

SOUTH WESTMINSTER HEIGHTS INFILL AREA

NEIGHBOURHOOD PLAN GUIDELINES

Planning & Development

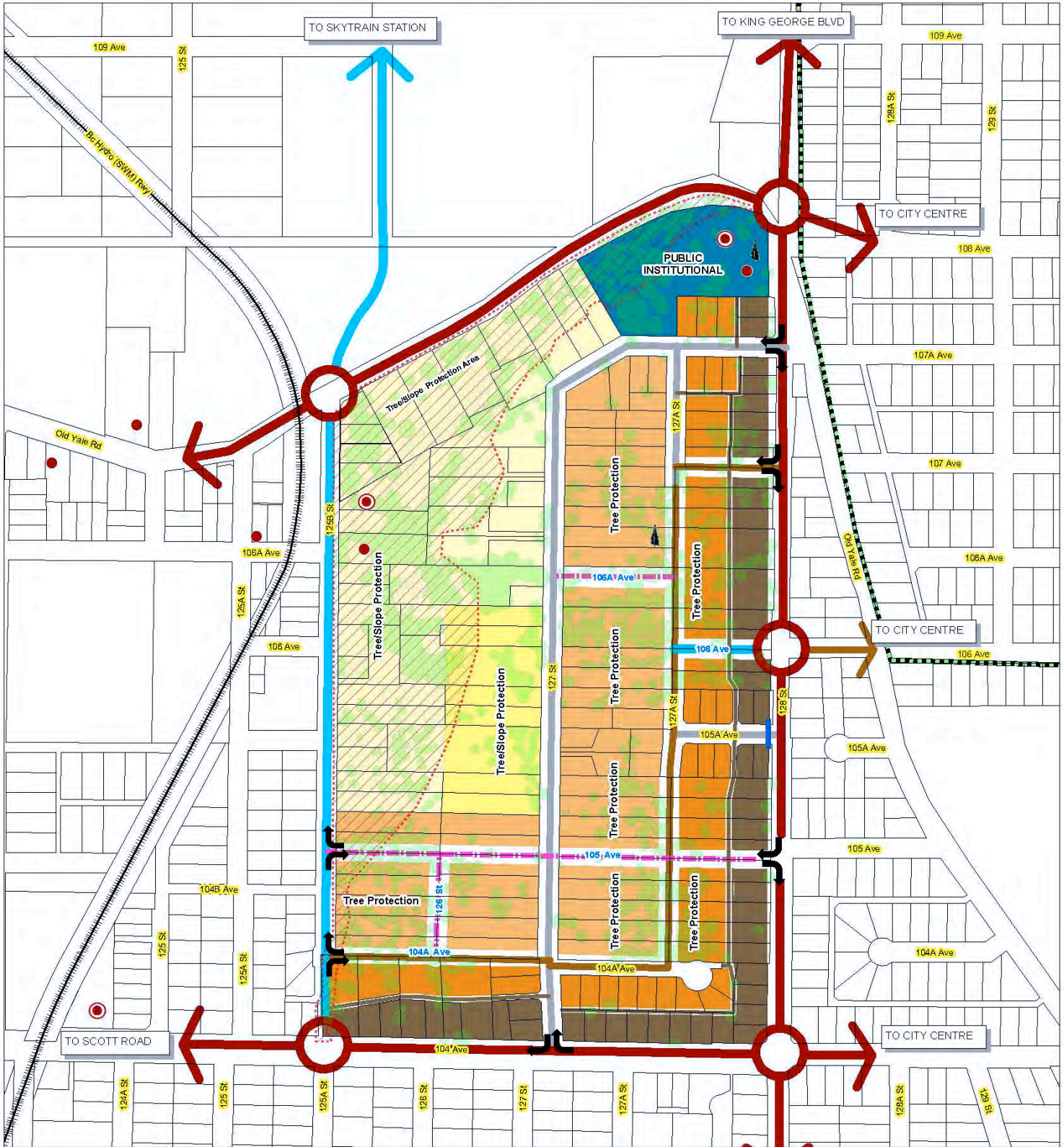
JULY 2013

CITY OF SURREY

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SOUTHWESTMINSTER HEIGHTS: INFILL AREA CONCEPT PLAN



Legend

Road Network

- Flex Road 18-20 m (Future)
- Local Road 20m (Future)
- Collector Road 24m
- Existing Local Road 20m
- Lane 6 m
- Arterial Road 30m

GreenWays

- - - Proposed Greenway



Right in Right Out

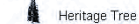


Full Movement Intersection



Road Closed in Future

Heritage Sites



Heritage Tree



Registered



Registered and Protected

Land Use Designations

- Hillside Estate Residential (4 UPA)
- Low Density (Cluster/Panhandle) (4-6 UPA)
- Low Density (Tree Protection) (6-10 UPA)
- Low-Medium Density (10-15 UPA)
- Medium Density (15-23 UPA)
- Public Institutional
- Steep Slopes
- Trees

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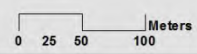


PLANNING AND DEVELOPMENT DEPARTMENT
SOUTH WESTMINSTER HEIGHTS PLAN BOUNDARY

- Legend**
- NORTHWEST WHALLEY BOUNDARY
 - Contours**
 - CONTOUR_TYPE**
 - Contour 1m
 - Contour 5m



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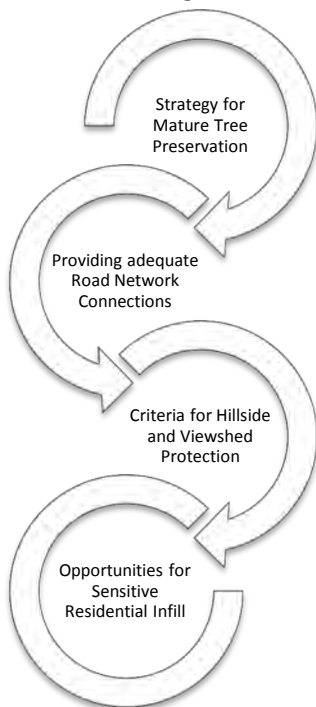
INFILL AREA PLAN

This document sets out planning and development guidelines that are intended to assist the City and Neighbourhood in considering development applications, and achieving high quality sensitive residential infill in the South Westminster Heights Area which is welcomed by neighbours and facilitates a long term liveable environment for residents.

An infill area concept plan for this Neighbourhood was identified as a priority by City Council to assist in achieving four main goals:

1. Strategy for Mature Tree Preservation;
2. Providing adequate Road Network Connections;
3. Criteria for Hillside and Viewshed Protection; and
4. Opportunities for Sensitive Residential Infill.

The City Planning and Development Department, as part of its planning and review, identified the need to provide guidance for the location, form and design development criteria in this maturing neighbourhood. These Residential Infill Guidelines are an important tool in fostering sensitive infill development and achieving the above goals as development occurs.



1. Area of Application

The Guidelines in this document apply only to residential infill development in the South Westminster Heights neighbourhood, which is identified in **Figure 1**.

The Guidelines apply to all forms of residential infill development– from Single Family to Ground Oriented Multifamily. In addition, they include a section specific for development guidelines in areas of Tree preservation priorities and on or near Steep Hillside. It should be noted that these guidelines deals only with land use types and roads network consideration. Infill proposals involving more innovative forms will have to be evaluated based on a combination of the Guidelines and the development proposal’s particular merits in achieving city standards for engineering and design.

The Guidelines do not change current zoning or subdivision requirements of the city, but work as a guide for considerations future applications.

2. Using the Guidelines

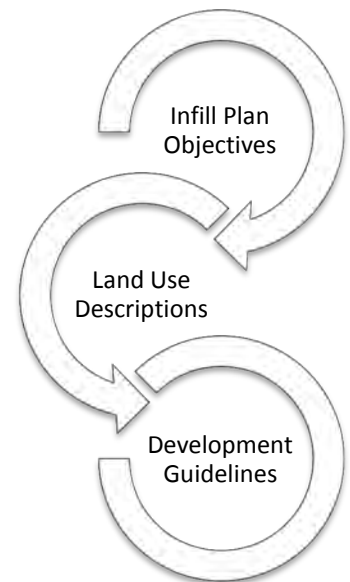
In addition to the specific sections of this document dealing with each type of Residential Infill, it should be noted that the following information has been included to assist in understanding and applying the Guidelines:

- a. The Objectives of the City in encouraging residential infill, along with the objectives that the Neighbourhood and the Development Industry have with respect to infill development.
- b. Descriptions of the different land use designations, along with the typical housing forms normally applied to the different forms of infill.
- c. Development Guidelines to be used in the preparation and review of subdivision, rezoning, building and/or development applications.

