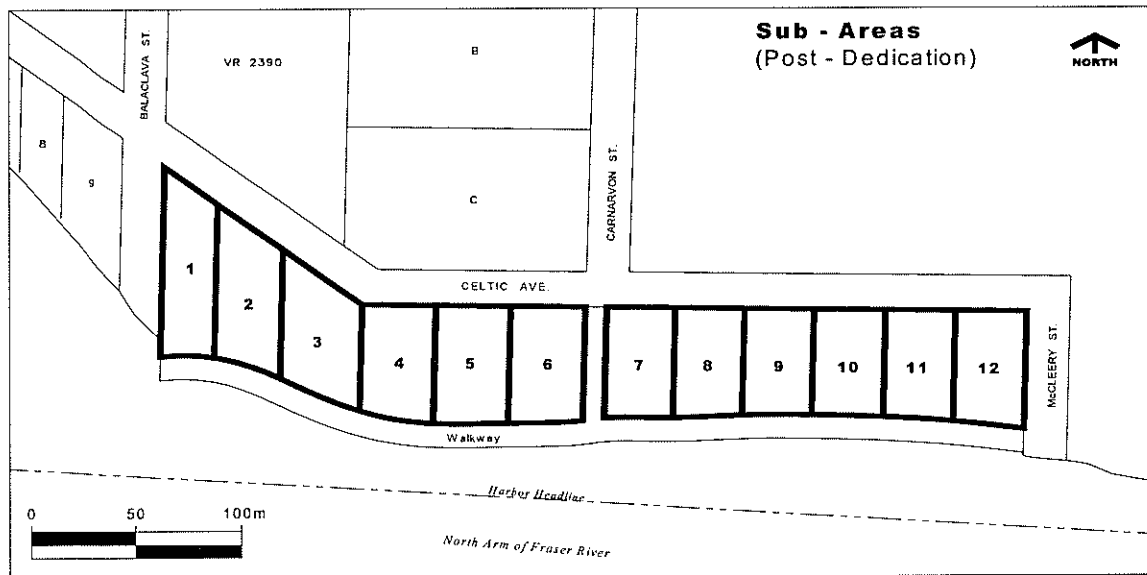




CELTIC AVENUE CD-1 (No. 448) DESIGN GUIDELINES

Adopted by City Council on November 29, 2005



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Note: *An Explanation of the Numbering Sequence*

The above headings follow a standardized format that provides a comprehensive list of subject matter organized in numerical sequence. Please note subcategories, which are not applicable to the guidelines, are not included in the index and this is reflected in the numbering sequence.

1 Application and Intent

These guidelines are to be used in conjunction with the CD-1 District Schedule of the Zoning and Development By-law for development permit applications in the Celtic Avenue area.

The intent of the guidelines is to insure high standards of development in the Celtic Avenue CD-1 area that are compatible with the established patterns of development in nearby Southlands and with the public amenity of the pedestrian/equestrian pathway along the Fraser River.

These guidelines also address the issues of environmentally-sensitive, sustainable development, or "green" development. In addition to existing environmental regulatory requirements, the applicant is encouraged to explore approaches that minimize water and energy consumption, reduce solid waste, treat storm water effectively and develop a high-quality indoor environment for the future occupants. Wherever possible, suggestions for minimizing water/ energy consumption are provided for applicants to consider in developing their design.

2 General Design Considerations

2.1 Neighbourhood Character

The neighbourhood character of the Celtic Avenue CD-1 area is influenced by its close proximity to Southlands RA-1 District and to the Fraser River. Shared characteristics with Southlands include a low lying topography, informal landscaping, equestrian uses and a sense of openness that define the semi rural character of the area. Maintaining these common characteristics with Southlands is an important objective of the Celtic Avenue CD-1 guidelines.

Celtic Avenue CD-1 is also distinguished from the rest of Southlands by its waterfront orientation to the Fraser River and a ten metre wide dedication for a public amenity in the form of a pedestrian/equestrian pathway. The natural and historic working marine environment further enriches the special character of the Celtic Avenue CD-1 area.

