

Paper 1

Appendix A

Design & Access Statement

**Proposed Tesco, Grampian Road, Aviemore
Design & Access Statement - UPDATE MARCH 2012**

On behalf of
Tesco Stores Ltd and Santon Group

In respect of
Grampian Road, Aviemore
Scotland



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Revision	Date
A	08/03/2016
B	08/03/2016
C	08/03/2016 - Revised S&L Plans

1.0 Introduction

1.1 Purpose and Structure of Report

This Design and Access Statement has been prepared by Manson Architects with PPC and Goodson Cole to explain the design and access principles and concepts which underpin the full planning application for the proposed new Tesco Store at Grampian Road, Aviemore.

The proposed development includes the construction of a new Tesco Store with recycling facilities and car parking at grade.

The document has been based on the principles set out in Planning Advice Note 68 'Design Statements' and has taken account of Circular 4:2009. The PAN sets out that a design statement is intended to 'enable the applicant to explain why the selected design solution is the most suitable in the circumstances' (page 6, para 1), while also 'providing a sound basis for constructive discussions and negotiations' (page 7, paragraph 1).

In arriving at the design and access solution, the PAN recommends that development is explained with respect to layout (i.e. streets, spaces, accessibility, safety, sustainability and energy efficiency), landscape, scale and mix, materials and maintenance .

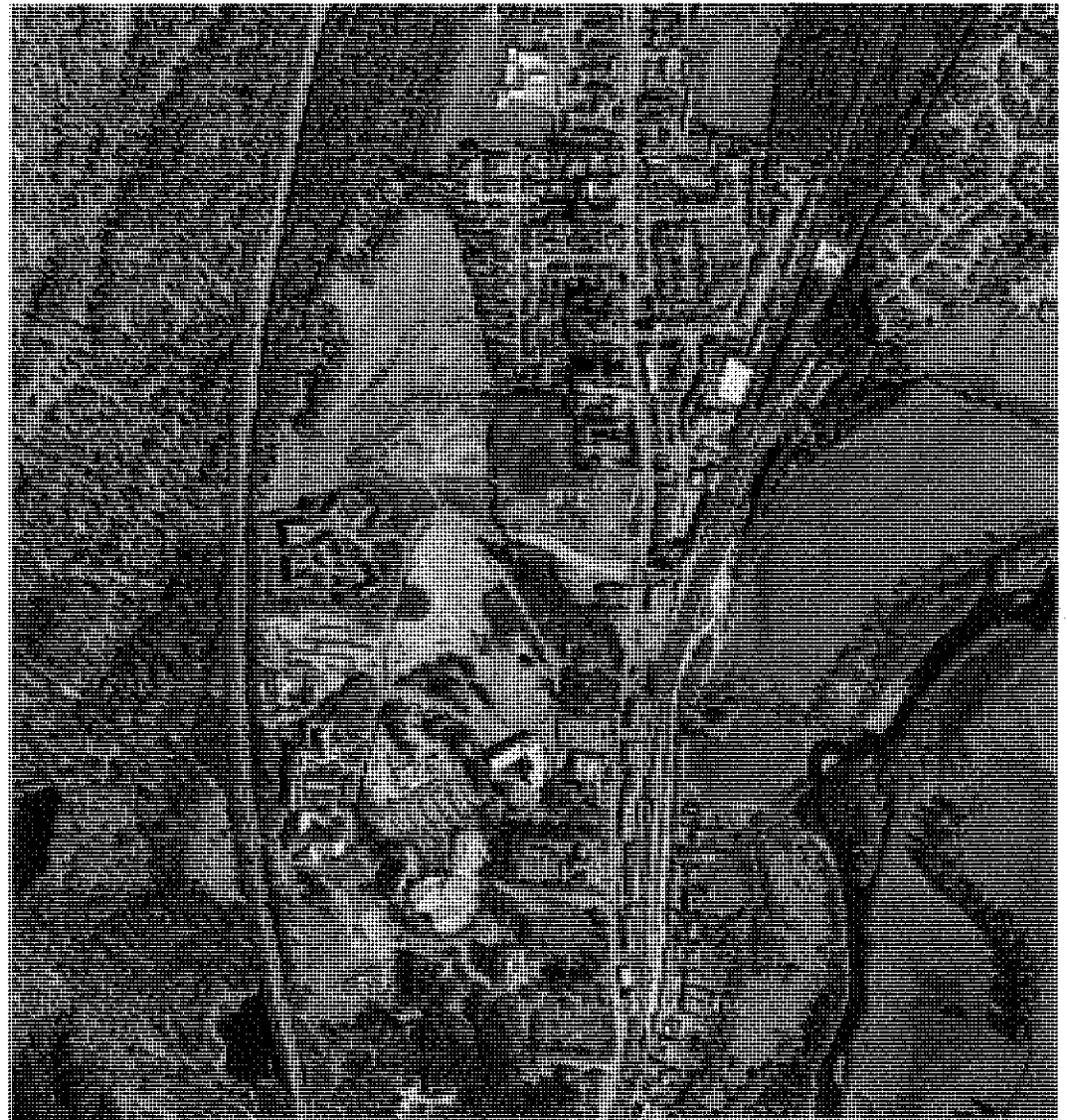
A design and access statement should explain and illustrate the design principles and design concept of the proposed layout, landscape, scale and mix, details and materials and the statement is accordingly structured as follows:

Section 2 identifies the physical, and economic context within which the site is set

Section 3 discusses design issues including the site layout, elevation treatments and accessibility.

Section 4 discusses accessibility with emphasis on disabled access.

Section 5 deals with Sustainability



2.0 Site Appraisal

2.1 Site Location and Context

Aviemore is a small but growing town and tourist resort, situated in the Cairngorms National Park. It is in the Badenoch and Strathspey committee area, within the Highland Council area. It lies in an area of high scenic and environmental value and is popular for skiing and other winter sports, and for hill-walking in the Cairngorm Mountains. There is also a growing residential population.

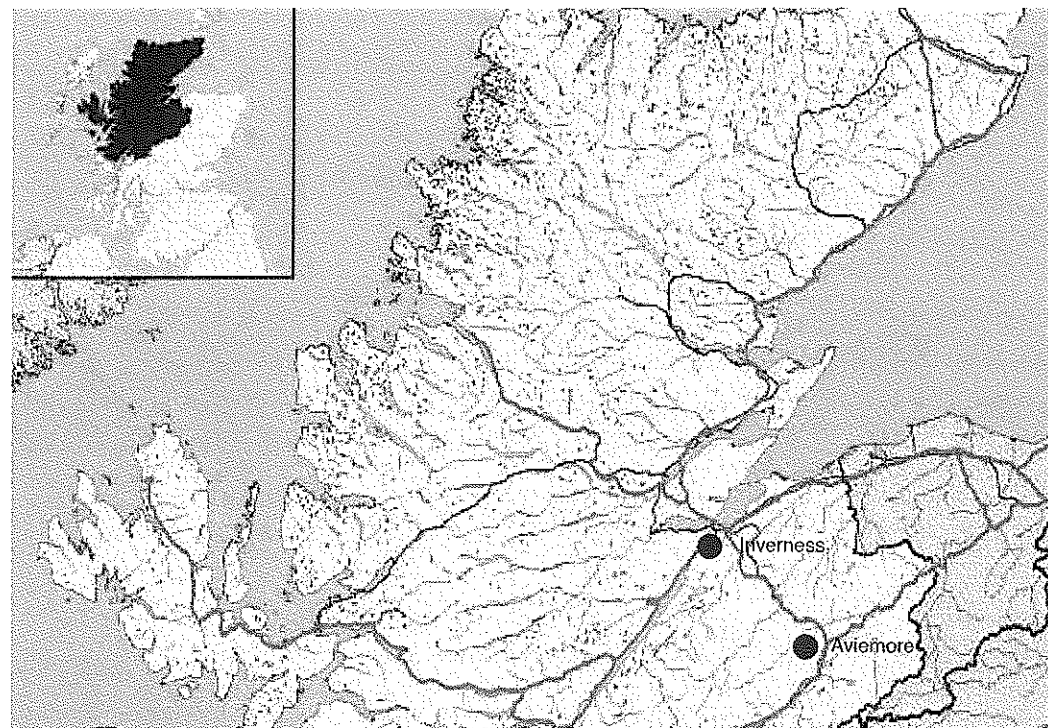
The site lies on the B9152 (the "old" A9 road since the main road from Inverness to Perth was rebuilt further west in the 1980s). Aviemore railway station is on the Highland Main Line. Aviemore is also the southern terminus of the Strathspey Railway, a heritage railway.

The village began to grow as a result of it becoming a railway junction in 1898, following which the Highland Railway became a major employer, constructing housing for its staff and the Aviemore Hotel.

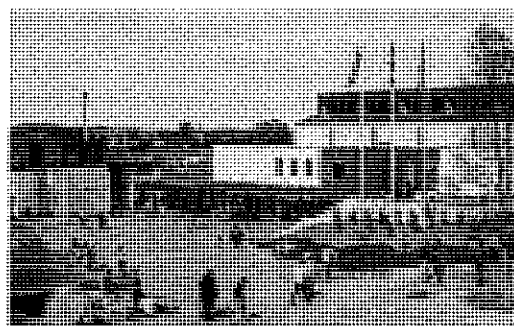
In the 1960's it was one of the first skiing resorts to be established in Scotland with the opening of the Chairlift resulting in further expansion.

The Aviemore Hotel was destroyed by fire in 1950, and its site and that of its Golf course were used in the 1960s for the construction of the Aviemore Centre which opened in 1966. Aviemore virtually doubled in size as the new holiday centre took shape behind the village. The Aviemore Centre consisted of hotels, shops, chalets, indoor sports facilities, a dry ski slope, a cinema, bars and restaurants, and a craft centre.

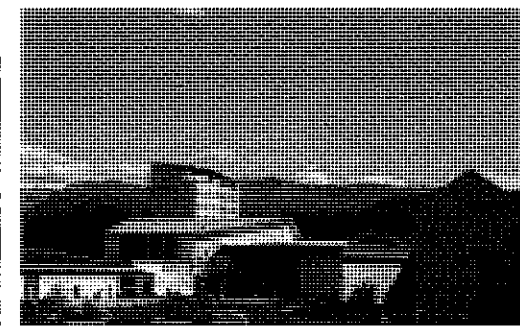
In 1998 most of the original 1960's John Poulson buildings were demolished and the MacDonald Aviemore Highland Resort built on the site. Since this time, regeneration plans have been supported on the resort land including a new road network and redevelopment of this application site.