NOTE:

It is important to note that some flexibility will have to be exercised in the application of the Residential Infill Guidelines to respond to specific context and the unique features of a site. Flexibility is required in the application of these 'universal' Guidelines because of the variation in geography and existing development that exists amongst the Neighbourhood.

Whenever flexibility is exercised, the overall intent of the Guidelines must be kept in mind, and that is to achieve residential infill that is compatible and complimentary to the neighbourhood.



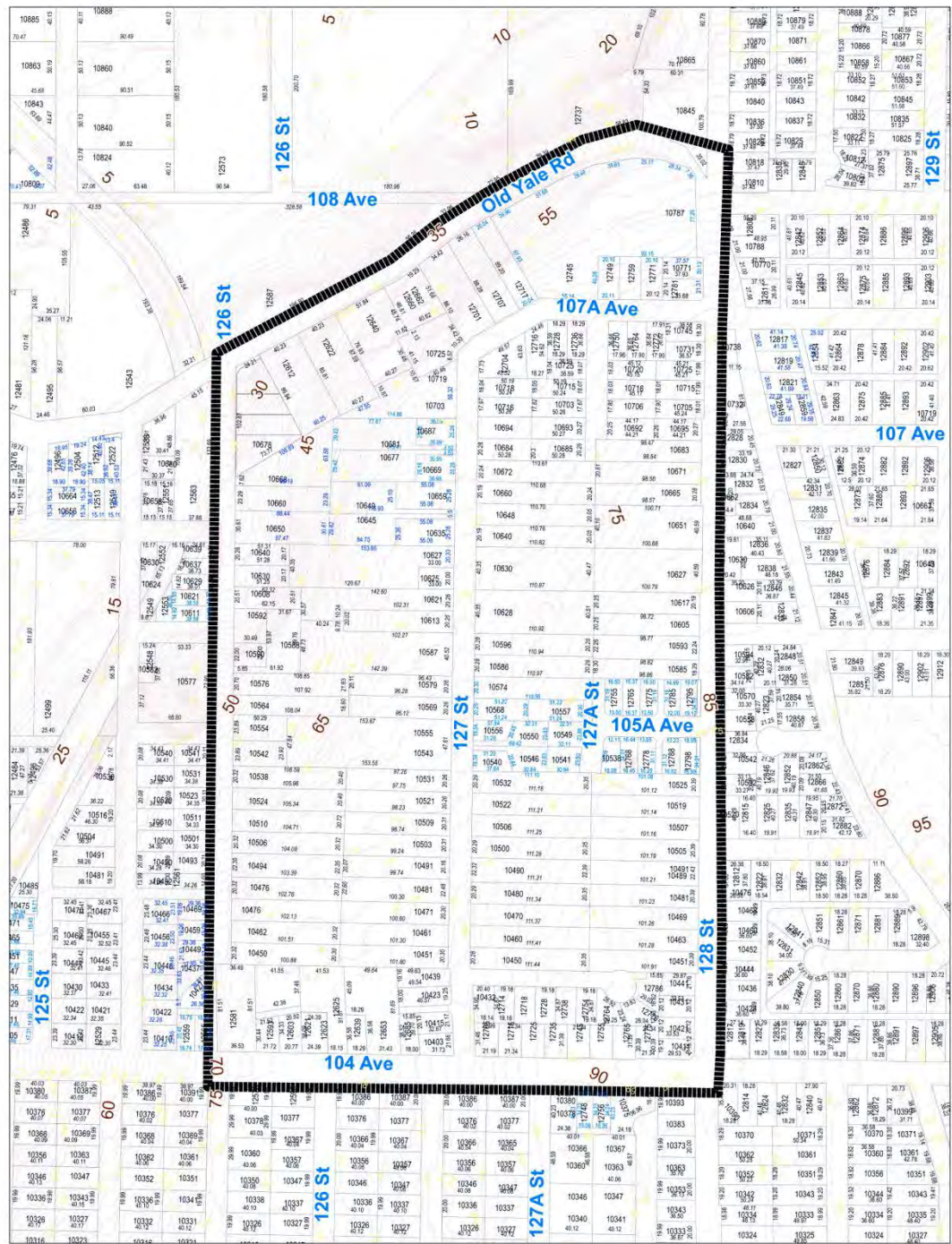


Figure 1 – South Westminster Heights Neighbourhood Boundary

INTRODUCTION

1. PLAN INITIATION
2. PLAN CONTEXT
3. PLAN CONSULTATION
4. ISSUES AND OPPORTUNITIES
5. LOCAL HERITAGE
6. ENVIRONMENTALLY SIGNIFICANT AREAS

A



INTRODUCTION

A1

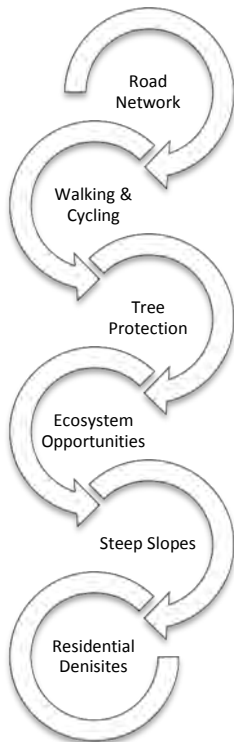
A. Introduction

1. PLAN INITIATION

On November 26, 2012, Council referred Planning Application 7912-0192-00 (to allow a subdivision of 15 small single family lots), back to City staff to develop an Infill Concept Plan for a small neighbourhood in Northwest Whalley. Council instructed staff to hold all land development applications in the neighboured in abeyance until an Infill Concept Plan was complete and supported by Council.

City Council recommended that the Infill Concept Plan address:

- **Road Network Connections:** to limit impact on steep slopes and respect treed areas, as well as provide access to the arterial roads that borders the neighbourhood;
- **Transportation Plans:** to include a finer grained road network to encourage more active transportation and mobility;
- **Preservation of important stands of trees:** to strategically retain canopy coverage. Specifically trees along steep slopes and those mature trees that are visible on routes into Surrey;
- **Ecosystem management opportunities;** including provisions for, preservation and wildlife connections in the area;
- **Steep slopes,** including ridgeline strategies based on development guidelines along the western portion of the neighbourhood, which shows evidence of slips and slides in the past; and
- **Residential Densities:** potential for sensitive infill, and opportunities for cluster housing for tree preservation and public benefit, as well as lot consolidation strategies for development equity.



Although there are different perceptions and interpretations from within the community about what will lead to the achievement of healthy, adaptable, mature neighbourhoods; these Residential Infill Guidelines are intended to provide a consistent set of planning and design criteria that will contribute to the achievement of the objectives and planning principles for the South Westminster Heights Neighbourhood in the long term.

2. PLAN CONTEXT

The South Westminster Heights Infill Concept Plan area includes approximately 30.86 hectares (76.26 acres), as illustrated in **Figure 1**.

The Neighbourhood area is generally bounded by Old Yale Road to the north, 128 Street to the east, 104 Avenue to the south and 125B Street to the west. The Neighbourhood is around 800 - 1,200 m east of boundary of the Surrey City Centre Plan as shown in Appendix II. There are approximately 182 individual properties in the area. The area includes a range of lot sizes ranging from 700 sq. m up to 4.12 acres. On the average lots are about 1695 sq. m (0.42 acres) in size. In some parts of the neighbourhood, where ownership is quite fragmented, land assembly and redevelopment may be challenging.

The Neighbourhood has been developed for primarily single family residential lots averaging 1695 m² (0.4 acre) in size. Recent redevelopment and several applications for more dense (6000 square foot) single family residential development have occurred in the Study Area.

The Neighbourhood is characterized as being very well treed with mature conifers and the ridgeline is clearly visible from New Westminister, the SkyTrain Bridge, the Pattullo Bridge, and other routes into Surrey; as well as offering views of the Fraser River and North Shore Mountains.

A map of the Site Context of the South Westminster Area is provided in **Figure 2**.