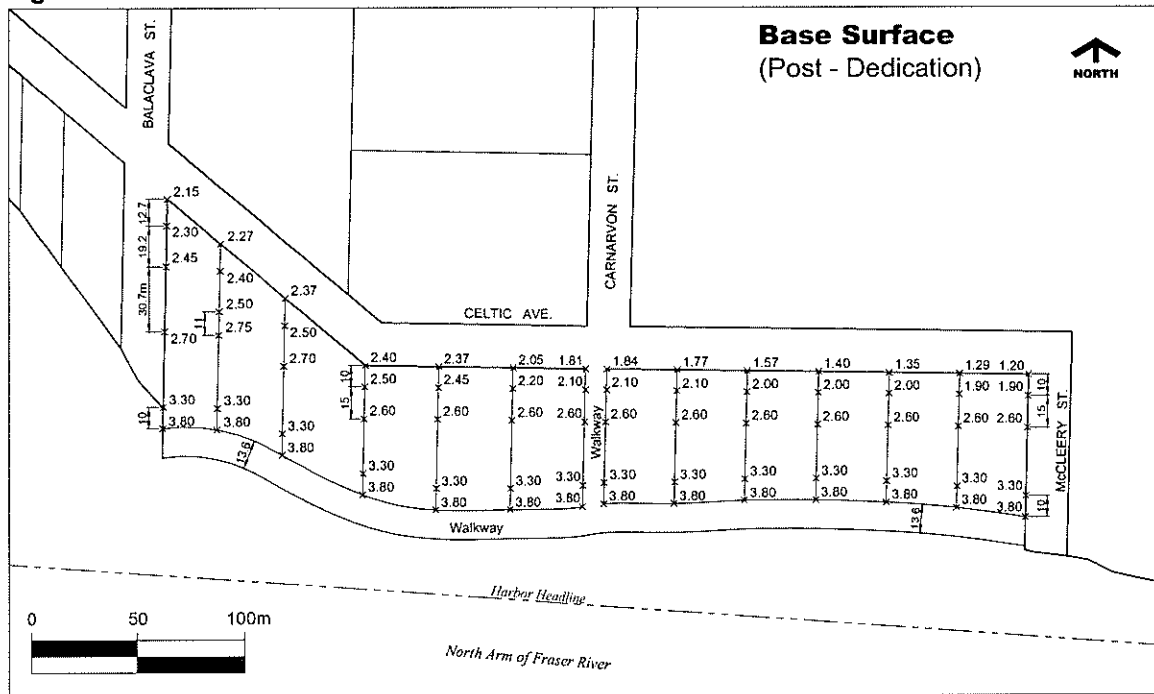
2.3 Orientation

Building sites in the Celtic Avenue CD-1 By-law have a dual orientation with the front yard facing Celtic Avenue and the rear yard towards the Fraser River. The main entry to the house should be orientated towards Celtic Avenue, while the rear yard faces the Fraser River and the pedestrian/equestrian pathway.

2.5 Topography

The natural topography is low lying with little variation in grade. The grades slope gradually from 3.8 geodetic at the waterfront pedestrian/equestrian pathway down to Celtic Avenue. Finish grades match the base surface plan, Figure 1, in the CD-1 District Schedule.

Figure 1: Base Surface Grades



No further filling is required or permitted except on a limited area basis to provide positive drainage and limited to a maximum of .3 m (.98 ft.) above the base surface elevation indicated in Figure 1 of the CD-1 District Schedule. All grade transitions are to be done gradually without the need for retaining walls or rock stabilized slopes.

A drainage and finished grades plan, prepared by a professional Engineer in the Province of B.C. is a requirement for a development permit. The drainage and finished grades plan should be consistent with the CD-1 area storm water management plan (required as a condition of rezoning) and indicate run-off from the site, including impervious and filled areas, to the City ditch system and not to adjacent sites. This plan should include:

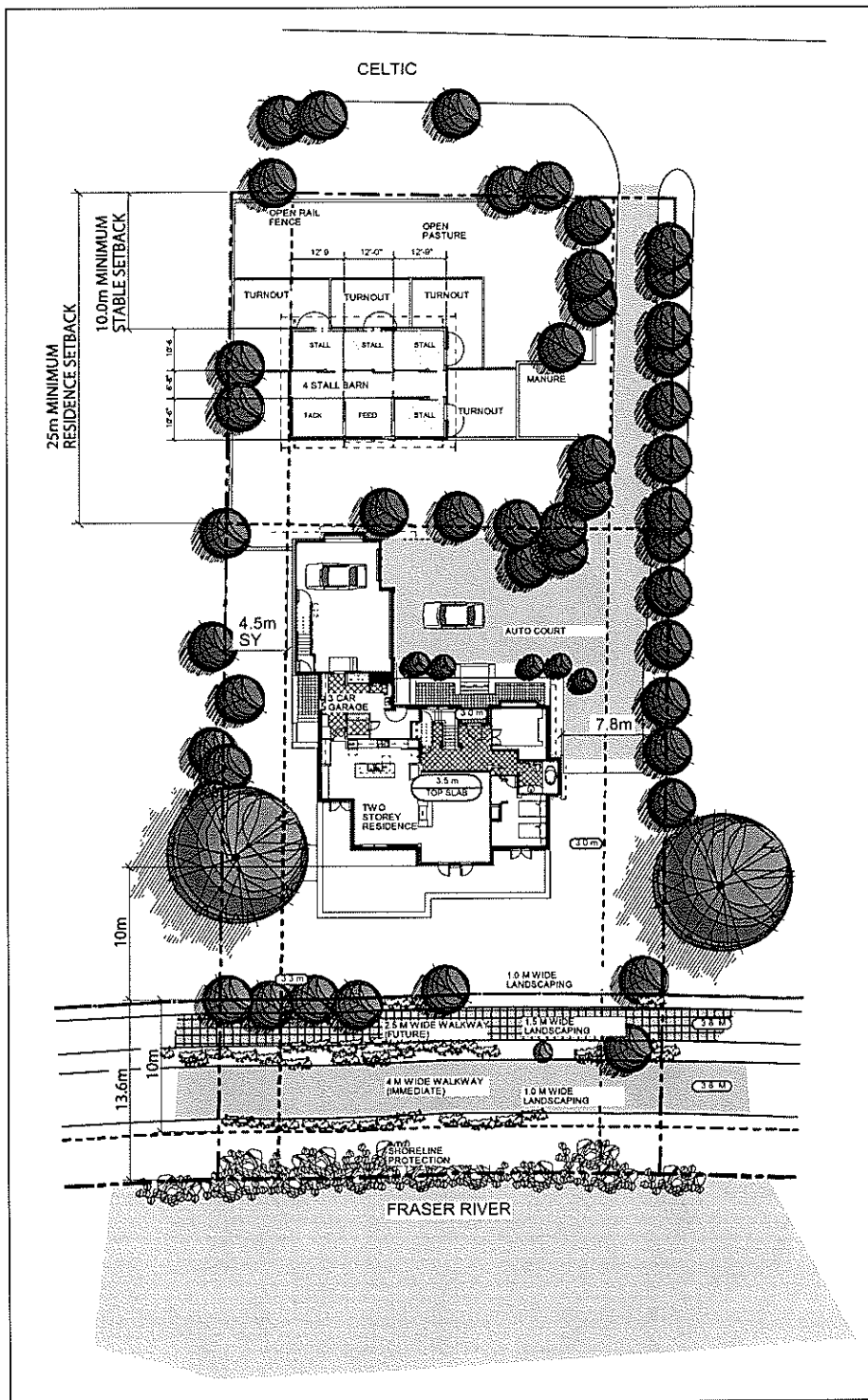
- (a) Existing grades of the subject site;
- (b) Existing and proposed grades of the adjoining sites measured 3.1 m from the common property line;
- (c) Proposed grades consistent with CD-1 District Schedule and Guidelines; and
- (d) Drainage treatment.

To maintain a consistent grade between properties drainage swales along property boundaries should be buried. This may necessitate alternative drainage and water retention systems. Water detention systems if required should be identified on the site plan.

2.11 Access and Circulation

Driveway access is paired to maximize frontages between lots. The 1.5 m (5 ft.) set back from the side property line should be maintained to the street edge and not joined together with the adjacent driveway to form a double wide street access.

Paving materials should be water permeable to assist in drainage and minimize water runoff. Suitable paving materials would include pea gravel and "grass crete" pavers. Asphalt, is generally not an appropriate material, notably in publicly visible areas of the site.



Typical Site Plan Illustrating Building Footprints, Yard Setbacks and Pedestrian/Equestrian Pathway

Note: This is intended for illustrative purposes only and does not suggest a preferred solution. Numerous other alternatives are possible within the limitations of the CD-1 regulations. For example, the stables could be reoriented closer to the house or turned so that the narrow dimension faced the streets, reducing the overall building width as seen from the street. Other solutions may opt not to have a stable, preferring to leave the front yard as open pasture.

3 Uses

3.5 Dwelling Use

The principal use of Celtic Avenue CD-1 is single family residential. Secondary suites are a permitted use within the building envelope of the principal dwelling. Exterior entrances to secondary suites, if necessary, should be discretely placed so as not to detract from the single family character of the principal dwelling. Secondary suites may be located over garages which are attached to the principal dwelling but not if the garage is detached from the principal dwelling.

3.6 Stabling and Equestrian Uses

Equestrian uses are a permitted and encouraged use, up to a maximum of four horses per site. The stable zone is located between 10 m (32.8 ft.) and 25 m (82 ft.) from the property line on Celtic Avenue. Space standards and user requirements should conform to the RA-1 Stable Administration Bulletin.

Applicants are advised that building such as garages, stables and other accessory buildings should be designed to reflect their intended use and not be adaptable to uses otherwise not permitted in the CD -1 By-law. For further information please refer to the Administration Bulletin Illegal Occupancy - RA-1 District.