Location Map



The Aviemore Centre in the 1970's



The MacDonald Highland Resort

2.0 Site Appraisal

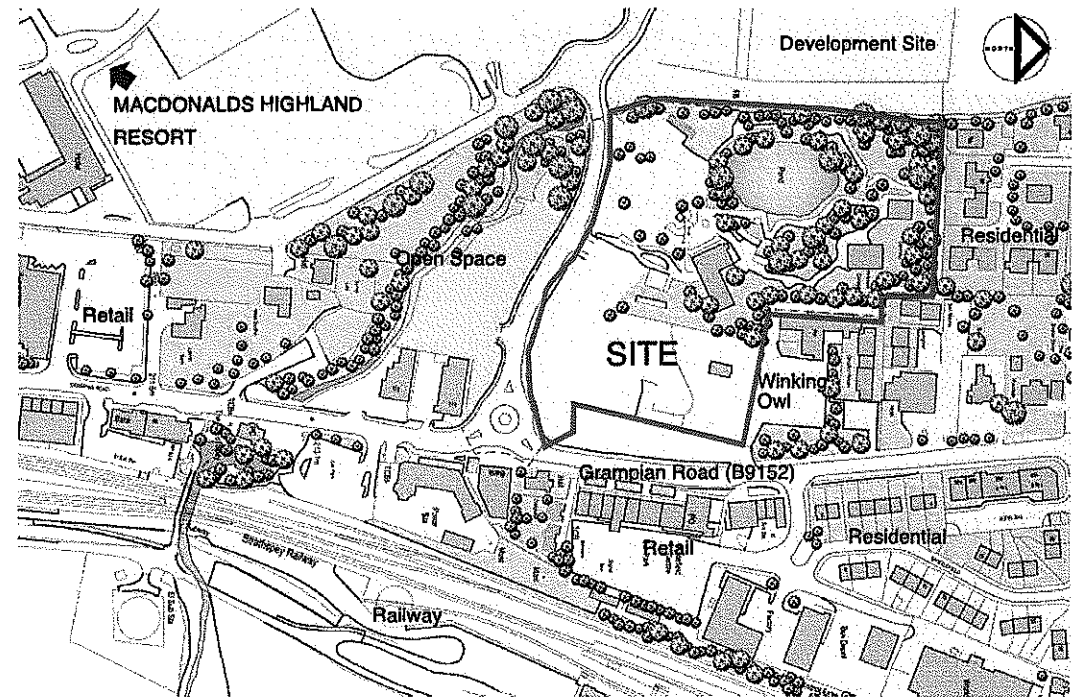
2.2 Site Description

The site forms the northern gateway to Aviemore Town Centre on Grampian Road, the main north-south axis of the town; and lies south and south-west of the town's main residential areas.

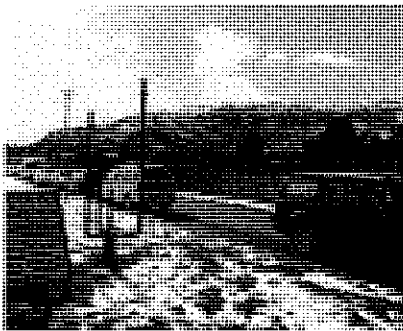
It lies to the west of Grampian Road with its main frontage to the new link road and a partial frontage to Grampian Road. The Aviemore Burn forms the western boundary with open ground and tree belts between the site and the A9. The 'Winking Owl' public House forms the boundary to the north east.

The site contains a number of derelict timber buildings, former car parks, an artificial pond, trees/shrubs, various artefacts and abandoned ground and currently has a ply hoarding around the perimeter. The ground and buildings have been left unmanaged for some time. There are a mix of native and non-native trees and shrubs with the emphasis at its core on non-native conifers. Towards the peripheries more native species are evident such as willow and rowan alongside the Aviemore Burn.

There is a fall of approximately four meters from Grampian Road to the Aviemore burn with the artificial pond at the lowest point of the site approximately 5m below the level of Grampian Road.



Site Location



Existing Site Photographs



2.0 Site Appraisal

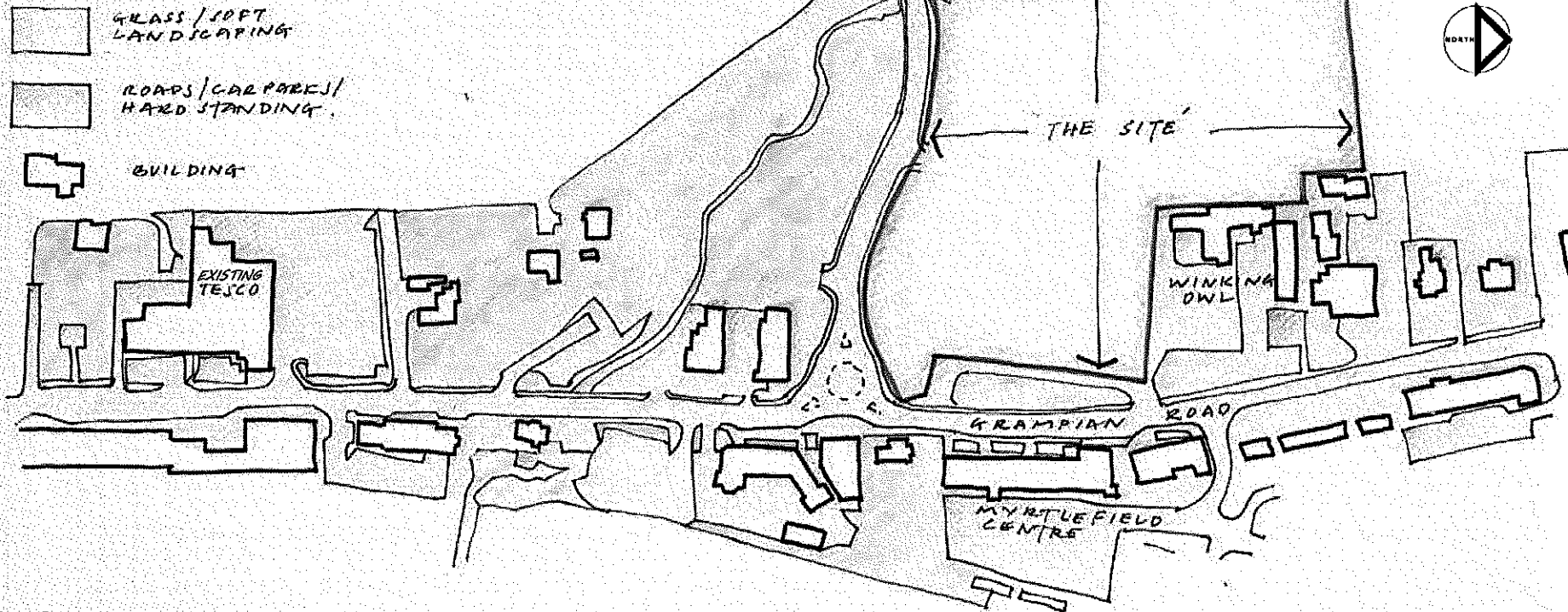
2.3 Townscape Analysis

Aviemore developed in the early and mid 20th century in an ad hoc linear fashion along the main thoroughfare the B9152 (Grampian Road) resulting in a poorly defined fragmented 'centre' with little or no formal public realm or civic spaces. This compares unfavourably with neighbouring planned towns such as Kingussie and Grantown which both have a much more defined structure.

The town has no real 'centre' however most of the commercial and retail activity lies along Grampian road between the railway station and Seafield Place with much larger scale development on the site of the old Aviemore Centre to the southwest of this main core. The

The west side of Grampian road is characterised by individual buildings widely spaced and set back from the pavement. The commercial buildings generally have parking to the front or side. These buildings are viewed as individual 'pavilions' against the dramatic backdrop of the Cairngorm mountains.

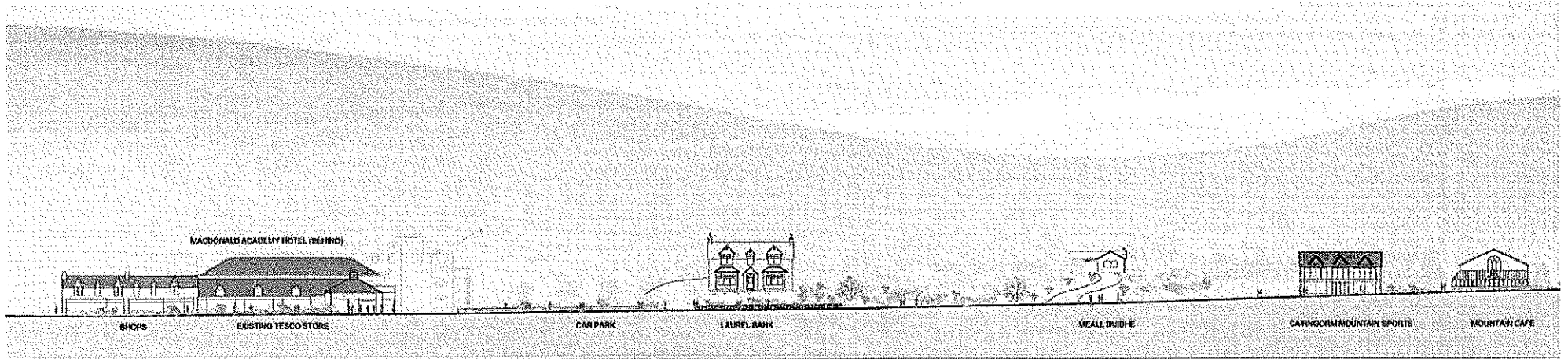
In contrast the east side of Grampian has a different character, the townscape being much more like a traditional high street with linear blocks spaced much more closely with frontages opening directly onto the pavement and parking (where provided) to the rear of