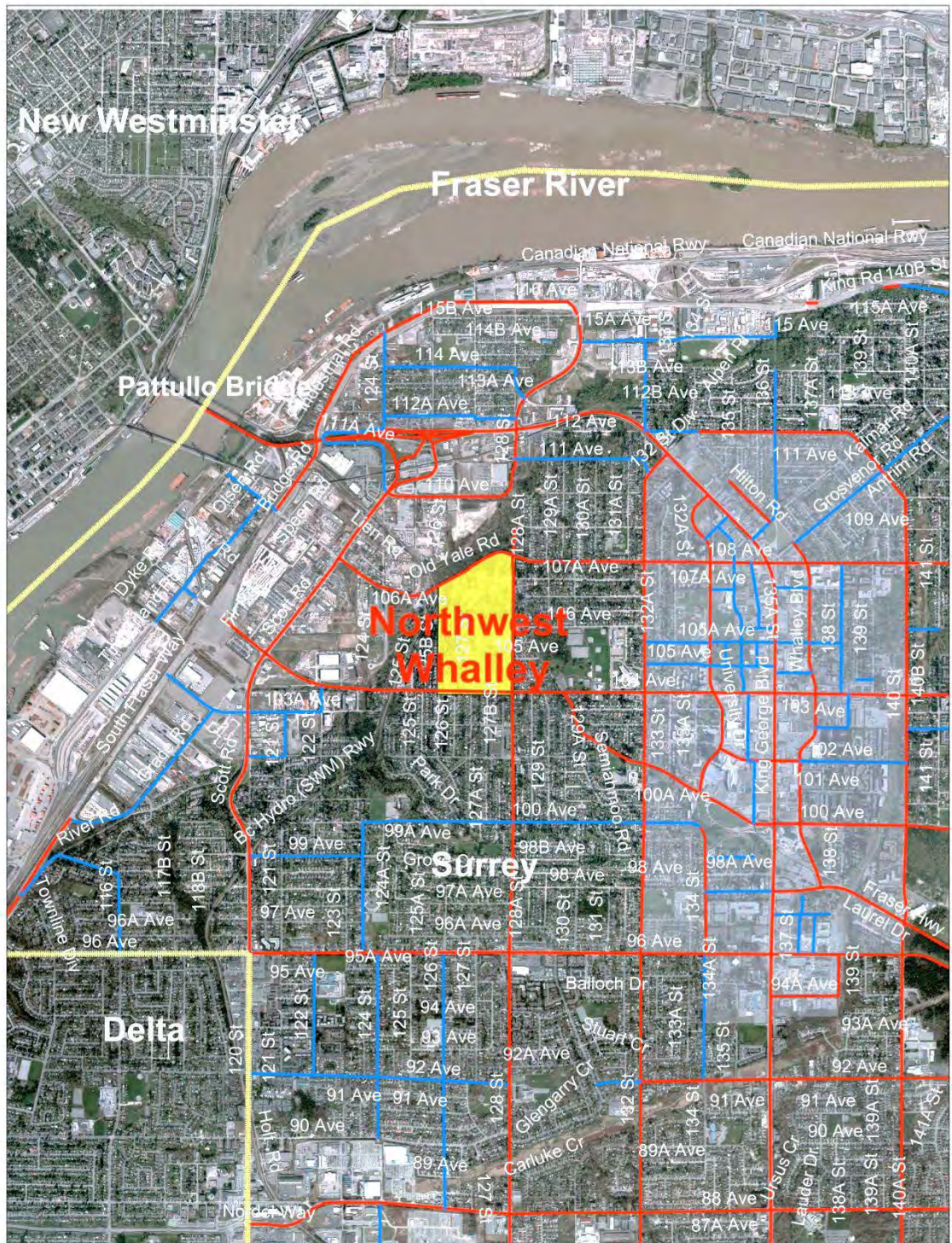


Figure 2 - South Westminster Heights Infill Area Context Map

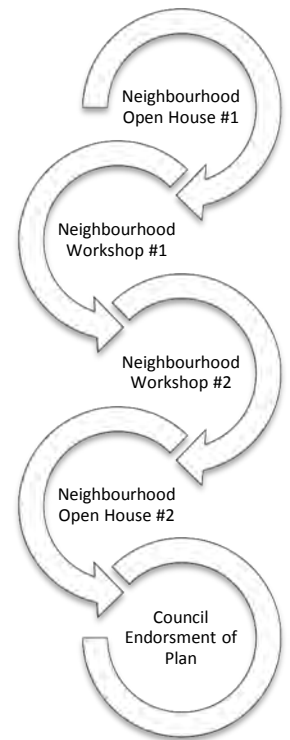
3. PLAN CONSULTATION

Land Owners, stakeholders, and residents from the neighbourhood were invited to participate in an initial Neighbourhood Planning Workshop to help ensure that neighbouring areas are involved in the development of the Infill Concept Plan.

At milestones in the planning process, land owner public meetings were held with update reports provided to City Council as required. Residential interests and stakeholders, along with the general public from within the Neighbourhood, were consulted in preparing the Infill Area Plan.

Two land use options were developed and these were reviewed with the property owners in the area to determine a preferred land use concept, as well as with other stakeholders, with input from Environmental study findings discussed in Section B6 and attached in Appendix II to this report.

A2

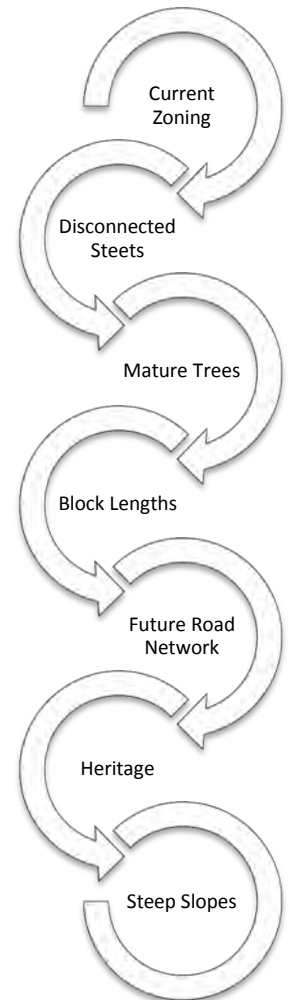


4. ISSUES AND OPPORTUNITIES

The South Westminster Heights Infill Area has multiple opportunities as well as constraints including:

- current urban (RF) zoning designation,
- disconnected transportation network,
- Mature trees,
- long block lengths,
- proximity to the future truck route and City Centre,
- heritage values, and
- steep vegetated hillside slopes.

A3



5. LOCAL HERITAGE

The plan area is located within the historic South Westminster neighbourhood. South Westminster was a thriving residential community in the late 19th century. The Brownsville Hotel was built at the foot of Old Yale Road and a ferry was operated from the Brownsville Landing for Surrey residents to bring their produce to the farmers' market in New Westminister. A bridge was constructed in 1904.

By 1910, Brownsville had become an established community with two hotels, a school and a grocery store. St. Helen's Church was built up the hill on Old Yale Road. The British Columbia Electric Railway built a passenger station (Scott Station) providing access to New Westminister, Vancouver, and Chilliwack.

Old Yale Road was an important transportation route. As part of the present Fraser Highway, Old Yale Road was one of the first roads providing access to the newly opened lands east of Surrey. It was connected as a wagon road to the Semiahmoo Trail which connected to the Telegraph Trail, south of the Nicomekl River. Following the collapse of the building boom in 1913, further development of South Westminister stagnated until the mid-20th century. Gradually, industrial uses began to replace the residential community.

Historic Street Names

- Pearson Road (127 Street)
- Dibley Road (125B Street)
- Hjorth Road (104 Avenue)
- Sandell Road (128 Street)
- Old Yale Road

A5

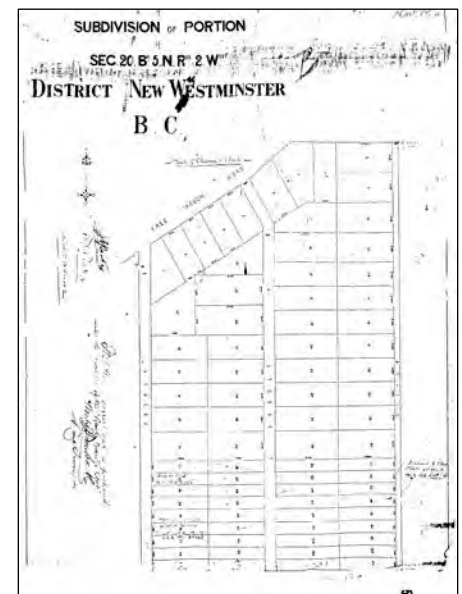


Figure 3 - Historic Subdivision in NW Whalley



Recognized Heritage Sites

Figure 4 identifies recognized Heritage sites within the Infill Area, as described below.

i. James Creighton House | 10668 125B Street

The James Creighton House is listed on the City of Surrey's Community Heritage Register and the Canadian Register of Historic Places. It is also protected by Heritage Designation By-Law, 2001, No. 14446. Despite its designated status, the House appears to be in some disrepair. In order to establish a conservation strategy for the House, a Heritage Revitalization Agreement (HRA) should be required as part of any future redevelopment of this property. Future redevelopment should include not only the restoration of the House itself, but also the preservation of landscape features identified as character-defining elements including fruit trees, conifers, and stone steps and retaining walls.

ii. St. Helen's Anglican Church | 10787 128 Street

St. Helen's Anglican Church is listed on the City of Surrey's Community Heritage Register and the Canadian Register of Historic Places. It is also protected by Designation By-law, 1980, No. 6442. In order to establish a conservation strategy for the Church, a Heritage Revitalization Agreement (HRA) should be required as part of any future redevelopment of this property. Future redevelopment should include not only the restoration of the Church itself, but also the preservation of landscape features that are identified as character-defining elements including the cemetery, mature shrubs and trees, grassed areas and informal paths. The protection of the Rectory (see below) through HRA should also be a priority.