4 Guidelines Pertaining to the Regulations of the CD-1 By-law

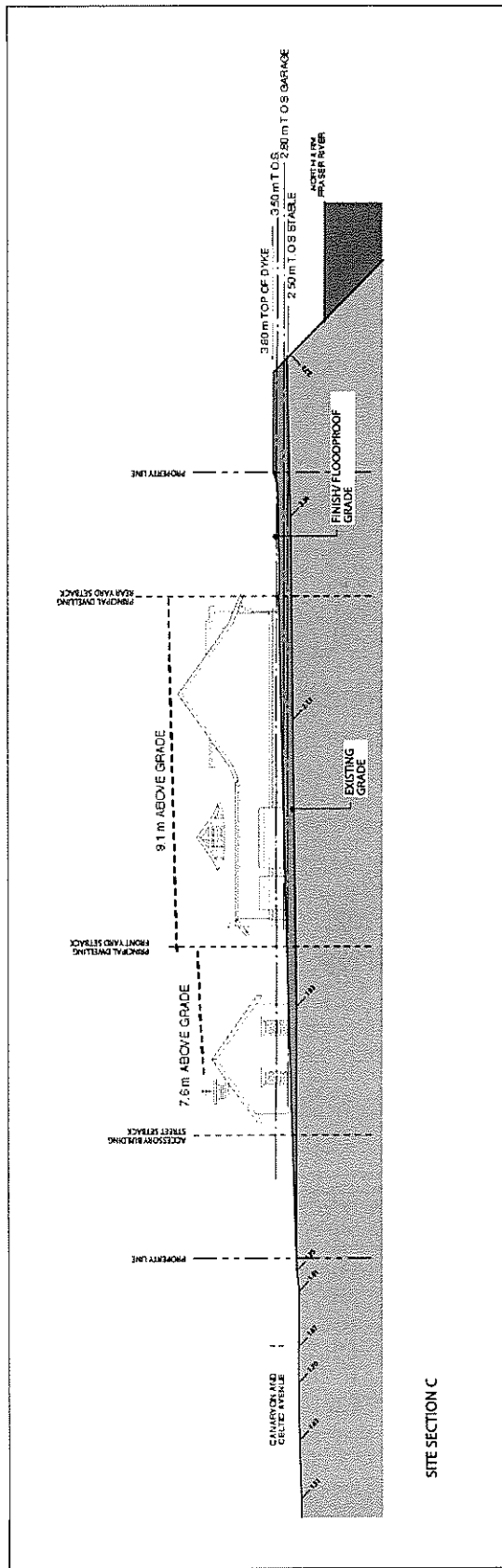
4.3 Height

Residential buildings have a minimum height of one and a half storeys and a maximum height of one and three quarter storeys and 9.1 m (29.9 ft.) measured from the established flood proof elevation.

Garages are limited to a maximum height of 5.2 m (17.06 ft.) measured to the roof ridge and should have a sloping roof form that is compatible with the house. Attached garages with residential floor area above may have a height equal to the maximum height permitted for a house.

Stables are limited to a maximum height of 7.6 m (25 ft.) and should have a sloped roof form. Because the stable zone does not require flood proofing, the stables will be located at a lower elevation relative to the house. The allowable height will be determined by an interpolative average of base surface elevations located within the stable zone.

The ground floor of the house will be higher than the street elevation because of the flood proofing requirements. Applicants are therefore advised to keep the massing of the building as low as possible and horizontal in form to minimize the apparent height as seen from the street. The upper floor should be integrated into the primary roof form, using secondary dormer elements as is appropriate.



Typical Site Section Illustrating Building Grades and Heights

4.4 Front Yard (and Setbacks)

Front yard setbacks for houses are 25 m (82 ft.) from the front property line in order to preserve the sense of openness from the street. The front setback should be compatible with the position of the houses on neighbouring sites in the CD-1 area and not be well forward or back of their neighbours.

Stables and related accessory buildings are located closer to the street, between a minimum front yard setback of 10 m (32.8 ft.) and 25 m (82 ft.). This is to encourage equestrian functions to be positioned closer to the street and to make use of the deep front yard for pasture and turn out functions related to equestrian uses, while at the same time separating equestrian functions from residential use.

Variation in stables front yard setbacks between neighbours is encouraged so as not to create a sense of continuous street wall and to reinforce the informal qualities of the street character.

4.5 Side Yard (and Setbacks)

Side yards setbacks are 4.5 m (14.75ft.) and are the same for all buildings. Side yards should allow for adequate separation between neighbouring buildings and for site transparency and views through from the street.

The location of neighbouring buildings and impact on site planning should be evaluated early during the design stage. Compatibility of uses and privacy issues related to window location and overlook from adjacent properties are important considerations.

