in a different arrangement. The Chestnut Paling is shown on the Red Line protecting the SSSI and the construction fence is to the right of the Leat protecting the Scheduled Ancient Monument.

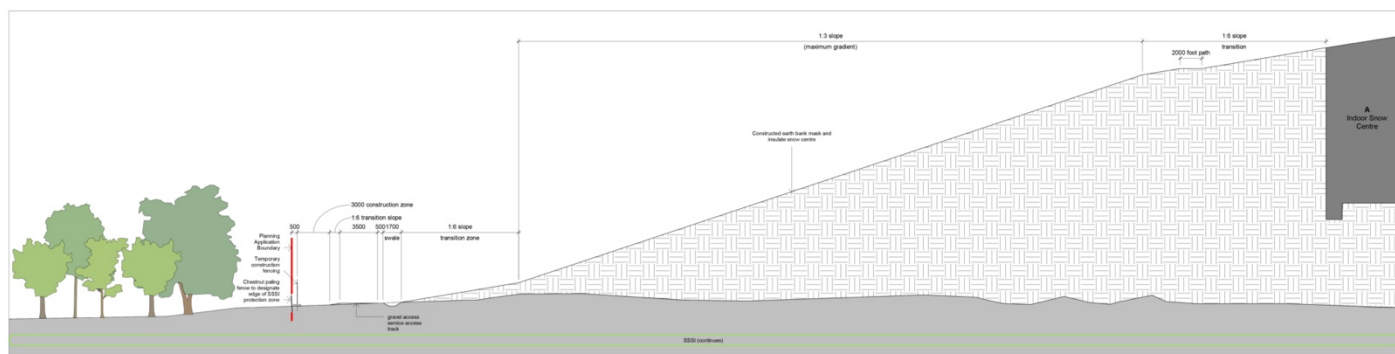
The Swale and gravel tracks would be installed later in the development programme once the Indoor Activity building is complete using smaller machinery.



Section 11

Section 12 below shows the reprofiling of the area to the south of the Snow Centre. This would be constructed in three stages.

1. Scrape back the ground and fill to the underside of the Snow Centre to allow its construction.
2. Add additional fill material encasing the Snow Centre.
3. Cut back the batters and form the Swale to the base of the batter including the gravel access track.



Section 12

South Boundary – Woodland Lodges



There are no areas of cut and fill in this location. Consideration for the woodland in this area will be dictated by the design and the Arboricultural Method Statement (provided in the submitted Arboricultural Impact Assessment)

Access roads and service tracks will be created, and water courses diverted to allow their construction.

The lodges will have small bore pile foundations and the buildings will be manufactured off site and erected from a modular format.



Section 14

8.0 Programme for the Works

Item	Description	Estimated Period (wks)
1	Start On site	
2	Initial Infrastructure	32
3	Snow Centre & Hotels	90
4	Water Park & Piazza	110
5	Car Parks (Phased)	
6	Indoor Activity	40
7	Outdoor Activity	34
8	Lodges (Phase 1)	20
	<i>Periods above are overlapped</i>	141 Wks

9.0 Plant & Machinery

To construct the project, several types of large plant and machinery would be needed.

For the initial installation of the infrastructure and civilisation of the site, earthmoving machinery would be used such as:

- Tracked excavators
- Dozers
- Off-road large capacity trucks

In the creation of the infrastructure, construction material such as quarried stone would be imported into the site to create roads. This would be carried out within an agreed corridor and to a specific method statement supervised by competent management.

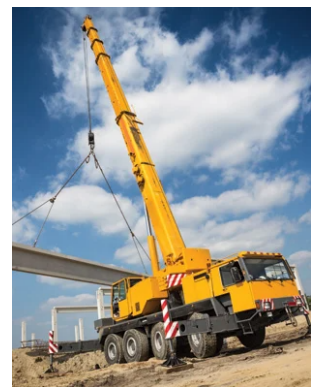
The plant used would include (examples shown below):

- Tracked excavators
- Rollers
- Road tipping trucks
- Tarmac laying machinery



Piling rigs will be needed for the larger buildings on the scheme. These would need a stable base and would either use pre-cast piles or be fed by in-situ concrete to create the piled foundations.

The construction of the structures, envelopes and the lifting of air handling units would require the use of cranes. These would require suitable hard standings to work from. The working area available would determine the size of the cranes being used.



10.0 Working Hours

The development will have construction and engineering works active for the following days and hours:

Monday - Friday	8am – 6pm
Saturday	8am – 1pm
Sunday and Bank holidays	None

END