A5



**iii. St. Helen's Anglican Church Rectory | 10787
128 Street**

St. Helen's Anglican Church Rectory is listed on the City of Surrey's Community Heritage Register but it is not presently protected. In order to establish a conservation strategy for the Rectory and ensure its long-term protection, a Heritage Revitalization Agreement (HRA) should be required as part of any future redevelopment of this property.

iv. Ambler House | 10650 125B Street

Ambler House is listed on the City of Surrey's Community Heritage Register but it is not presently protected. In order to establish a conservation strategy for the House and ensure its long-term protection, a Heritage Revitalization Agreement (HRA) should be required as part of any future redevelopment of this property.

v. Western Red Cedar | 10648 127 Street

This 100 year old Western Red Cedar Tree is recognized as a heritage/significant tree in Schedule B of the City's Tree Protection By-law.

vi. Various Trees | 10787 128 Street

Several trees of various species on the St. Helen's Anglican Church property are recognized as heritage/significant trees in Schedule B of the City's Tree Protection By-law.

A5





PLANNING AND DEVELOPMENT DEPARTMENT

NORTHWEST WHALLEY INFILL CONCEPT PLAN AREA
Heritage Sites

Legend

- Tree (Register)
- Registered
- Registered and Protected
- NORTHWEST WHALLEY BOUNDARY

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Figure 4 - Heritage Sites

6. ENVIRONMENTALLY SIGNIFICANT AREAS

Phoenix Environmental Services Ltd. was retained by City of Surrey, to conduct a baseline environmental assessment (of the South Westminster Heights Infill Concept Plan Study Area with emphasis on view protection and preservation, terrain assessment, slope stability, and tree canopy cover analysis. A summary of the findings are provided below, with the full Environmental Report provided as **Appendix III**.

i. Steep Slopes and Hazard Areas

The South Westminster Heights area predominantly slopes down to the northwest. From a local topographic height of land near the southeast corner of the Study Area near 128 St. and 104 Ave., westward and northwestward slopes along 128 St. and 127 St. are relatively gentle.

However, the west, northwest and north edges of the Study Area are characterized by steep slopes that are steeper than 15%. Some parts of the steep slopes east of 125B St. and south of Old Yale Rd. have slopes of 39% - 49%. Terrain mapping based on topography available on COSMOS is presented on **Figure 5** for more detailed reference. Most of the steep slopes have remained forested, but houses have been erected on constructed benches at or near the base of these prominently steep parts.



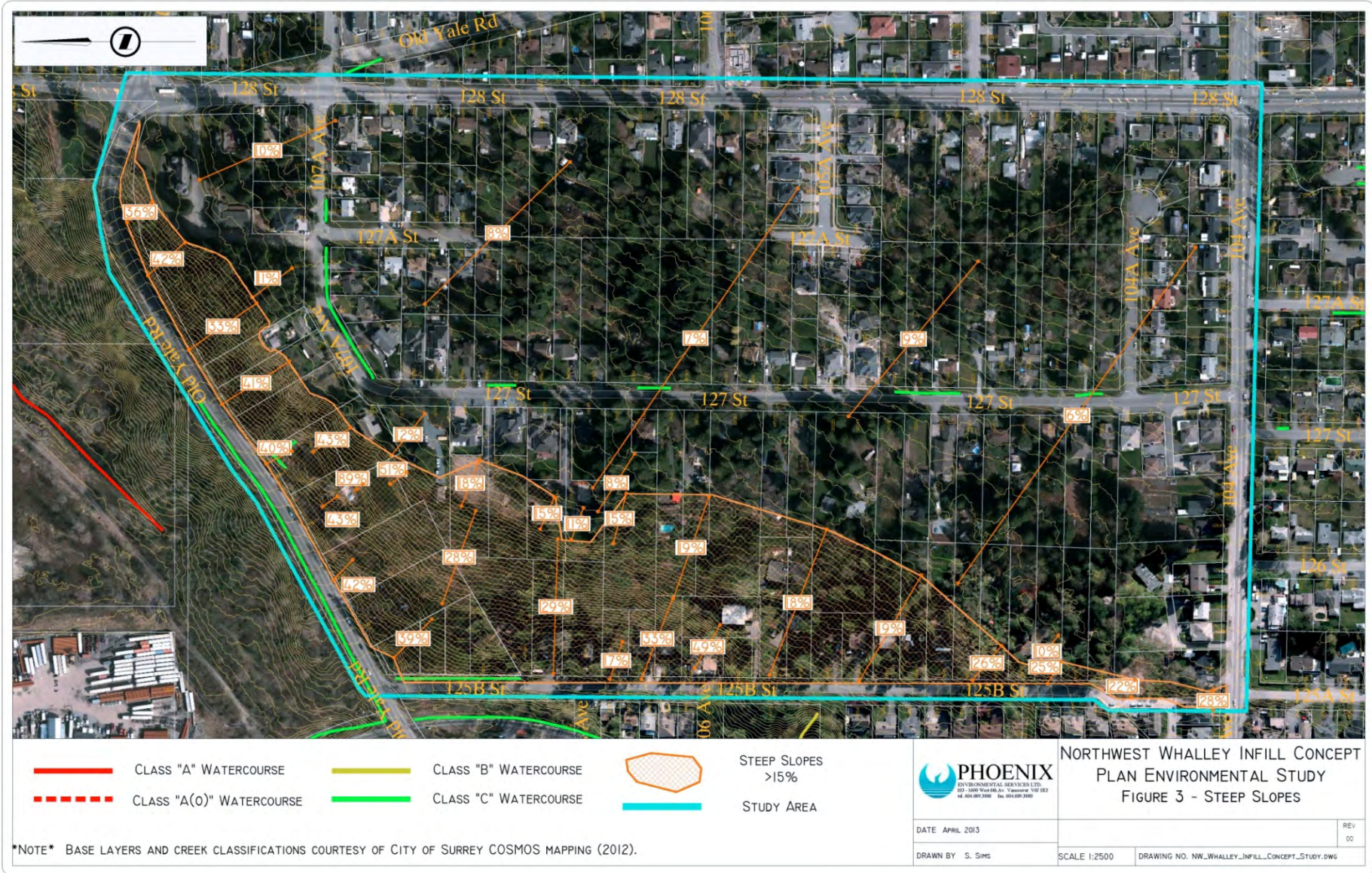


Figure 5 - Steep Slopes

Slope Instability Potential

Ravine Stability Assessments have been carried out (2002 – 2009) for the City in the North Bluff escarpment areas, including the main ravine streams near the Infill Area. Areas of past and continuing localized bank failure and erosion have been documented at numerous locations along Bolivar Creek (east of King George Highway) and Robson Creek nearby to the west of the Infill Area. The creek ravines have steeply cut-down (incised) channels and banks through the same surficial native till-like soils extending along the North Bluff escarpment within the Infill Area.

These creek ravine formations and slope features with evidence of past erosion and bank failure are indicative of the potential for slope failure from surface runoff erosion. Although the till-like native soils appear to be hard (e.g. commonly referred to as hardpan), water draining over and into these soils can result in more coarsely-grained lenses on interbeds to erode faster than overlying fine-textured deposits; resulting in collapse of the overlying soils and sloughing or a landslide/landslip. A prominent example of a suspected landslip is immediately adjacent to the ICP Study Area on the west side of 125B Street immediately north of 10541 – 125 B Street. A Class B watercourse drains from the base of the historic landslip, and the landslip location is shown by Note 3 on **Figure 6**.