4.6 Rear Yard (and Setbacks)

The house has a rear yard setback of 10 m (32.9 ft.), orientated towards the Fraser River and the pedestrian/equestrian pathway. The rear property line should be treated in a manner similar to the front yard; edges should be softly defined with informal planting and be semi transparent, allowing views into and out of the site. High hedges or solid fencing at the property line are not appropriate.

4.9 Off-Street Parking and Loading

Off street parking should be provided within an enclosed parking garage or screened by landscaping or buildings.

The presence of the automobile on the site should be minimized where possible and not detract from the prevailing site character. Garages, if located in front of the house should be turned so that the garage doors do not directly face the street. Building massing, roof form, materials and detail should be consistent with the house.

4.16 Building Width

The CD-1 District Schedule limits the building width of stables and accessory buildings including garages to a maximum 45 percent of the total site width when viewed from the street. This is to maintain transparency into and through the site and to allow for visibility of the house. It is also intended to discourage a "street wall" pattern of development.

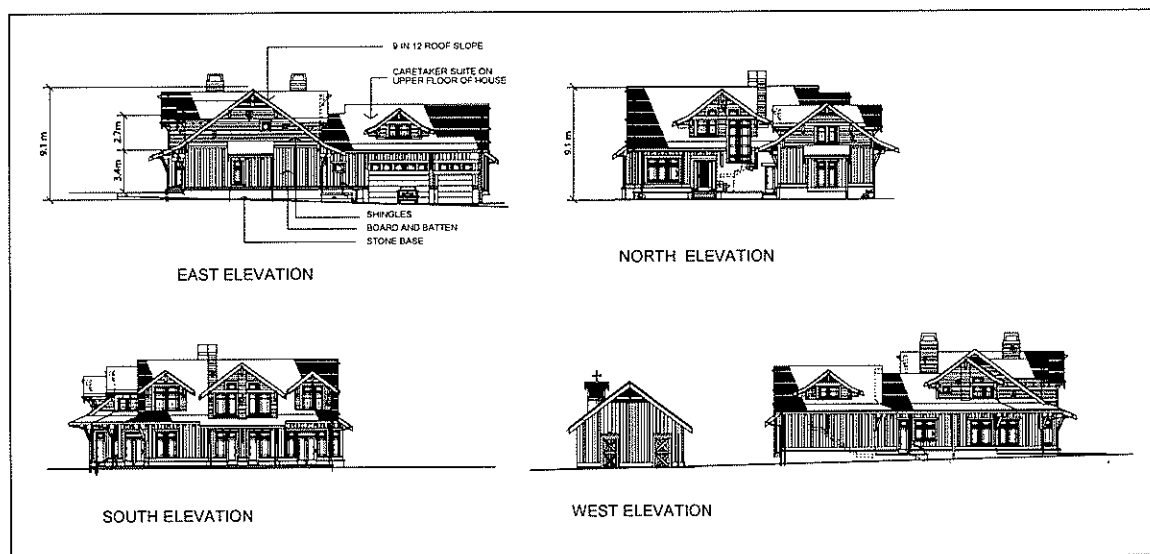
Orientating the narrow dimension of the stables and accessory buildings to the street and layering buildings so their frontages overlap will help to reduce the total building frontage.

4.17 External Design

Building character should reinforce the semi rural character of the surrounding neighbourhood. Buildings should visually blend into the landscape and preserve the sense of openness. To maximize open space, accessory uses should be attached or in close proximity to the principal buildings. Building massing should be horizontal to match the prevailing low lying topography.

Sightlines and vistas through the site from the street should be considered in the site planning. The house should retain some visible presence from the street and not be completely hidden behind the stable or accessory buildings.

Emphasis is placed on good neighbourly interface, respecting existing building setbacks, sightlines and compatible uses. Applicants are also encouraged to consider the principles of environmentally-sensitive and sustainable development in the design and construction of the building.



Typical Building Elevations Illustrating Building Massing, Roof Form and Materials

5 Architectural Components

Architecture should reinforce the semi rural character of the neighbourhood and the low lying topography. Building massing should be horizontal and fit well into the landscape. Compatibility with neighbouring buildings in terms of scale, massing and architectural expression is desirable.

5.1 Roofs and Chimneys

The roof form should be prominent and steeply pitched with a minimum slope of 7:12. The top floor should be integrated into the roof form with secondary dormers having a minimum slope of 4:12. Dormers should be small relative to the principal roof and not detract from the principal roof form.

Stables and accessory building should have a roof form that is consistent with the overall character of the site.

Chimneys if required, should have a mass, scale and height consistent with traditional chimneys, with a solid foundation and clad either with masonry or stone. Boxed out flues with exposed mechanical vents are not appropriate.