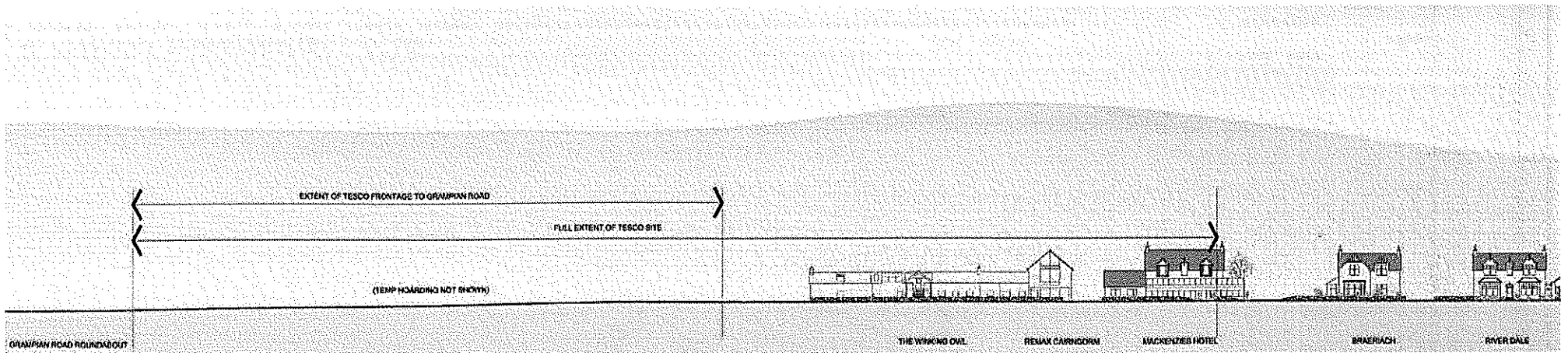
Town Centre Sketch

2.0 Site Appraisal

2.3 Townscape Analysis

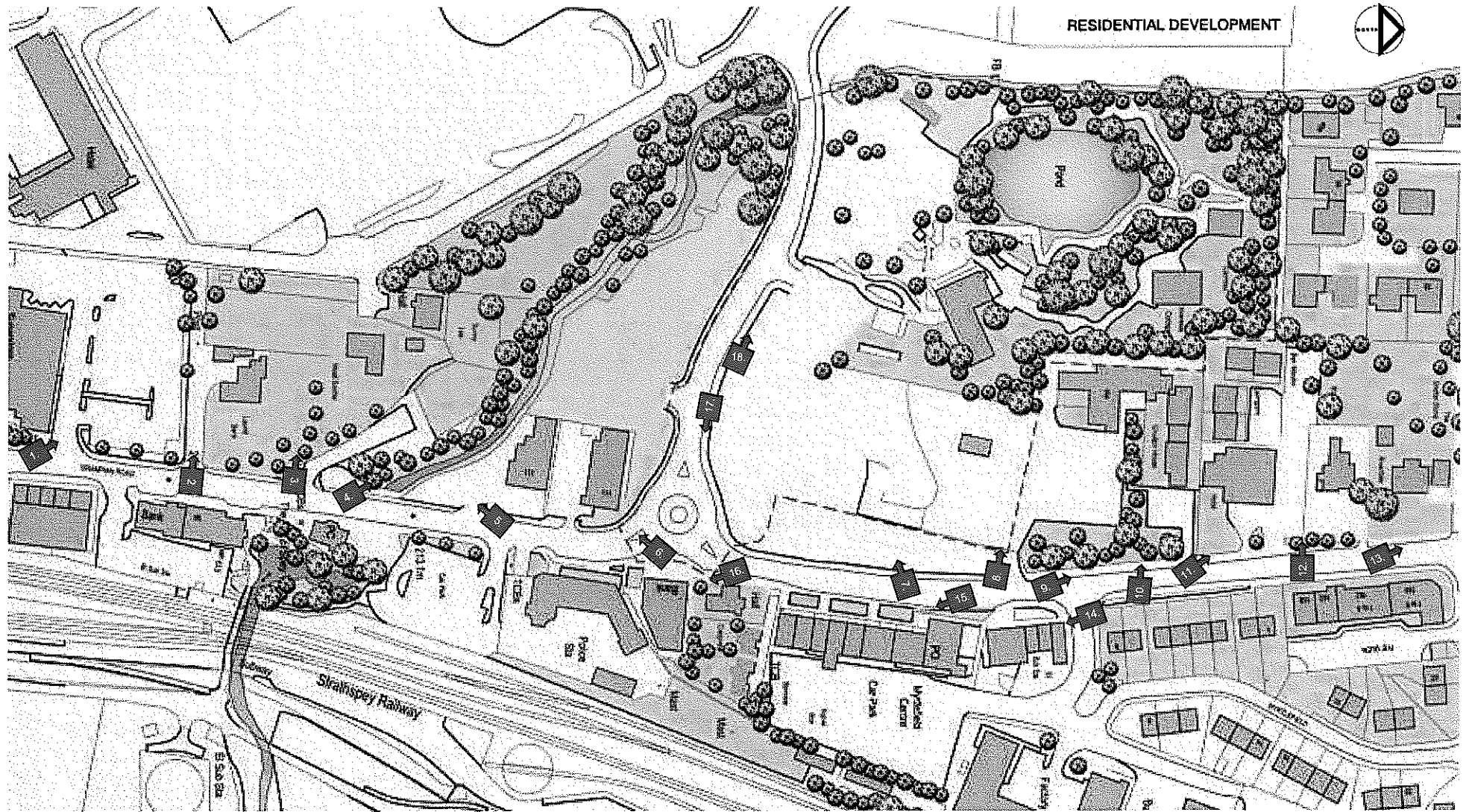


Elevation looking West from Grampian Road (from existing Tesco store to new round-



Elevation looking West from Grampian Road (from new roundabout to 'Riverdale')

2.0 Site Appraisal



2.3 Townscape Analysis - Context Photographs location plan

2.0 Site Appraisal



01 Grampian Road looking northwest towards Tesco entrance



02 Grampian Road looking north towards Tesco car park



03 Grampian Road looking west towards 'Laurel bank'



04 Grampian Road looking northwest towards retail units



05 Grampian Road looking southwest towards open ground



06 Grampian Road looking southwest from new roundabout



07 Grampian Road looking west towards Tesco site



08 Grampian Road looking north towards Winking Owl car park.
(Winking Owl set back from road).



09 Grampian Road looking north. Retail units on right, mature trees
to Winking Owl car park on left.

2.0 Site Appraisal



10 Gramplan Road looking north towards letting agents.



11 Gramplan Road looking northwest towards Mackenzie hotel



12 Gramplan Road looking west towards 'Braeriach'



13 Gramplan Road looking west from Seafield Place junction



14 Gramplan Road looking south towards retail units.



15 Gramplan Road looking south east towards 'Myrtle centre'.



16 Gramplan Road looking southeast to new retail units.



17 View from new link Road looking towards Gramplan Road.



18 View from new link Road looking west with Tesco site on right.

2.0 Site Appraisal

2.4 Architectural Character:

The quality of individual buildings in the town centre is not high with the exception of the railway station (listed Cat A) , the Cairngorm Hotel (Cat C(s)) directly opposite and a number of late 19th/early 20th century villas generally on the west side of Grampian road.

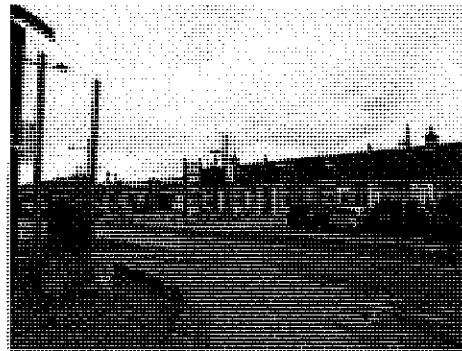
The railway station (1892) – the reason for Aviemore’s existence was restored in 1998 and comprises a long single storey range of buildings clad in painted weatherboard with contrasting reveals and a slate roof.

The Cairngorm Hotel (late 19th century with early 20th century extension, 2 storey and attic) is constructed in dressed granite with ashlar sandstone quoins and margins ,slate roof with dormers and corner tower with steeply pitched conical roof with decorative weathervane.

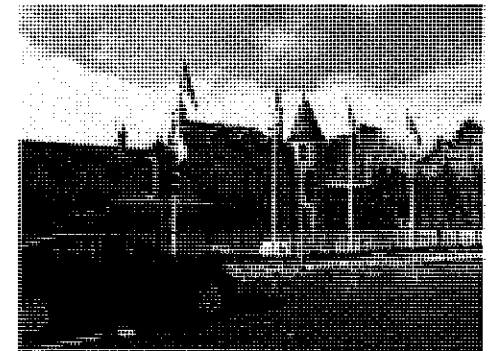
The villas along Grampian road are generally detached single storey with dormered attic. Materials are generally dressed granite with sandstone quoins (although rubble stonework and occasionally render was used on the rear and gable elevations). A feature of these villas is ornamental timberwork, frequently painted in pastel colours.

Post-war commercial development is generally poor quality, particularly when compared with the older buildings. Occasionally some vernacular features are incorporated in these newer buildings for example dormer windows although frequently in token form. Materials are generally render, facing block/ recon stone and slate roofs. The best thing that can be said about these buildings is that the generally do not exceed two stories in height.

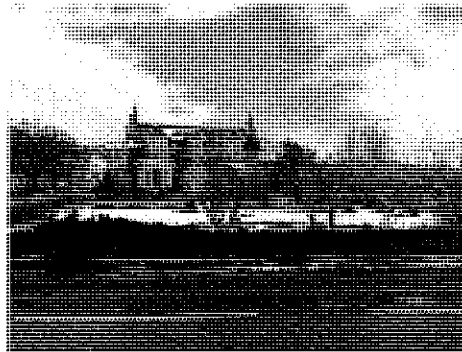
The buildings comprising the Aviemore Highland resort although not ‘town centre’ are visually prominent from the site due to their height. The surviving 1960’s buildings , particularly the eight storey Four Seasons Hotel have a certain architectural and historic interest (if not architectural quality).



Railway station (Cat A Listed)



Cairngorm Hotel (Cat C) Listed



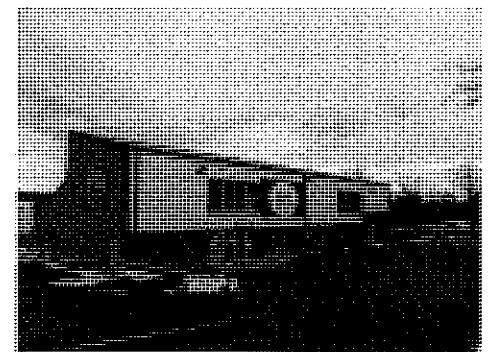
Black and white photograph of a row of detached single-story villas along Grampian road, featuring dormered attics and ornamental timberwork.



Black and white photograph of a row of detached single-story villas along Grampian road, showing a different view of the buildings.



Post-war commercial development is generally fail to match the quality of the older buildings.



Unsympathetic /inappropriate scale/materials

3.0 Development Proposals

3.1 Client Brief

Tesco Stores Ltd is seeking permission to build a supermarket at the former 'Santa Claus Land' site on Grampian Road. Tesco's plans will help to regenerate the local area and create over 150 local job opportunities. The current store is too small to meet local demand, especially at peak times and the new store will deliver vital supermarket shopping which will keep people shopping locally, attract more customers to the town centre and provide value, choice and availability.

The site chosen already has planning permission in principal for the size of development proposed.

3.2 Site layout and Landscaping

We have fully considered the site's topography, previously submitted layouts as well as the surrounding townscape in reaching the preferred site layout. Public consultation also resulted in support for the development proposal. Various schemes have been assessed given the existing planning permission requirements.

Before arriving at the final version of the site plan, a number of different options were examined to determine the optimum site layout in terms of townscape, architecture, visual amenity, servicing, car parking, access, landscaping, and store function.

Scheme 1

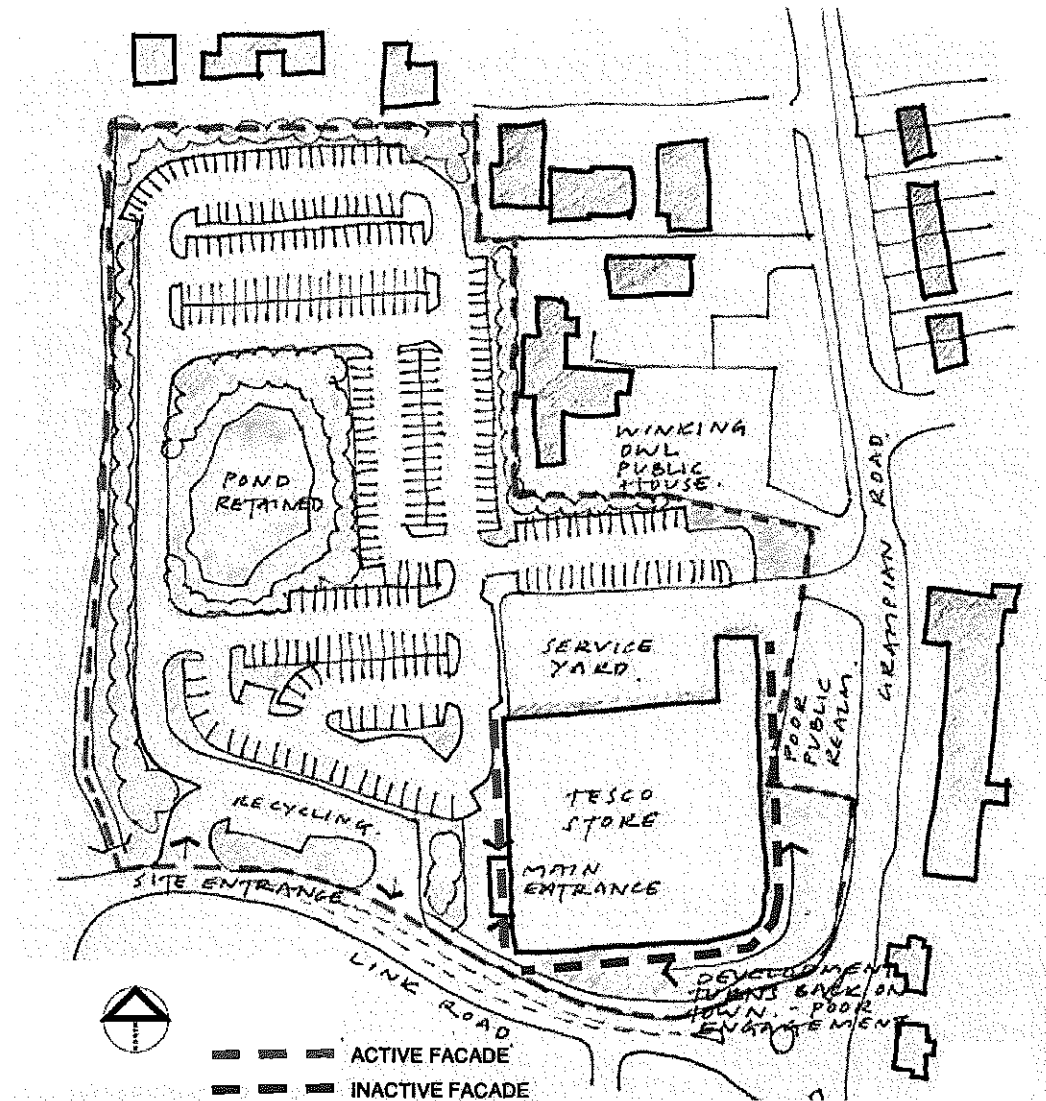
The first scheme located the store in the south east corner of the site with the store entrance accessible from the new link road. Parking is arranged in an inefficient layout around the existing pond.