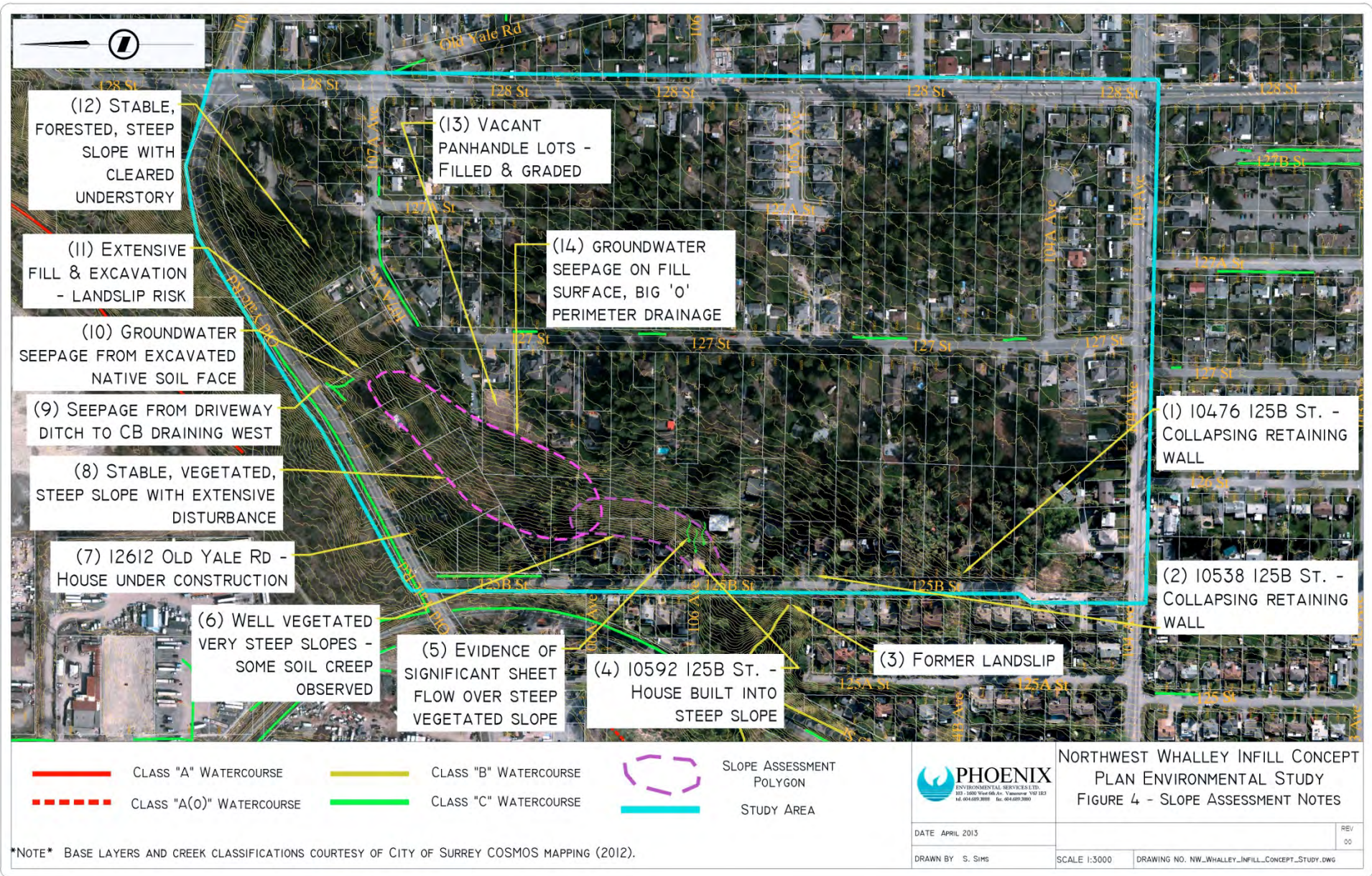


Figure 6 - Slope Assessment Notes

II. Wildlife and Biodiversity Management

This Environmental Study has identified existing wildlife movement corridors (i.e. wildlife observations) along the west and northwest side of the ICP Study Area, consistent with the EMS Terrestrial Hub mapped within the Area (**Figure 7**). The forests within the Ecosystem Sites between 127th St. and 128th St. are fragmented by existing residential development; however wildlife movement through these forested areas to the more contiguous forests along the escarpment may also occur.

The forested stands provide important nesting habitat for raptors such as Bald Eagle, Red-tailed Hawk and Cooper’s hawk; however, no raptor nests have been detected within the Study Area. Wildlife sign encountered during the field observations included coyote, rabbit and squirrel; and existing forest habitat can support several other small mammal and wildlife species tolerant of human disturbance. The forested habitats also provide important habitat for many songbird species. No rare or endangered plants or animals (e.g. Species at Risk) have been detected in the Study Area.

The loss of mature forest habitat through infill redevelopment and increased human disturbance will degrade the abundance and quality of existing wildlife habitat within the ICP area. These impacts can be mitigated by retention of large contiguous stands of treed habitat that can continue to provide wildlife habitat and movement corridors to other remnant forest wildlife habitat along the City’s North Bluff escarpment area.

It is recommended that broad areas of existing mature forest vegetation, especially along the steep slopes on the west, northwest and north edges of the ICP area be retained. Control and removal of invasive plant species (e.g. blackberry, knotweed) by dense planting of shade promoting tree species (e.g. alder) supplemented with fir and cedar is also recommended. The placement of bird nest boxes, bat boxes and coarse woody debris at strategic locations would benefit many wildlife species.