Environmentally-sensitive and sustainable development design considerations:

- (a) Consider the use of solar panels. Solar panel if proposed should be visually integrated into the overall roof form and not visible from the street.
- (b) Consider the roof shape to allow optimal sun exposure for solar panels, with ridges running in an east/west direction. Roofs should maintain a steeply pitched profile.
- (c) Consider deep roof overhangs that maximize solar access during the winter and minimize exposure in the summer are encouraged.
- (d) Consider rain water collection systems for recycling rainwater that can be used during the dry season for watering plants. Collection systems should be visually unobtrusive and made part of the landscaping. Note: Water collection systems are to be compliant with the Vancouver Building By-Law.
- (e) Consider heat recovery and ventilation exhaust systems should be integrated with the overall roof form and not visible from the street.

5.2 Windows and Skylights

Windows should be wide profile with truly divided lights and preferably constructed of wood. Windows on the second storey should be proportionally smaller than the windows below.

Pre-manufactured skylights that visually interrupt the roof form and detract from the building character and are discouraged. Skylights should be architecturally integrated with the roof form, and discretely placed so they are not visually dominated.

Environmentally-sensitive and sustainable development design considerations:

- (a) Consider window size, location and orientation for passive solar gain.
Note: Larger, more expansive windows on the south facing Fraser River frontage may be appropriate.
- (b) Consider using sun shading devices such as trellises and retractable awnings.
- (c) Consider adding windows on more than one wall that will increase natural daylight access, reducing the need for artificial light & provide enhanced ventilation/ cooling performance.
- (d) Consider the use of high performance glazing systems such as triple glazed units and low E glass. Note: Mirrored or reflective glass is not appropriate.
- (e) Consider operable skylight will greatly improve natural ventilation in the building.
- (f) Consider the use of solar panels (refer to comments under 5.1 Roofs and Chimneys for design considerations).

5.3 Entrances, Stairs and Porches

Entrances, stairs and porches are important character defining elements. The main entry should be prominent and orientated towards Celtic Avenue. Visibility or partial visibility of the main entry from the street is desirable. Entrances should be consistent with the semi rural character of the architecture and site and not be overly formal or “grand” in scale. The entry level should be higher than adjacent building grade with a raised stoop or porch and be protected from the weather, either by a recessed wall, canopy or porch roof. Porches should be a minimum 1.5 m (5 ft.) in depth.

Environmentally-sensitive and sustainable development design considerations:

- (a) Consider deep porches with midday and afternoon sun exposures that reduce heat gain on southerly and westerly building exposures and contribute solar shading and cooling of adjacent interior spaces.

- (b) Consider the use of enclosed entry vestibules and porch elements that help to prevent heat gain or loss.

5.4 Balconies

The Celtic Avenue CD-1 area provides panoramic views from the dwellings toward and across the Fraser River. These views may be partially obscured at ground level because of grade conditions and landscape treatment. To allow for the view amenity, upper floor balconies are therefore acceptable on the river facing side of the house.

Balconies should be modest in scale to the rest of the building and not overwhelm the building facade. They should be well detailed in a manner consistent with the detail and materials of the building. Balconies incorporated into the roof level should be recessed into the roof form and unobtrusively placed, so that the roof form remains continuous and visually dominant. Roof level balconies should not exceed more than twenty percent of the roof width. Large upper floor or roof “decks” are not appropriate.

Neighbouring privacy and potential for overlook are key considerations in evaluating the appropriateness of the location, size and detail of the balcony.

5.5 Exterior Walls and Finishing

Building materials should reflect the semi rural character the area. Wood is the preferred material choice for exterior wall finish; either horizontal siding, vertical board and batten or shingle style. Rough textured stone work is suitable for base and chimney treatment. Heavy textured (stone dashed) stucco is also acceptable in limited areas.

The preferred roofing material is cedar shakes, although asphalt shingles and flat profile concrete tile may also be acceptable. Round profile concrete tile and metal roofing is not appropriate.

Architectural detailing should be in wood and robust in profile. Synthetic materials such as plastics and styrofoam mouldings are not appropriate.

Colours should be muted and in the range of earth tones that blend visually with the landscape.

Environmentally-sensitive and sustainable development design considerations:

- (a) Consider the material mass of building components: Materials with high mass, such as stone, brick and concrete (and wood to a lesser degree) absorb and store heat, modulating temperature differences in both summer & winter. Locate such materials close to heat sources, such as large windows.
- (b) Consider the use of interior finishes and materials which are low in volatile organic compounds (VOC's) and have low emissivity or “off gassing”.
- (c) Consider the use of recycled building materials and/or which are locally derived.