Advantages:

- Retention of pond

Disadvantages:

- Insufficient parking numbers to support a store of the required size. The car park is fragmented with a large number of spaces remote from the main entrance.
- Store turns its back on the main road site frontages, presenting a blank, inward looking façade to Grampian road and the link road.



Scheme 01

3.0 Development Proposals

3.2 Site layout and Landscaping

Scheme B.

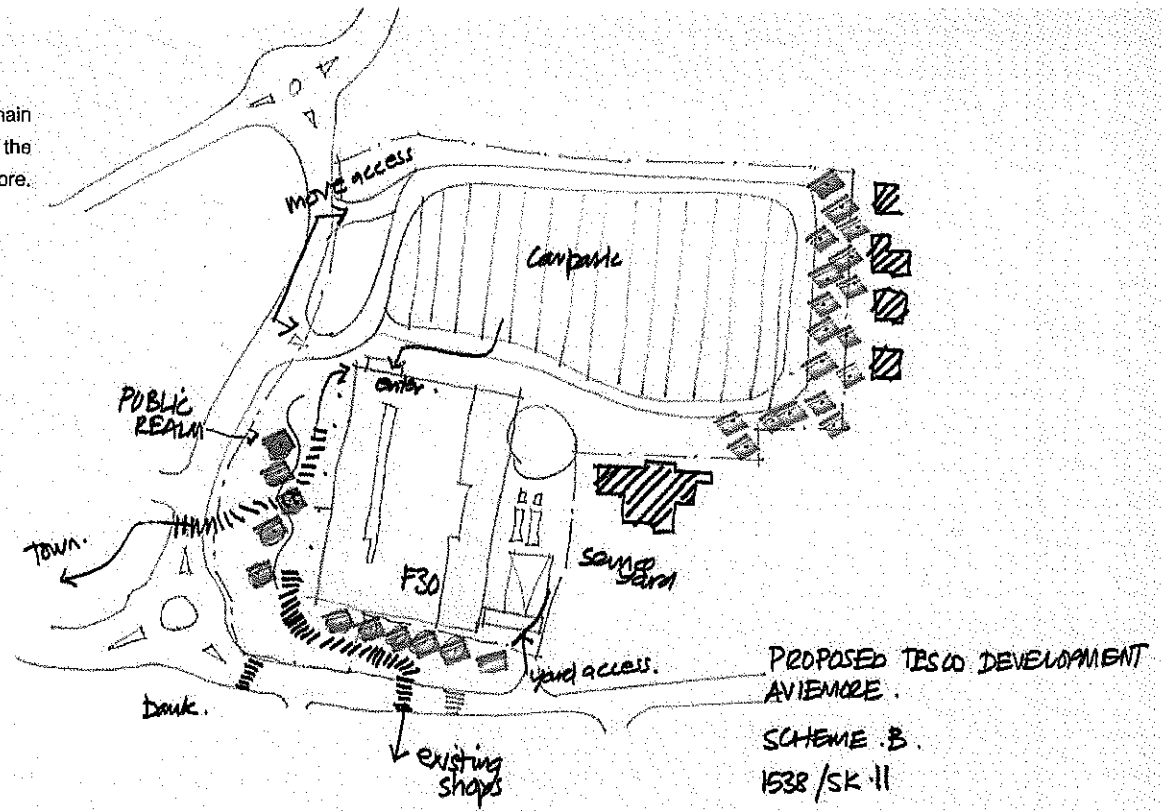
This layout orientates the main active facade towards the Northern Link Road with the main entrance on the gable facing the car park. Car parking is located to the rear of the site with the pond infilled in order to achieve the required number of parking spaces for the size of the store.

Advantages:

- Car parking concealed from Grampian Road
- Active frontage and public realm to Northern Link road

Disadvantages:

- Inactive facade presented to Grampian Road
- Poor relationship between car park and entrance facade
- Poorly located entrance. Not visible from Grampian Road.
- Pond not retained



3.0 Development Proposals

Scheme C.

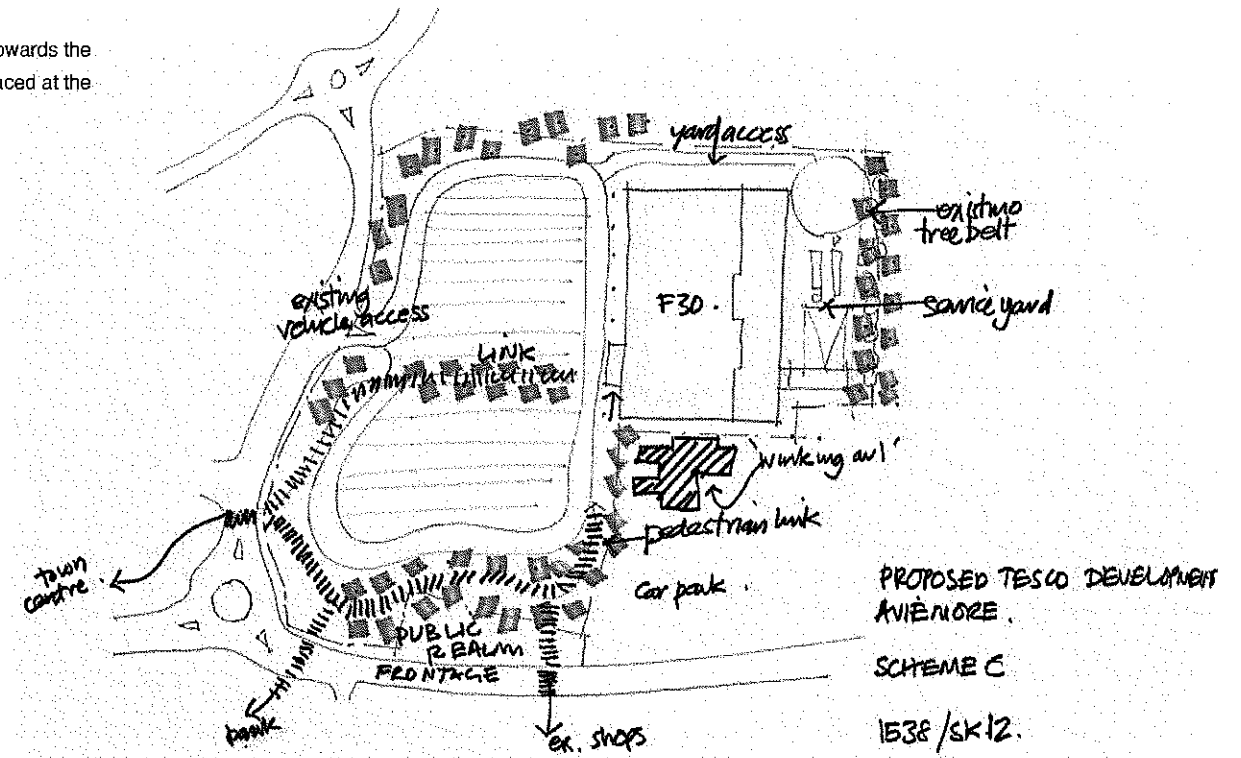
The key decision for the final version of the site plan has been to locate the store towards the rear of the site in the area currently occupied by the artificial pond. Car parking is placed at the front of the store with the service yard to the rear of the store.

Advantages:

- Active frontage presented to Grampian Road and Northern Link Road
- Good relationship between car park and store entrance
- Good pedestrian Linkages to town centre
- Service areas concealed
- Opportunity for new public realm on Grampian Road

Disadvantages:

- Pond not retained



3.0 Development Proposals

3.2 Site layout and Landscaping

Final Scheme

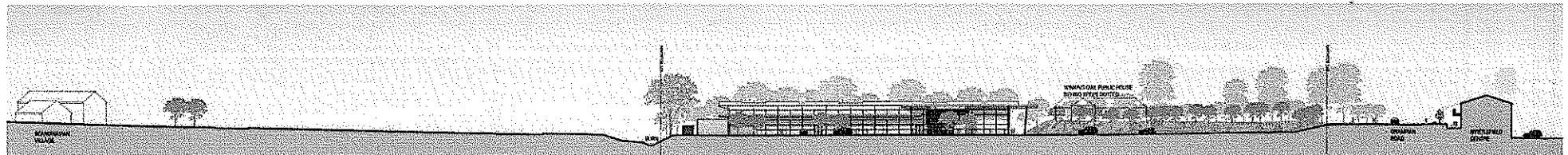
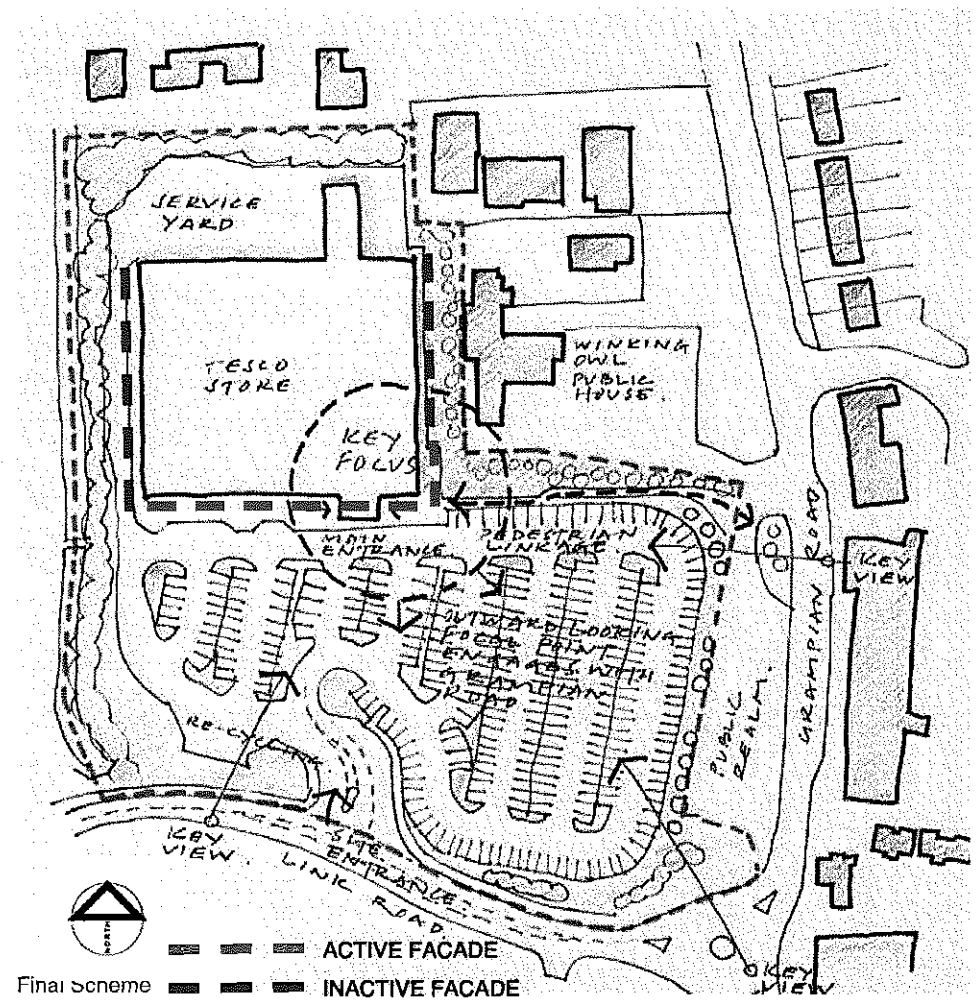
Scheme C was selected for further development as providing the optimum site layout in terms of townscape, architecture, visual amenity, servicing, car parking, access, landscaping, and store function.