ENVIRONMENTALLY SENSITIVE
AREAS

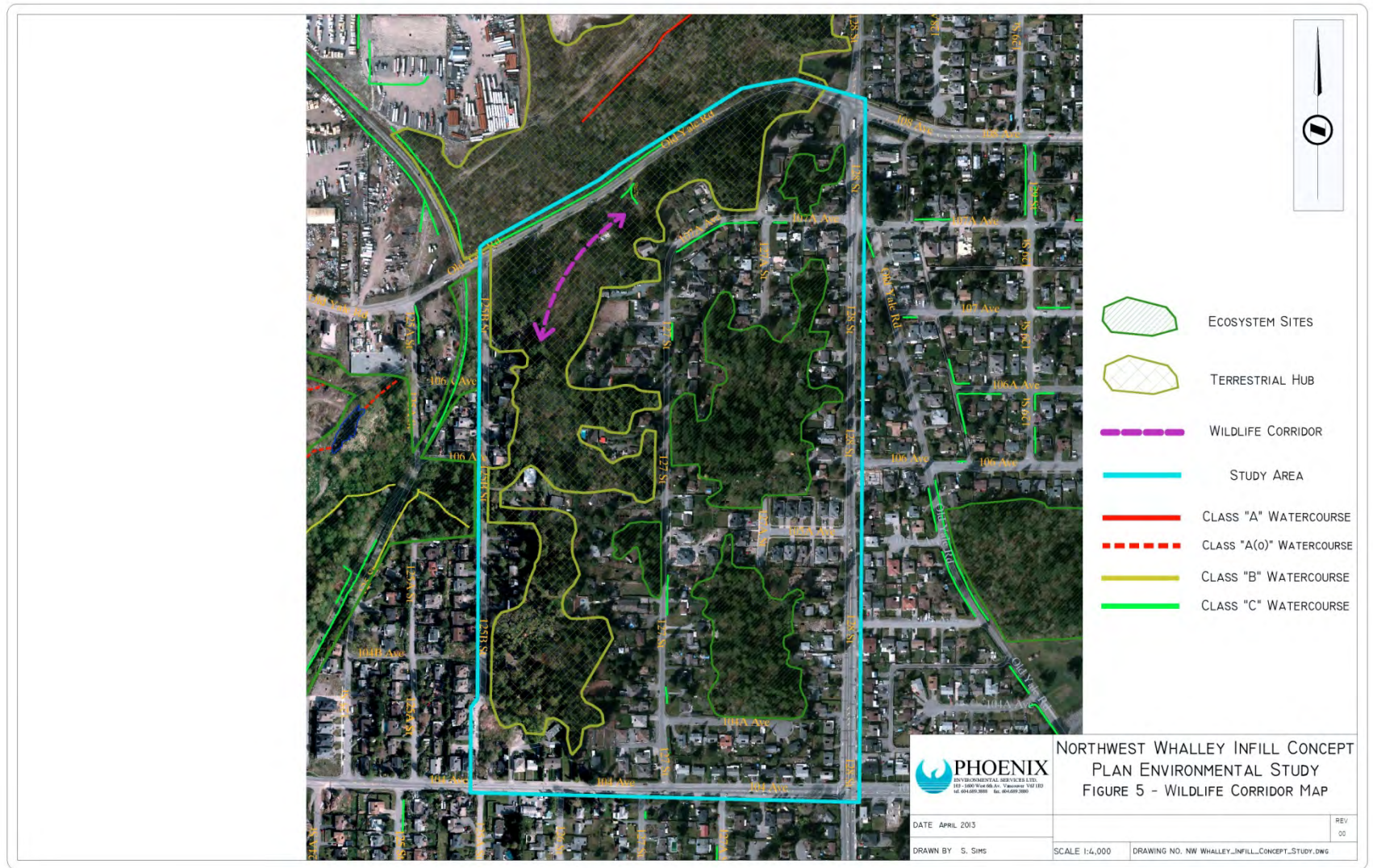


Figure 7 - Wildlife Corridor

iii. **Tree Cover**

The existing trees within the Study Area are generally in good health and represent a significant part of the urban forest in South Westminster Heights. In observing aerial photos of the City, and viewed from a distance, it is immediately apparent that the Study Area represents the most densely forested portion of the northwest corner of the City.

Where past development and the more recent infill projects have occurred, the pre-existing trees have generally been removed; with some exceptions. Some of the more established developed areas were re-planted, and as the new trees have grown, the density of tree cover has re-established. However, the new trees tend to more non-native ornamental varieties that lack the ecological values of native tree stands. Other recent infill projects where selective tree retention has been attempted appear to have resulted in mixed success with tree decline and construction abuse evident on many of the recent or in progress developments.

The effect on slope stability resulting from tree removals from steep sloped areas should be studied in detail as part of any development application associated with west, northwest and north edges of the area. Retention of mature trees over existing steep slopes is also important for mitigating wind effects (i.e. windthrow, hazard trees) on remaining retained trees where infill development occurs in other parts of the area.

Mature stands of fir-dominated forest have been mapped within the Study Area (**Figure 8**), where trees around 60 m high and over 100 years in age remain in very good condition and health. Some are already protected on the City’s Heritage Tree list, such as those around St. Helen’s Church. There is also a distinctive stand of these trees between 127th and 128th Streets. It is recommended that re-development of some of the deep lots between 128th and 127th Streets, especially where mature, fir-dominated stands exist with the tallest and oldest trees, include retained bands or clusters of 20-30 m width, or preferably equal to the height of the tallest trees in the stand to be retained.



Specific trees of note:

- A Giant Redwood located in the rear yard at 10579 – 127th Street that has a diameter (dbh) close to 1 metre.
- Western edge of 127th Street in front of 10621 - 127th Street, there are several English Oak trees of large size.
- Several large Japanese Maples are located within the developed lots. Of note are the specimens found at 12704 – 107A Ave., 12728 - 104A Ave. and 10451 - 128th Street.
- Monkey Puzzle Trees of relatively small size are located at 10706 - 127A Street, 10450 - 127th Street and 10525 - 128th Street.
- A Chinese Fir which is a species rare in Surrey, forms part of the landscape in the front yard at 10507 - 128th Street.
- The Magnolia tree in the front yard of 12701 - 127A Street. This specimen has been reduced in value by poor pruning, but it remains a large specimen that is impressive when in bloom.

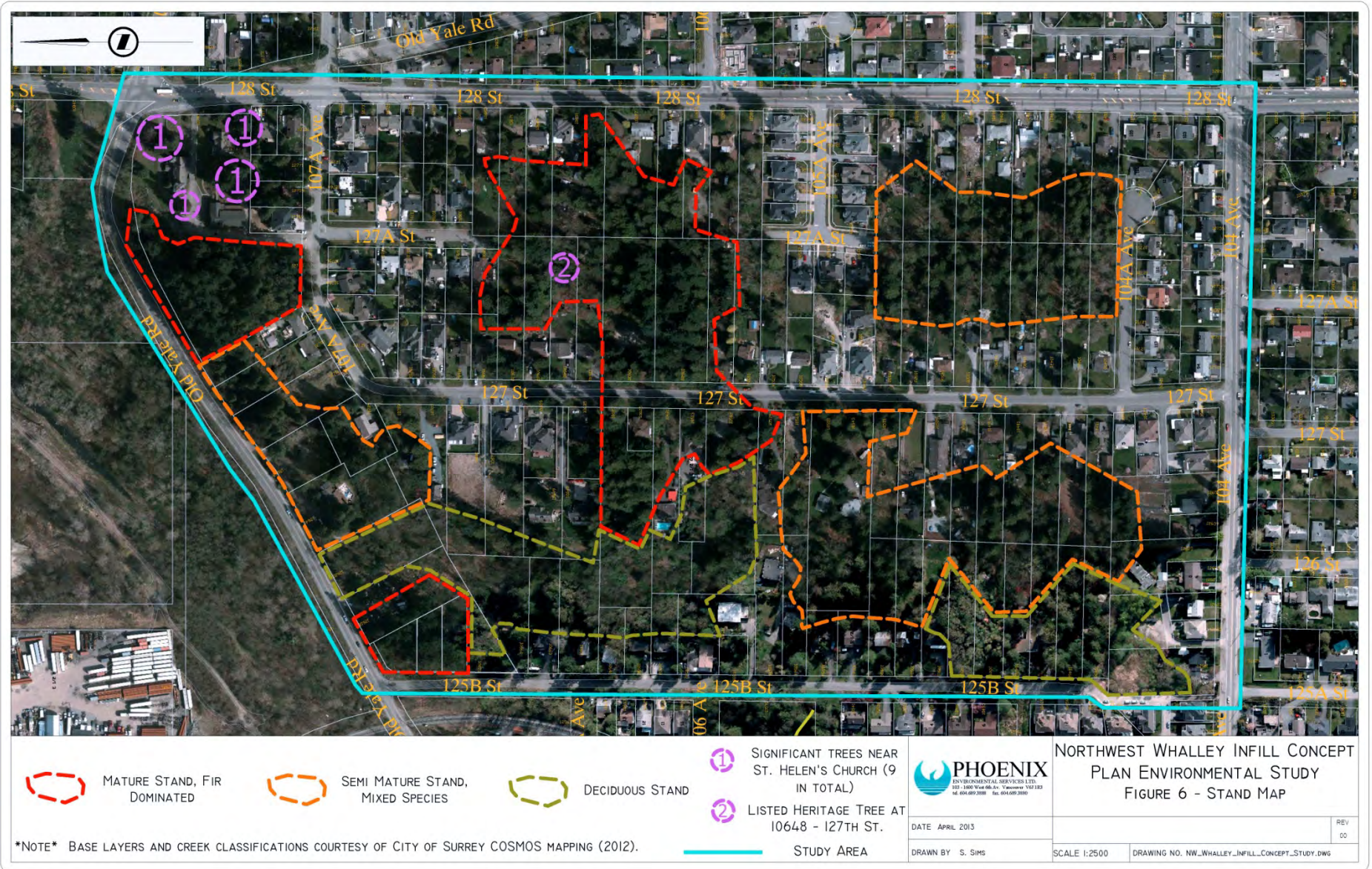


Figure 8 - Tree Stand Map

iv. Watercourses

The watercourses observed within the Study Area are constructed drainage watercourses. These watercourses are typically shallow, roadside drainage ditches that primarily convey stormwater runoff for limited periods, and generally go dry quickly after rainfall ends. These ditches typically do not convey groundwater, and have insignificant fish habitat value. However, a few drainage watercourses were observed to be flowing from shallow groundwater sources during the April 15 2013 field surveys.

Watercourse Re-Classifications

All of the watercourses within the South Westminster Heights ICP Study Area are currently shown on the City's online mapping facility (COSMOS) as Class C watercourses (green-coded). Phoenix has observed each of the watercourses within Study Area for this Environmental Study, and has determined that these watercourses are Class C (i.e. not fish habitats). There have not been any other aquatic habitats (e.g. ponds, wetlands) found in the Study Area. The Watercourse Update Map for this assessment is presented in **Figure 9**.