7 Open Space

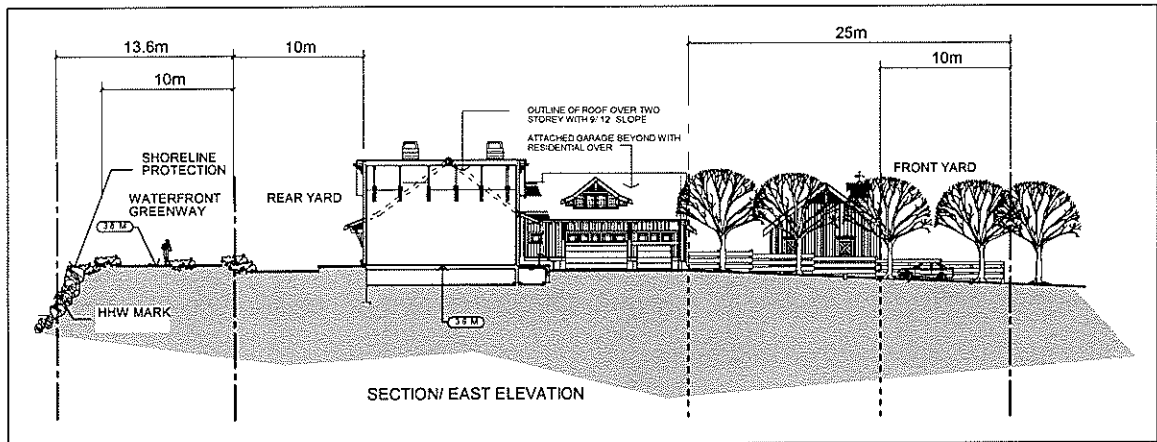
Open space is a character defining element of Southlands and remains an important attribute of the Celtic Avenue CD-1 area. New development should maximize open space where possible through clustering of buildings to allow views through the site.

7.2 Semi-Private Open Space

Semi-private open space may be located in the front yard facing Celtic Avenue as well as the rear yard which is orientated towards the pedestrian/ equestrian pathway. Both should allow for a gradual transition between the public realm of the street and pathway, and the private area of the site.

The front yard is intended for equestrian uses, stables, small related accessory buildings, turn out areas and pasture. The buildings should be placed to maximize site openness and views from the street.

The semi-private open space of the rear yard should allow for a gradual transition between the public amenity of the pedestrian/ equestrian pathway and private open space closer to the house.



Typical Site Section Illustrating Front and Rear Yards

7.3 Private Open Space

Private open space should not detract from the neighbourhood characteristics of openness and semi rural character. Non-transparent enclosures such as solid fencing or high hedging around the property boundaries are inappropriate.

Open private space should be located close to the principal buildings and be intimate in scale relative to the rest of the site. Landscaping can provide visual buffering and semi-enclose these areas. Building shape and clustering may further be used to define private outdoor space.

Special uses such as swimming pools, which are private in nature and require safety fencing, should be located away from the site's rear property line. This is to allow for site transparency and a gradual visual transition from the public realm of the pedestrian/ equestrian pathway to the private open space of the site.

8 Landscaping

Landscaping should reinforce the semi-rural character, be informal in organization, soft edged and allow transparency through the site.

The street edge should be informally treated and transparent across the site. Fences if necessary should be moderate in height, transparent and rural in character. It is important there is a sense of continuity along the street edge and de-emphasize the lot width pattern, where possible. For this reason, the immediate landscape context either side of the site, should be used as a reference for an appropriate response.

Side yards landscape treatment between the house and the street edge likewise should be transparent to allow for a sense of contiguous open space as seen from the street. Dense hedging or planting that creates a visual barrier between the front yards is discouraged. Fencing as required for the keeping of horses should be as transparent as possible.

Environmentally-sensitive and sustainable development design considerations:

- (a) Consider using drought resistant planting during the dry season.
- (b) Consider using planting and trees that absorb a high degree of water during the wet season.
- (c) Consider the use of planting which is natural to the local habitat, noting the proximity to the Fraser River and foreshore wetlands.
- (d) Consider the re-use of rain water for irrigation. Note: Rain water harvesting and storage facilities must comply with the Health Authority provisions of the Vancouver Building By-law.
- (e) Consider high- efficiency irrigation systems.

10 Environmental Regulations

The following is a list of existing legislative requirements providing regulatory control and standards for the protection and enhancement of the environment as well energy conservation and building performance.

- (a) Provincial Regulations
 - (i) FREMP, Fraser River Estuary Management Plan,

FREMP coordinates the environmental management of the Fraser River estuary reviews proposals for shoreline development and other activities in these marine ecosystems. Note: The Celtic Avenue CD-1 site has been reviewed by FREMP for compliance with Provincial standards, including the following:

- Water Quality and Drainage Control
- Foreshore and Fraser River Remediation
- Erosion Protection
- Soil remediation
- Fish Habitats

Web Address: <http://www.bicapfremf.org>

- (ii) Provincial Floodproofing Standards

Floodproofing is defined as the alteration of land or a building either physically or in use to reduce or eliminate flood hazard. It include the use of building setbacks from water bodies to allow for floodways and potential soil erosion and establishes minimum building elevations for habitable buildings. City Council adopted these standards April 15, 1986 and administers them in accordance with Section 2.3.6 (Buildings on Land Subject to Flooding), of the Vancouver Building By-law.