The development by its very nature comprises a large single storey retail store with a footprint significantly larger than any other building in the town centre. (The building scale is already consented). By locating the store in this position the bulk of the building is concealed but provides an open aspect to both road frontages, and the building is perceived from key views as a facade of similar scale as other retail developments in the town centre.

The site layout reflects the natural site gradients and topography with the building sited at the lowest point of the site surrounded by existing mature trees which also screen the service and 'back of house' functions.

The architectural focus of the scheme is the main entrance corner which is visible from Grampian Road and the new link road. This feature will be fully glazed and double height presenting an active frontage to what is effectively the northern gateway to the town centre. It will be accessed from a direct pedestrian route.

It is expected that the majority of customers using the store will arrive by car (although provision is made for pedestrians, cyclists and those using public transport). The proximity of the main entrance to the car park is critical in order to provide easy disabled access within 40m, cater for families with small children and keep the distance customers have to travel with a trolley to their car within acceptable limits. The car park is laid out in front of the store with disabled spaces at the front entrance and parent and child spaces to the side so that small children do not have to cross the roadway to get to the entrance. Circulation around the car park is clear and uninterrupted.



Contextual Cross Section

3.0 Development Proposals

3.3 Landscape Strategy

In devising the landscape strategy we have had regard to the Aviemore Design Framework supplementary planning guidance document.

The principal aims of the landscape strategy are to:-

1. Create a strong northern gateway to the town centre.
2. To create an attractive and diverse hard and soft landscape treatment that reflects the status of the development and strengthens the existing landscape character.
3. To provide safe and high quality amenity spaces and movement zones.
4. Protect the existing Aviemore Burn habitat and create a buffer between it and the new development.
5. Retain where possible existing tree belts around the boundary of the site.
6. Take cognisance of the Aviemore Design Framework prepared for the Cairngorms National Park Authority which recommendations included:
 - Articulation of the street corner on Grampian Road
 - Creation of an active street frontage
 - Concealment of parking areas
 - Use of native plants including birch/pine woodland
 - Creation of wildflower areas.

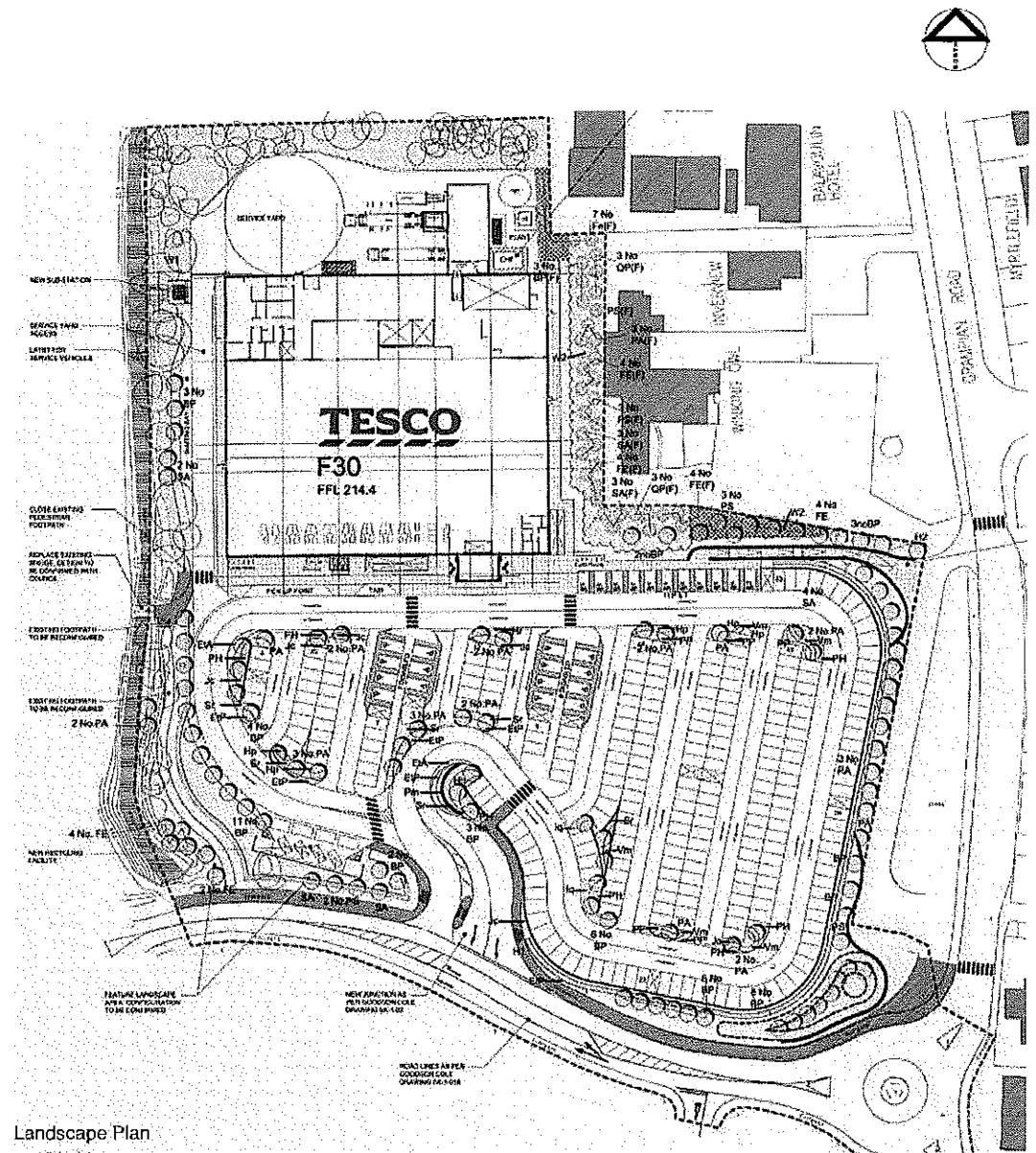
Landscape Proposals:

A bold sinuous dry stone wall backed by a wildflower mound forms a strong gateway feature and continues the established use of dry stone walling within the towns urban realm. The mounding along with a perimeter hedge of mixed native species aids in the concealment of parking areas.

The mounding will be bounded by closely mown grass to ensure a crisp and well maintained appearance to the site.

The store itself will nestle within a strong belt of trees. Existing healthy trees will be retained as far as possible supplemented by new birch/pine woodland planting.

Within a 5m zone of the Aviemore Burn it is proposed to leave the existing vegetation intact and avoid any development, with the exception of the footbridge. Beyond this the existing footpath will be reconfigured and extend to the southern edge of the site. Between this and the activity of the store and car park an area of wildflower meadow and line of extra heavy standard trees will be planted to create a pleasant route for pedestrians. Again, wildflower meadows will be bordered by an edge of closely mown grass. Similarly, the recycling facilities shall be separated from the footpath and road by trees and meadow planting.



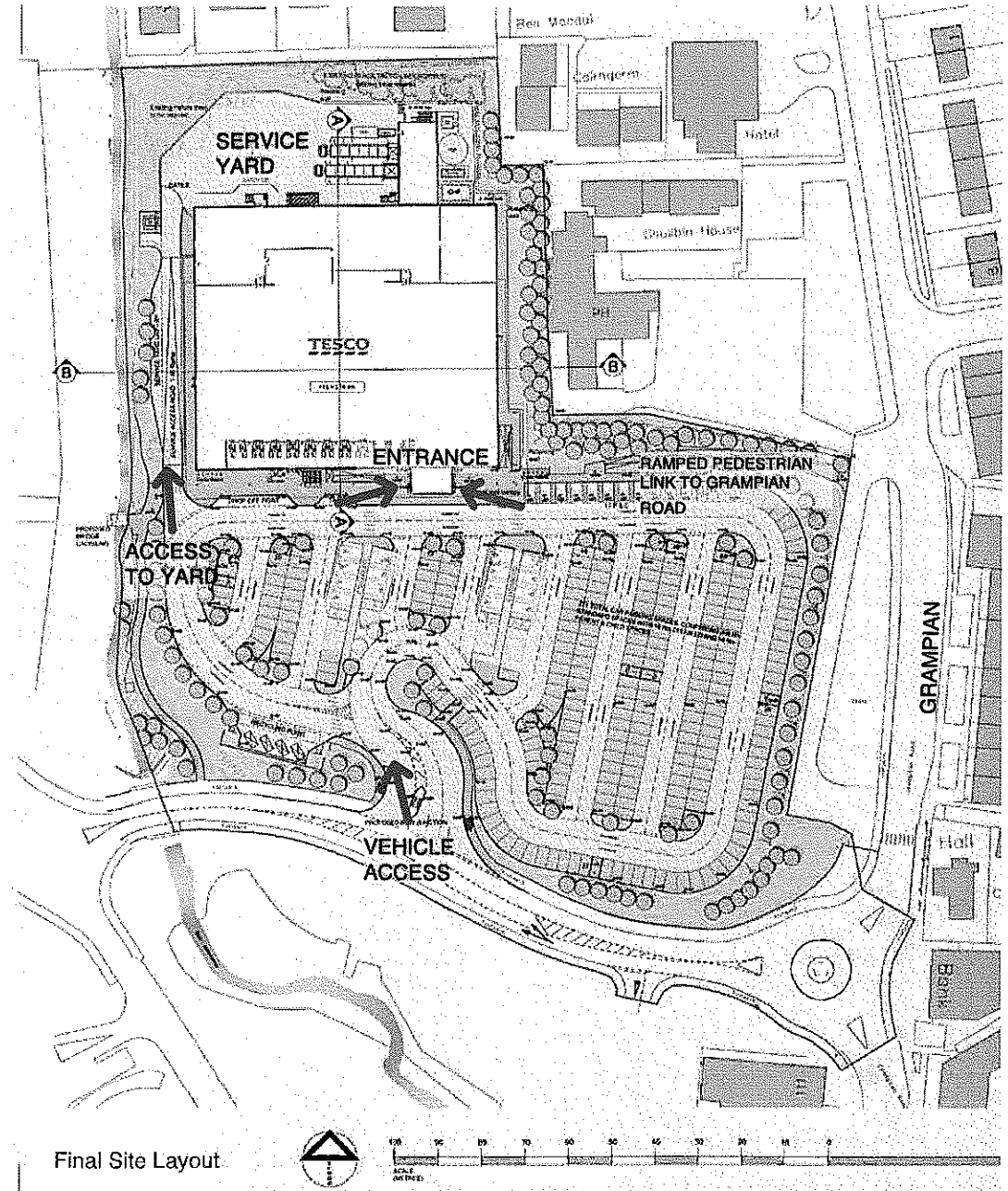
Landscape Plan

3.0 Development Proposals

Within the site low ground cover with extra heavy tree planting will break up the car parking areas and will be used to define pedestrian movement zones. The emphasis has been on the use of native trees and shrubs and their cultivars in preference to exotic species within the planting with a few exceptions such as the pleasingly fragrant Philadelphus 'Manteau d'Hermine' used within the car park. The predominance of native species is designed to both to enhance the ecological value of the site and to ensure the development fits well within the wider landscape. The use of many evergreen species ensures visual interest throughout the seasons.