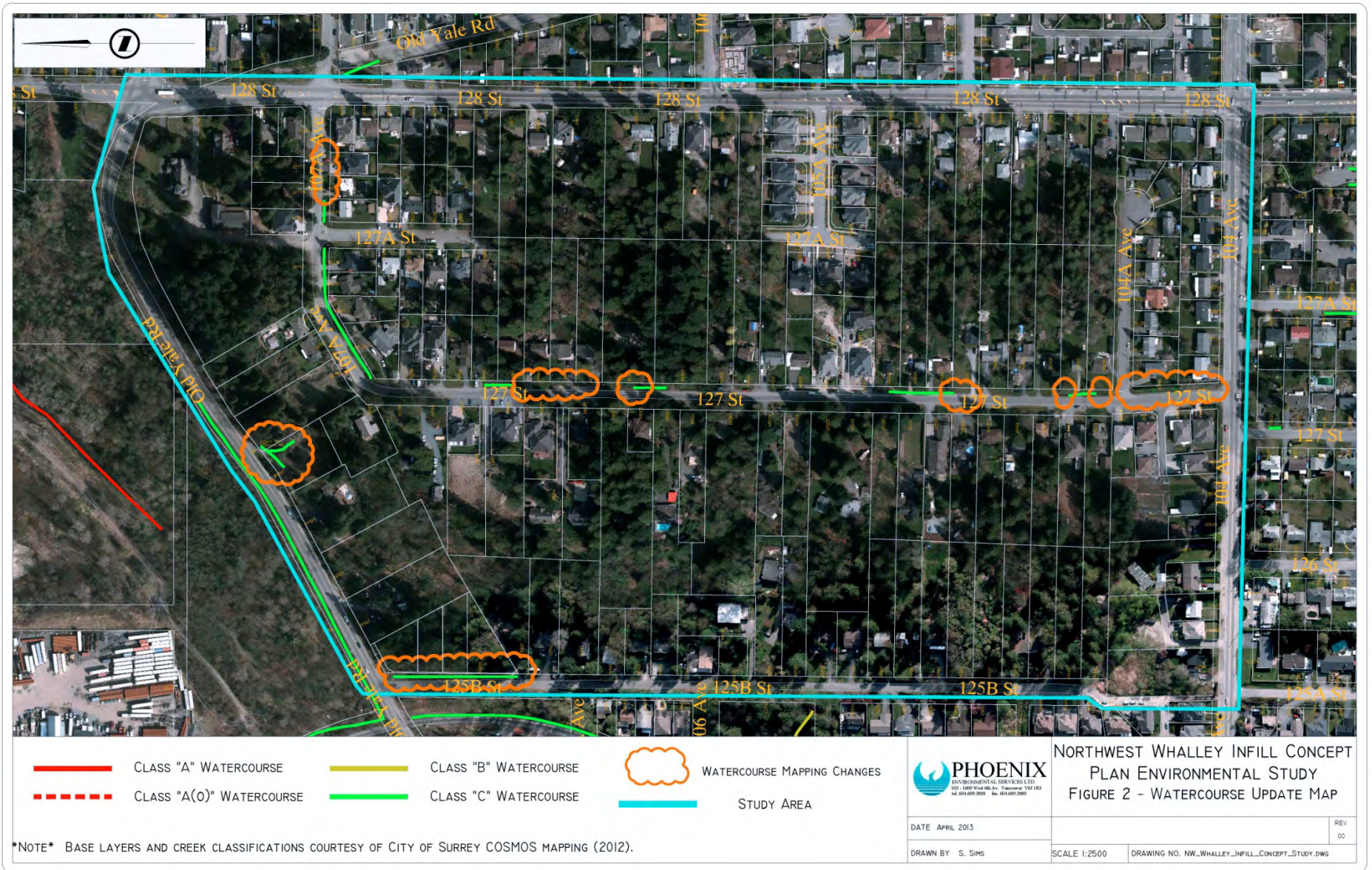


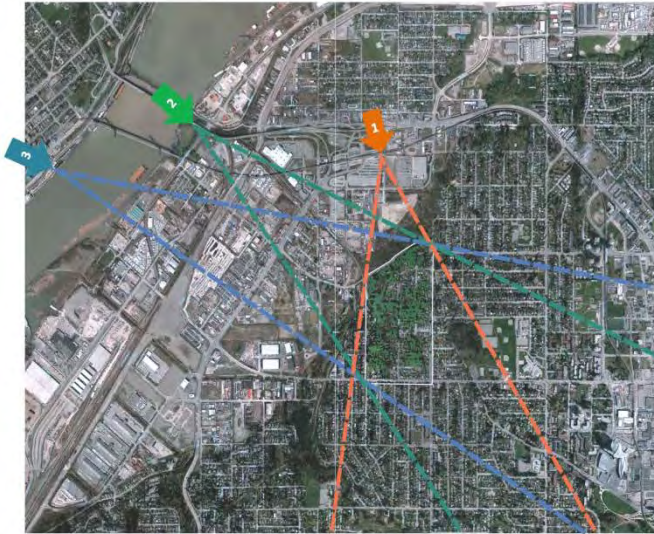
Figure 9 - Watercourse Map

v. Viewpoint Assessment

The following major viewpoints into the South Westminster Heights Area have been assessed including:

- Views from New Westminster
- View From Pattullo Bridge
- Views From Scott Road Sky train Station

A6



View from New Westminster

The viewpoints from across the Fraser River in New Westminster are relatively distant, and while the tall and dense forest along the ridgeline can be seen, the South Westminster Heights neighbourhood can be overlooked. The views that likely attract more attention are closer, directly along the river and include the riparian tree habitats, boats, and industrial activities. The distant views into Surrey are dominated by the industrial landscape in the foreground, on the south bank of the river. Nevertheless, the South Westminster Heights area remains distinctive as a prominent forest among adjacent residential areas and new highrises beyond (e.g. Central City); not the houses within the neighbourhood.

Most viewpoints from New Westminster are along roadways and provide only temporary views of the South Westminster Heights area and are also more likely to be peripheral views. There are several waterfront residential and commercial developments, which may have better stationary views of the Study Area.

Mitigation: To preserve the distant views from New Westminster, the main feature visible from that distance is the ridgeline of trees, and the mix of mature trees along the west and north slopes. While priority should be given to as much retention as possible with re-development in the ICP area, those trees that form the ridge and the slope could be thinned while still retaining good overall visual vegetation coverage from a long distance. In other words, the visual impact of tree loss in those parts of the neighbourhood are likely to be less noticeable from a distance.



View Pattullo Bridge and SkyTrain Bridge

The journey across the river by automobile or SkyTrain offers the most prominent views of the neighbourhood due to the elevation and the direct line of both bridges toward the southeast with the neighbourhood visible straight ahead or just to the right. A large number of people travel across the river daily. The portion of the journey where the neighbourhood is visible is relatively short (about 1 minute), but the predominant forest character of the view from both bridges remains distinctive relative to surrounding areas. Extensive clearing of the existing forested slopes would certainly be noticed.

Mitigation: To mitigate changes to the view, retention of most of the mature trees along the ridge, over the escarpment slope, and the west and north perimeter of the area should be considered.