- (iii) Soil Remediation: Environmental Management Act, Part 4, Contaminated Site Remediation

- (b) Municipal Regulations, City of Vancouver:
- (i) Flood Management
 - Floodproofing Policies, By-law Administration Bulletin, (based on the Provincial Floodproofing standards)
 - Vancouver Building By-law; Buildings on Land Subject to Flooding Provisions
 - (ii) Storm Water Management Plan
 - The Celtic Avenue CD-1 By-law requires a storm water management plan, prepared by a certified professional engineer.
 - Reference: Celtic Avenue CD-1 Design Guidelines, 2.5 Topography
 - (iii) Drainage Management Plan
 - The Celtic Avenue CD-1 By-law requires a drainage management plan, prepared by a certified professional engineer. The drainage management plan considers run off during peak and normal periods.
 - Reference: Celtic Avenue CD-1 Design Guidelines, 2.5 Topography
 - (iv) Soil Permeability
 - The Celtic Avenue CD-1 By-law limits impervious surfaces to a maximum of 40% of the site area.
 - Reference: Celtic Avenue CD-1 By-law
 - (v) Soil Remediation
 - The previous use of the Celtic Avenue property was industrial and a soil analysis and remediation strategy was in place at the time of the rezoning.
 - (vi) Soil Preloading
 - The existing soil conditions of the Celtic Avenue site are subject to low bearing capacity and potential liquefaction. Preloading in combination with good drainage management reduces these hazards.
 - Vancouver Building By-law; Part 4, Structural Design Provisions
 - (vii) Tree Retention and Replacement
 - Tree By-law, Replacement Trees, Schedule A
 - Tree Retention, Relocation and Replacement Guidelines
 - (viii) Urban Food Production
 - City of Vancouver Policy for Sustainable Food System
 - (ix) Energy Building Performance Standards
 - Vancouver Building By-Law, Part 5, Environmental Separation Provisions and Part 6, Heating, Ventilating and Air-Conditioning Provisions
 - (x) Waste Management
 - Vancouver Building By-law, Part 8, Waste Material Provisions

Web Address: www.vancouver.ca

Energy Conservation and Sustainable Development Agencies and Programs

The following is a list of some of the other programs the applicant may wish to consider in the design and construction of development which is environmentally sensitive and sustainable.

- (a) R2000 Natural Resources Canada
 R-2000 is a voluntary federal program for energy efficiency and environmental responsibility. The R-2000 Standard is a series of technical requirements for new home performance that go way beyond building codes. Every R-2000 home is built and certified to this standard.
 Web address: <http://r2000.chba.ca>
- (b) Canadian Home Builders' Association
 The Canadian Home Builders' Association works with Natural Resources Canada's Office of Energy Efficiency which manages R-2000 on behalf of the federal government in support of R-2000 technology, builders and consumers.
 Web address: www.chba.ca
- (c) EnerGuide Natural Resources Canada, Office of Energy Efficiency
 Natural Resources Canada's Office of Energy Efficiency (OEE) offers a wide range of programs and services to improve energy efficiency. The OEE offers financial incentives and other resources, including workshops, data interpretation and free publications, to help Canadians save energy and reduce greenhouse gas emissions that contribute to climate change.
 Web address: <http://oee.nrcan.gc.ca/corporate/programs>
- (d) Canada Green Building Council
 The Canada Green Building Council exists to accelerate the design and construction of Green Buildings across Canada. The Council is a broad-based coalition from different segments of the design and building industry.
 Web address: <http://www.cagbc.org>
- (e) LEED
 The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.
 Web address: <http://www.usgbc.org>
- (f) LEED, Canada
 LEED Canada is based on the US LEED model but with an emphasis on the Canadian climate. It is administered by the Canada Green Building Council.
 Web address: http://www.cagbc.org/building_rating_systems/leed_rating_system

(g) GVRD, Greater Vancouver Regional District, Sustainable Regional Initiative

The GVRD's Sustainable Region Initiative (SRI) began in 2001 to identify public values regarding regional sustainability and the principles that should guide regional development for all GVRD activities under the following areas:

- (i) Water Management
- (ii) Land Use and Agriculture
- (iii) Transportation
- (iv) Building and Infrastructure
- (v) Business and Industry
- (vi) Composting and Recycling
- (vii) Community Education
- (viii) Parks and Green Space

Web address: <http://www.gvr.bc.ca/sustainability>