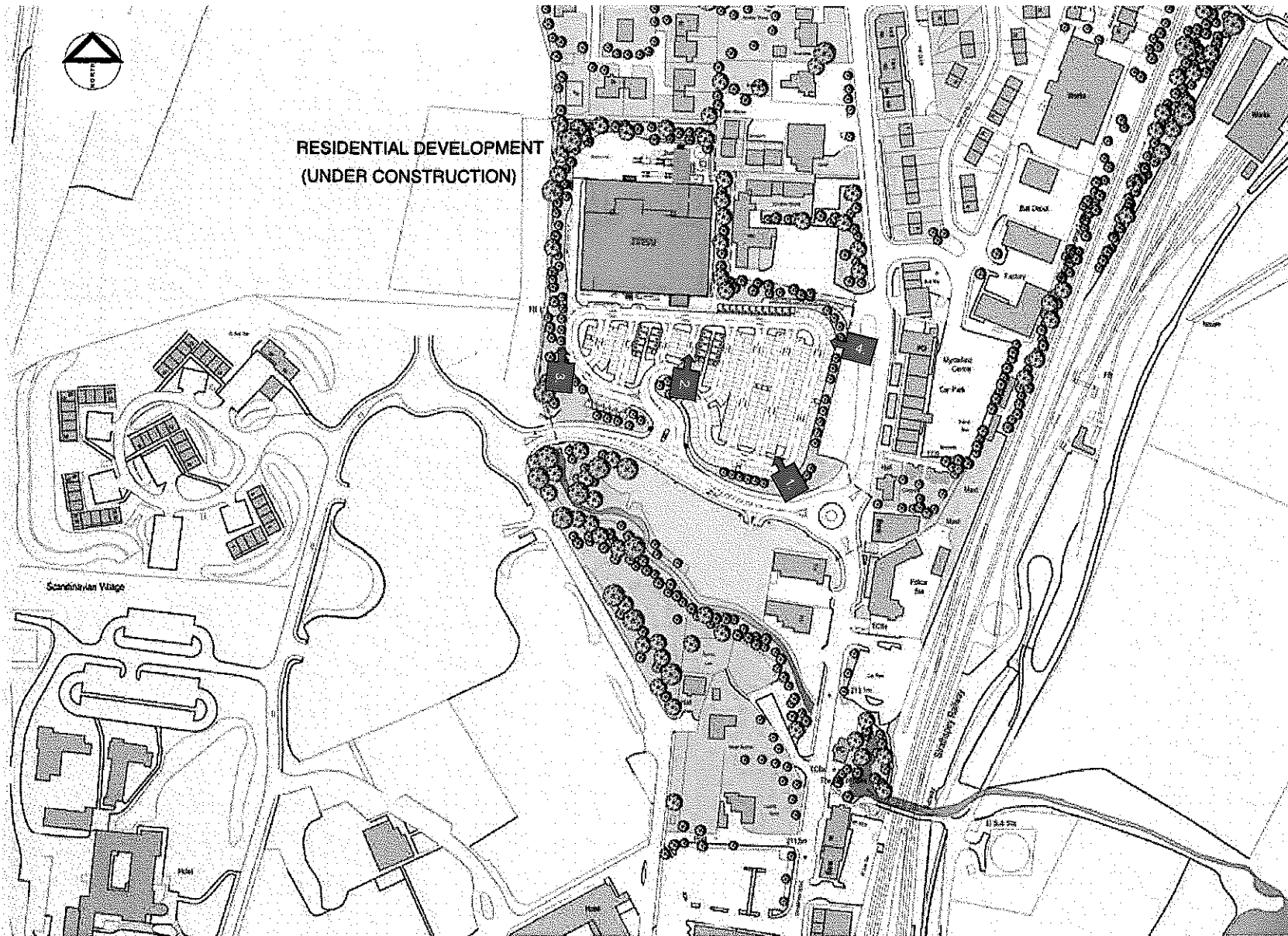
Development by Others

On the eastern boundary of the store, alongside Grampian Road an existing stretch of asphalt and grass could be transformed into a public space for use both as a monthly farmers market and as an attractive public 'square'. This space has been designed with the requirements of the market for grass areas to pitch the stalls and vehicular access for their stallholders in mind. Specimen tree planting and seating create a formal but relaxing space within the town centre, with the two grass lawns providing space to play or relax.



Final Site Layout

3.0 Development Proposals



Contextual Site Plan (Showing approximate positions of CGI views)

3.0 Development Proposals

3.5 Elevation Design

Although there are a number of historic buildings of architectural quality, the majority of buildings in Aviemore have been developed over the last 30-40 years. There is no overriding architectural style from which new developments would take design cues from, there is therefore an opportunity to use a contemporary architectural style on this site.

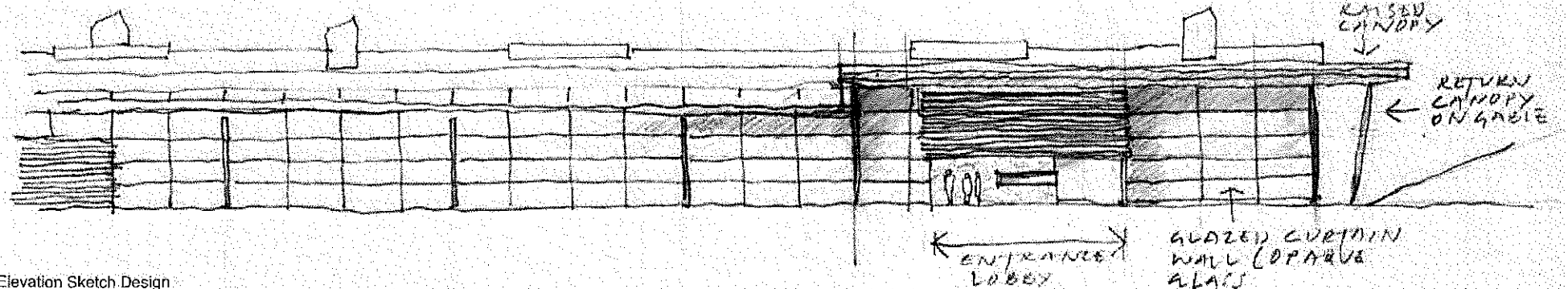
The main elevations which are visible to the public are the main entrance elevation facing the customer car park and part east gable (up to the point where it is concealed behind the Winking Owl public house) with the main focus being the corner. Accordingly the main public entrance is located here and this corner is given greater emphasis with a raised canopy which returns around the corner supported on canted, shaped timber columns. The entrance lobby is double height and will be constructed in locally sourced random rubble stonework and glazed curtain walling. The high level glazing will be protected from unwanted solar gain by timber louvres of elliptical cross section. The remainder of this elevation will be predominately glazed to allow views into the store and a welcoming open character to the public face of the building. A lower timber canopy will run the remainder of this elevation providing shelter for customers and solar shading to what is a predominantly south facing elevation. Normally the gables of a store would be clad in opaque materials however in this case, given the visual prominence of the return we propose to continue the front elevation treatment and canopy around the corner. The remainder of this elevation is timber clad with expressed vertical joints. A clerestory above allows a high level of natural light into the store creating a more pleasant environment and reducing the reliance on artificial lighting. The less visible north and west elevations are clad in a high performance composite panel.

High quality natural materials which are sustainable and weather well have been selected as cladding materials. These include powder coated aluminium curtain walling with high performance double glazed units, untreated larch cladding and glulam timber columns and locally sourced random rubble natural stone.

Forestry is a traditional industry in the Park, and timber is a relatively low impact building material. Choosing sustainably produced timber from within the Park will also cut down on environmental impacts arising from the transportation of materials. European larch has been selected as the timber for cladding environmental format stores as it weathers well, has minimal knots and is sustainably grown

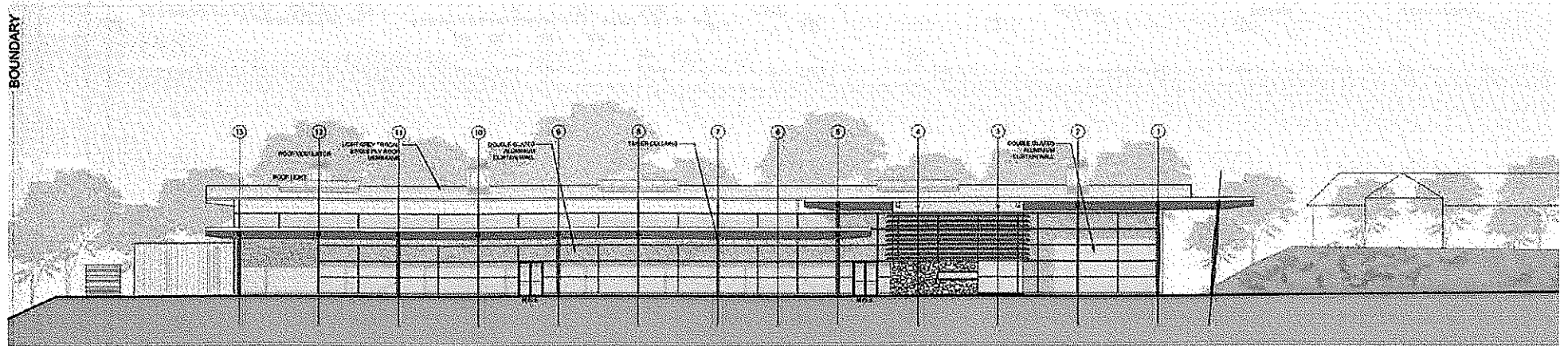


Tesco Banchory showing similar raised canopy/entrance detail

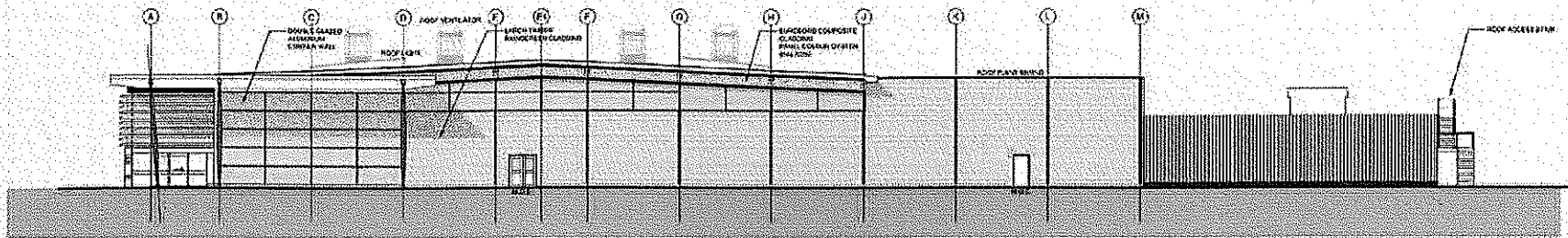


Elevation Sketch Design

3.0 Development Proposals



Developed Entrance Elevation



Developed Side Elevation

3.0 Development Proposals



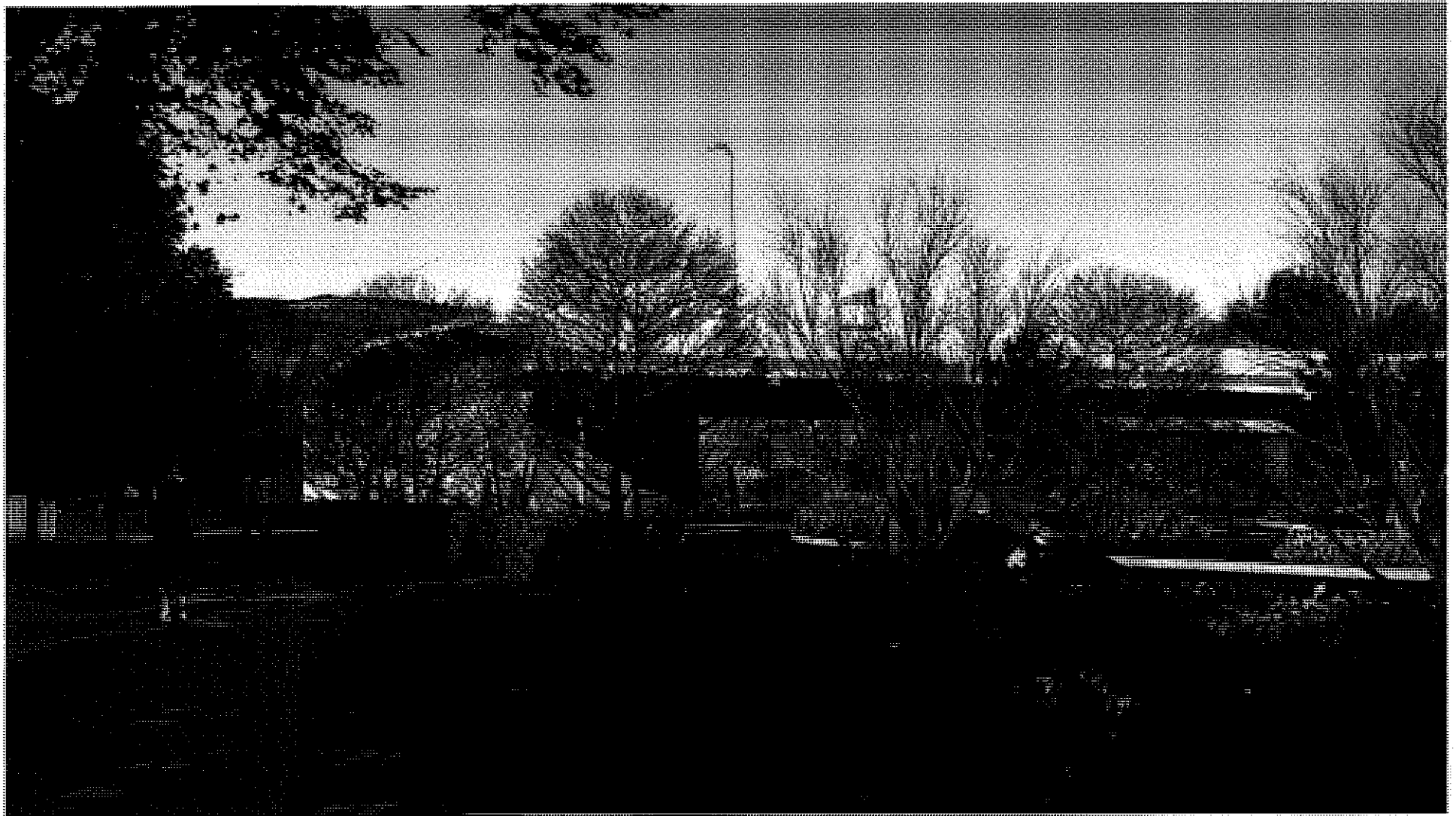
CGI view 1 (from junction of Grampian Road and Link Road)

3.0 Development Proposals



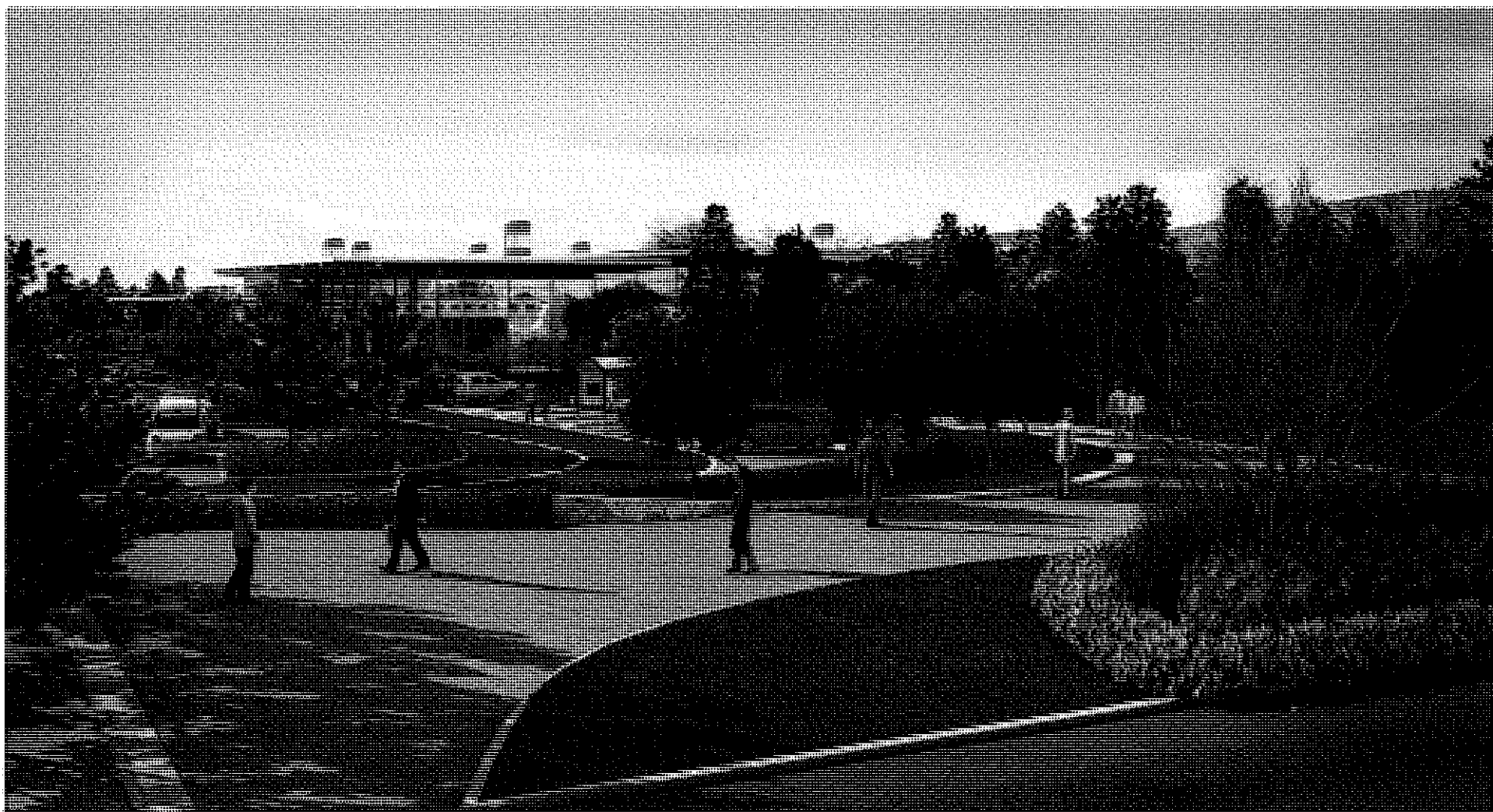
CGI view 2 (from car park towards main entrance)

3.0 Development Proposals



CGI view 3 (from path along Aviemore burn)

3.0 Development Proposals



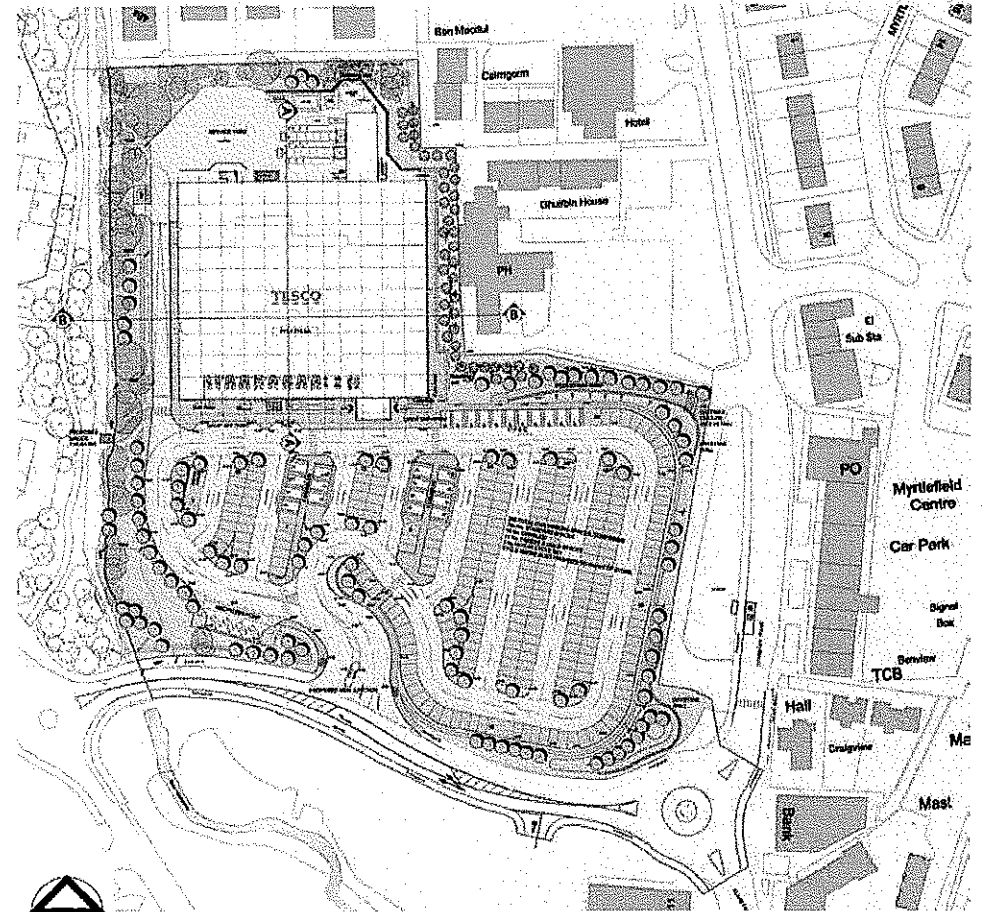
CGI view 4 (from public realm on Grampian Road)

3.0 a Development Proposals Update March 2012

3.1a Site layout and Landscaping

Following various meetings and consultations with CNPD the following development updates are being proposed :-

1. Proposed Tesco store has been moved slightly east.
2. Service Yard Layby removed to allow for a landscaped buffer between Tesco Development and adjacent Burn.
3. Service Yard Area re-configured.
4. Pedestrian link to Western Boundary updated.
5. Provisions for motorcycles added.
6. Feature Gateway added at Eastern Boundary.
7. 'Drystone' walls added along the Eastern Boundary and on Entrance / Exit to the store carpark.



Final Scheme



Contextual Cross Section

3.0 a Development Proposals Update March 2012

3.3a Accessibility

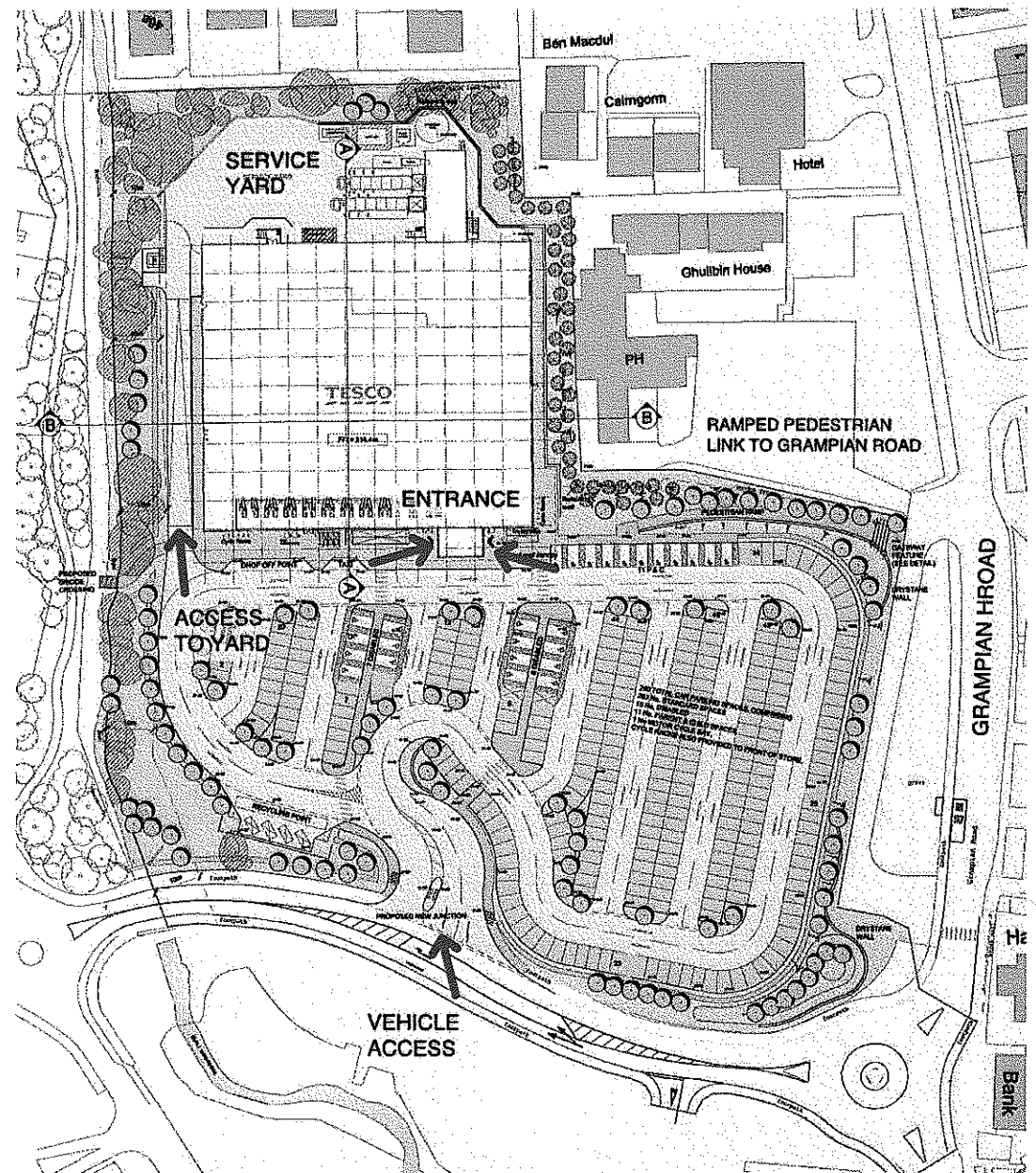
The site benefits from being located in close proximity to Grampian Road and the existing transport links that are available. The store is well located in relation to the bus stops on Grampian Road just to the north and south of the pedestrian access to the site. A number of bus services use these stops, providing access to the local towns and villages to the north and south along with longer distance destinations.

Pedestrians are catered for with an extensive network of footways and segregated footpaths serving the local residential areas, shops and local amenities. As part of the proposed development a new controlled pedestrian crossing is to be provided on Grampian Road, adjacent to the site. This will help cater for pedestrian journeys to and from the eastern side of Aviemore.

Covered cycle parking racks are to be located close to the main store entrance in order to encourage access to the store by bicycle. A motorcycle parking bay is to also be provided as part of the proposals, again located close to the store building.

A relatively new roundabout junction built to provide access between the B9152 Grampian Road and the Macdonald Aviemore Highland Resort (MHR) is located to the south east corner of the site. The main vehicular access to the new store site is to be taken from this MHR access link road, utilising a simple priority controlled junction layout which currently exists. As part of the proposals this junction is to be modified to make it marginally larger in order to cater for both customer traffic and delivery vehicles. Delivery vehicles will gain access to the store service yard using a route away from the main store car park.

In addition, a staff Travel Plan will be promoted within the store to encourage travel by sustainable modes. As such, the development is considered accessible by all modes and has been designed to encourage sustainable forms of transport and efficiently facilitate vehicle movements into and around the site.



Final Site Layout

4.0 Accessibility

4.1 Accessibility

The site benefits from being located in close proximity to Grampian Road and the existing transport links that are available. The store is well located in relation to the bus stops on Grampian Road just to the north and south of the pedestrian access to the site. A number of bus services use these stops, providing access to the local towns and villages to the north and south along with longer distance destinations.

Pedestrians are catered for with an extensive network of footways and segregated footpaths serving the local residential areas, shops and local amenities. As part of the proposed development a new controlled pedestrian crossing is to be provided on Grampian Road, adjacent to the site with a wheelchair accessible ramp leading to the main store entrance. This will help cater for pedestrian journeys to and from the eastern side of Aviemore.

A relatively new roundabout junction built to provide access between the B9152 Grampian Road and the Macdonald Aviemore Highland Resort (MHR) is located at the south east corner of the site. The main vehicular access to the new store site is to be taken from this MHR access link road, utilising a simple priority controlled junction layout which currently exists. As part of the proposals this junction is to be modified to make it marginally larger in order to cater for both customer traffic and delivery vehicles. Delivery vehicles will gain access to the store service yard using a route away from the main store car park.

In addition, a staff Travel Plan will be promoted within the store to encourage travel by sustainable modes. As such, the development is considered accessible by all modes and has been designed to encourage sustainable forms of transport and efficiently facilitate vehicle movements into and around the site.

4.2 Inclusive Access:

Access to the site and throughout the development will be barrier free ensuring that access to all facilities will be provided on equal terms. The areas accessible to staff and visitors will be level. The car park will have gradients no steeper than 1 in 40 and where necessary steps or ramps will be provided in accordance with current building regulations.

Disabled parking is provided directly facing the main entrance and is provided with pathways and pedestrian crossings to the building entrance. Parent and child parking are also provided and located so that parents with small children do not have to cross the road.

Any raised kerbs within the car park will be interspersed with drop kerbs where appropriate to ensure ease of access for those in wheelchairs, with ambulant disabilities or those with pushchairs.

In order to ensure fully inclusive access to the development it is important that the main entrance to the building is easily identifiable for all. The design of the proposed store enables the main entrance to be identified in a number of ways:

The location of the entrance is clearly recognisable as the main feature of the façade.

There will be only one point of entry. Footpaths and landscaping within the car park identify a clear route to the entrance. Clear signage will be provided above the main entrance ensuring the entrance may be identified from all areas of the car park. Further detailed signage will be provided at the entrance ensuring that visitors to the building may easily identify entrances to and exits from the building.

All entrance and exit doors within the building will be detailed to ensure a barrier free construction, therefore ensuring people with varying abilities have ease of movement when entering and circulating within the building.

Internal Access and Movement

The internal layouts of the main sales floor will be provided with full level accessibility, ensuring that access to all areas within the building will be provided to all.

Clear signage within the building will ensure clear navigation throughout the building regardless of customers physical restrictions. In accordance with current regulations accessible sanitary facilities will be provided within the building for both visitors to the building and for members of staff.

4.0 Sustainability

4.1 Background

This report has been produced to explain the energy efficiency, low carbon and sustainability measures being considered for the proposed Tesco store at Grampian Road, Aviemore. The detailed modelling of the sustainability measures to ensure compliance with the 2010 Building Regulations will be undertaken at the building warrant stage. The 2010 Scottish Technical Standards target a CO₂ emissions reduction of 30% relative to the 2007 Scottish Technical Standards and 50% relative to the 2002 Scottish Technical Standards. The introduction of these standards supersedes the requirements previously outlined in the now revoked Scottish Planning Policy 6 and Planning Advice Note 84.

This report focuses on the design of the store and proposed electrical and mechanical systems that will reduce carbon emissions.

There are wider environmental initiatives being taken forward by Tesco, such as increase use of local suppliers. Information on these initiatives can be found at <http://www.tesco.com/environment/>. Tesco's overarching company targets are to reduce carbon emissions by 50% by 2020 and to become a carbon neutral business by 2050. Reducing energy consumption in new stores is an important part of this commitment.

4.2 Sustainability Measures

Air Sealing - A range of measures, such as high levels of insulation on delivery doors, draught sealing of opening vents and partitioning between goods loading and storage, will be specified to minimise heat loss. Improvements in the entrance lobby have been introduced to avoid the loss of warmed or cooled air from the entrance. This creates a more pleasant environment for shoppers and greatly reduces the energy consumption and the related carbon emissions as heated air is restricted from escaping through the entrance.

Onsite Power & Heat Generation - Tesco has assessed a full range of low and zero carbon onsite power and heat generation technologies. It is proposed to install a gas powered combined heat and power plant at the new store on Grampian Road. Consideration will also be given to the installation of an air source heat pump.

Roof Lights - Daylight has been introduced across the sales area of the store through the introduction of roof lights. The use of natural lighting rather than artificial lighting further reduces the energy consumption. In addition to saving on energy used to light the store the roof lights create a positive and inviting atmosphere for customers. The roof lights proposed will be lightweight panels that are filled with a gel that allows light through without over-heating the store.

Wind Ventilators - Wind ventilators will be installed across the roof to provide natural ventilation into the store. The wind ventilators use the prevailing wind and draw in fresh air thus reducing the need for mechanical ventilation, reducing the energy demands and the resultant carbon emissions. The measures to improve the efficiency of heating and ventilation systems will reduce the store's energy bill by as much as 15%.

Rainwater Harvest - Rainwater harvesting will be incorporated into the store. Rainwater harvesting involves collecting water that would otherwise have gone down the drain into the ground or been lost through evaporation. This water will be used to flush toilets and will save a large volume of mains water and therefore help reduce the pressure on water resources.

Dimmable Lights - Lighting can account for up to half of a commercial building's electricity costs, and with electricity usually accounting for half of the total energy bill, there is the potential to save 25% of the entire electrical load. Controls will therefore be introduced that vary light output depending on the levels within the store to maintain sufficient light while eliminating the wasteful use of artificial light when daylight levels are already high.

Refrigeration - More than a fifth of Tesco's carbon footprint previously came from the gas use to keep fridges and freezers cold. Tesco now use more efficient refrigeration systems, including units cooled with carbon dioxide which is thousands of times less damaging to the climate than the previously used hydrofluorocarbons.

4.0 Sustainability

Cold Aisle Retrieval - The store will be filled with a cold aisle retrieval system that removes the cold spill from under the fridge cases, thus preventing the need to provide subsidiary heating in the aisle while not adding additional load to the fridge. The cold air removed from the aisle is used to assist with the cooling load in other parts of the store. A cold aisle retrieval system will significantly reduce energy consumption.

Energy Efficient Bakery - The store will be fitted with energy efficient ovens that have extended insulation, which greatly reduces heat loss and hence improves the efficiency – standard ovens are sized at 70kW and the new type sized at 42kW. In addition to their decreased demand for energy a benefit of installing the energy efficient ovens is the decrease in escaped heat reducing the load on the main store cooling system and improving the working conditions within the stores bakery area

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Energy Sub-Metering - There will be sub-metering of substantial energy uses. It is proposed that all substantive energy uses, such as space heating, cooling, and lighting, will be separately sub-metered. This allows managers and building engineers to understand where energy use is high and if required take corrective action. Monitoring the energy consumption allows trends in energy use to be noted, easing the identification of irregularly high peaks in consumption. Through monitoring consumption, targets for usage can also be set, working towards reducing the carbon footprint of the store.

Recycling - Recycling facilities in the car park will be provided for general public usage, encouraging the surrounding community to recycle. Green clubcard points are also available for customers who re-use their carrier bags, encouraging the public to re-use rather than take new carrier bags. In addition, it is proposed that there will be dedicated facilities for the separation and storage of retail generated recyclable waste materials in the store. There are also operational systems in place to ensure that the lorries making deliveries to the store pick up any recyclable material from the store itself and on their return to the distribution depot in Livingston take the material to a purpose built Recycling Centre.

4.3 Conclusions

The wide range of measures that will be used to reduce the carbon emissions at the Tesco store in Aviemore will result in a store of a round 70% less carbon emissions than an equivalent one built in 2006. At the building warrant stage a more detailed report will be prepared to demonstrate how the inclusion of the measures outlined above ensure compliance with the 2010 Building Regulations.