View from Scott Road and Old Yale Road

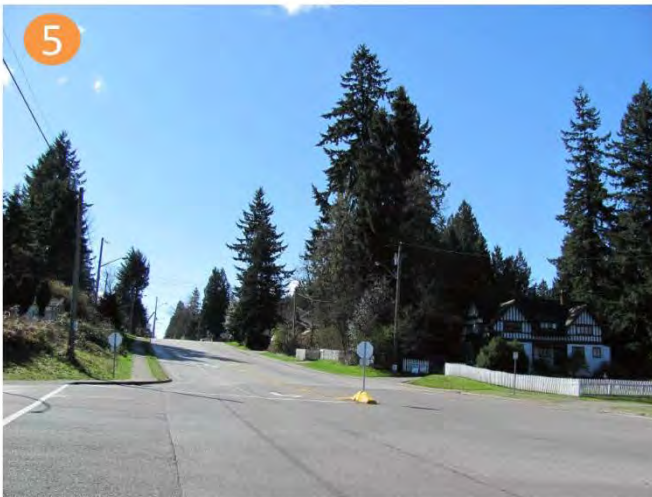
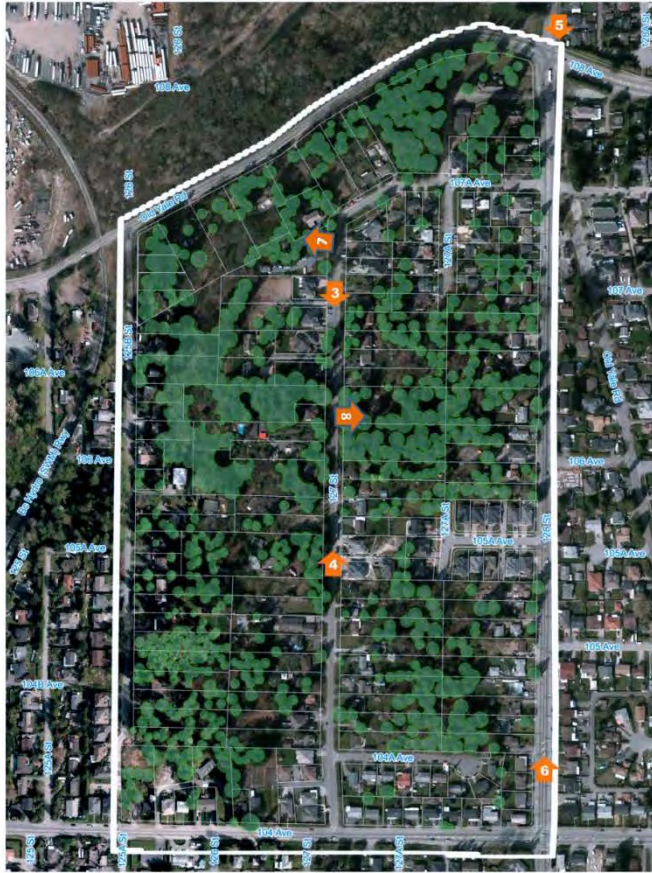
The closer viewpoints are along Scott Road, within the industrial area between the neighbourhood and the Fraser River. There are some areas of residential development, but the existing trees in those areas block a majority of the long views. Conversely, even at close proximity, existing houses and roads are not visible.

A majority of the viewers in close proximity are likely moving or are inside buildings and do not have prolonged periods of time with the neighbourhood in view. There were no major recreation areas or parks in the area, although there is a school at the intersection of Old Yale Road and 124th Street.

Mitigation: The loss of any of the tall tree stands would be most conspicuous from the closer views of the area from the adjacent relatively flat Scott Road area. While a close view does not afford the opportunity to distinguish the prominence of the forest slopes of the area from surrounding neighbourhoods, removal of numerous large trees in one area would be the far more noticeable than from distant views.



The existing streetscape was also documented to consider mature trees and existing character as part of land use planning and design.



GUIDELINES FOR RESIDENTIAL INFILL

1. CITY OBJECTIVES
2. NEIGHBOURHOOD OBJECTIVES
3. DEVELOPMENT INDUSTRY OBJECTIVES
4. GENERAL PLANNING PRINCIPLES

B

GUIDELINES FOR RESIDENTIAL INFILL

B. Guidelines for Residential Infill

1. CITY OBJECTIVES

- i. To contribute to the long term liveability and maturing of the neighbourhood through residential infill.
- ii. To reduce delays in the review of applications for residential infill due to conflict and a lack of clear planning and policy direction.
- iii. To strive to secure community support and acceptance of residential intensification in the neighbourhood.
- iv. To encourage development of remaining vacant urban land in existing neighbourhood close to city services to achieve full utilization of currently urban designated lands, existing City infrastructure services and amenities.
- v. To contribute to the physical renewal and revitalization of the neighbourhood.
- vi. To locate residential density where it will support existing and future transit and maximize walkability.
- vii. To encourage the development of an appropriate and street network.

B1



2. NEIGHBOURHOOD OBJECTIVES

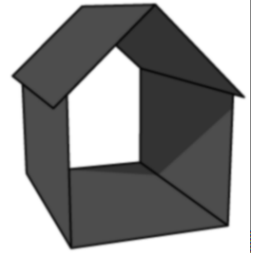
- i. To maintain a balanced mix of housing within the neighbourhood and to distribute density appropriately amongst the neighbourhood.
- ii. To protect mature tree coverage and the stability of the mature single family residents and community character.
- iii. To accommodate future population growth and levels and support retention of neighbourhood schools.
- iv. To develop animated and secure public streets.
- v. To minimize local vehicular traffic and parking impacts that may result from intensification.
- vi. To secure improvements to neighbourhood infrastructure as part of redevelopment.
- vii. To use infill as an opportunity for the social renewal and revitalization of the community.
- viii. To use residential infill as a way of improving levels of service and amenities through making improved transit service viable.
- ix. To provide additional housing opportunities.
- x. To retain existing, good housing stock, or allow future replacement with an equivalent amount of housing which is equally affordable.
- xi. To reduce the amount of time and effort required of the community to oversee development activity in the neighbourhood.

B2



3. DEVELOPMENT INDUSTRY OBJECTIVES

- i. To provide certainty on what infill development will be permitted in order to facilitate the identification of infill opportunities and provide a framework for the consistent review and approval of planning applications, and road network plans.
- ii. To recognize the challenges inherent in the development economics of residential infill projects and specific site constraints in the Neighbourhood.
- iii. To provide flexibility in the regulation of residential infill projects to deal with the context within which projects occur by developing infill guidelines.
- iv. To ensure that any requirements to provide for family housing or other forms of housing reflect the market demand for that housing.
- v. That the City provides incentives to the industry to include particular amenities, such as road improvements or to build in particular areas along future major roadways that include transit and good movement.

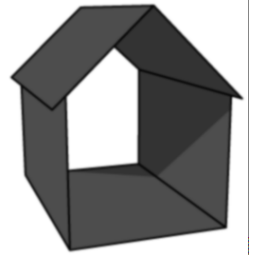
B3

4. LAND USE PLANNING PRINCIPLES

The following planning principles were developed during the Infill area planning process and are generally applicable to all infill development within the South Westminster Heights Area. These guidelines are reflected in the Land use Concept Plan for the Area. The extent to which the guidelines are applicable will vary according to the scale of the proposed development.

- i. A critical mass of single family housing should be protected in the core of the neighbourhood and outside steep slope areas.
- ii. Infill development should respect the mass and scale of adjacent development and the character and attributes of mature trees the existing streetscape.
- iii. Higher intensity infill development should be focused on the edge of neighbourhood.
- iv. Residential infill developments should respect the role of lanes not only as a primary vehicular access route but as a factor in maintaining the liveability of the neighbourhood.
- v. Infill development should foster a high quality public realm, a comfortable environment for walking, and new or improved connections within a neighbourhood.
- vi. All residential infill development projects should incorporate Crime Prevention through Environmental Design (CPTED) principles.

B4





LAND USE DESCRIPTIONS

1. SUMMARY OF LAND USES
2. HILLSIDE ESTATE RESIDENTIAL (4UPA)
3. LOW DENSITY CLUSTER/PANHANDLE (4-6 UPA)
4. LOW DENSITY TREE PROTECTION (6-10 UPA)
5. LOW-MEDIUM DENSITY (10-15 UPA)
6. MEDIUM DENSITY (15-23 UPA)
7. PUBLIC INSTITUTIONAL

C

LAND USE DESCRIPTIONS



C1

C. Land Use Descriptions

1. SUMMARY OF LAND USES DESIGNATIONS

The table below provides a summary of the Land Use descriptions within the South Westminster Heights Area.

Land Use Designation	Density	Description
Hillside Estate Residential	(4UPA)	Large Single family housing, which may be in the form of panhandle lots, (provided they form part of a comprehensive design and provide tree preservation on large estate lots, and mitigate geotechnical slope hazards.
Low Density Cluster/Panhandle	(4-6 UPA)	Large Single Family Homes on panhandle lots to provide principal vehicle access to 127 Street via narrow driveway strip of land to avoid steep slopes. Cluster housing considered with lot consolidation and Open Space.
Low Density Tree Protection	(6-10 UPA)	Single Family lots with a typical minimum 13.4-15 m lot width, and deep 40-50 meter lot depth with tree preservation (no build) zones, with front loaded driveway access. Cluster housing to attached forms considered with lot consolidation and Open Space.
Low-Medium Density	(10-15 UPA)	Small Single Family lots with rear lane access; and/or Semi-detached or Duplex (Attached dwellings) Lots with comprehensive design, with similar appearance to Single Family. Attached forms considered with lot consolidation and comprehensive design.
Medium Density	(15-23 UPA)	Small Urban Single Family lots, with rear lane access and one; and/or Fee Simple or Strata Duplex (Attached dwellings) Row housing considered with comprehensive development and lot consolidation.
Public Institutional	N/A	Intended for neighbourhood-scale assembly halls, including churches and private schools.

SOUTHWESTMINSTER HEIGHTS: INFILL AREA CONCEPT PLAN

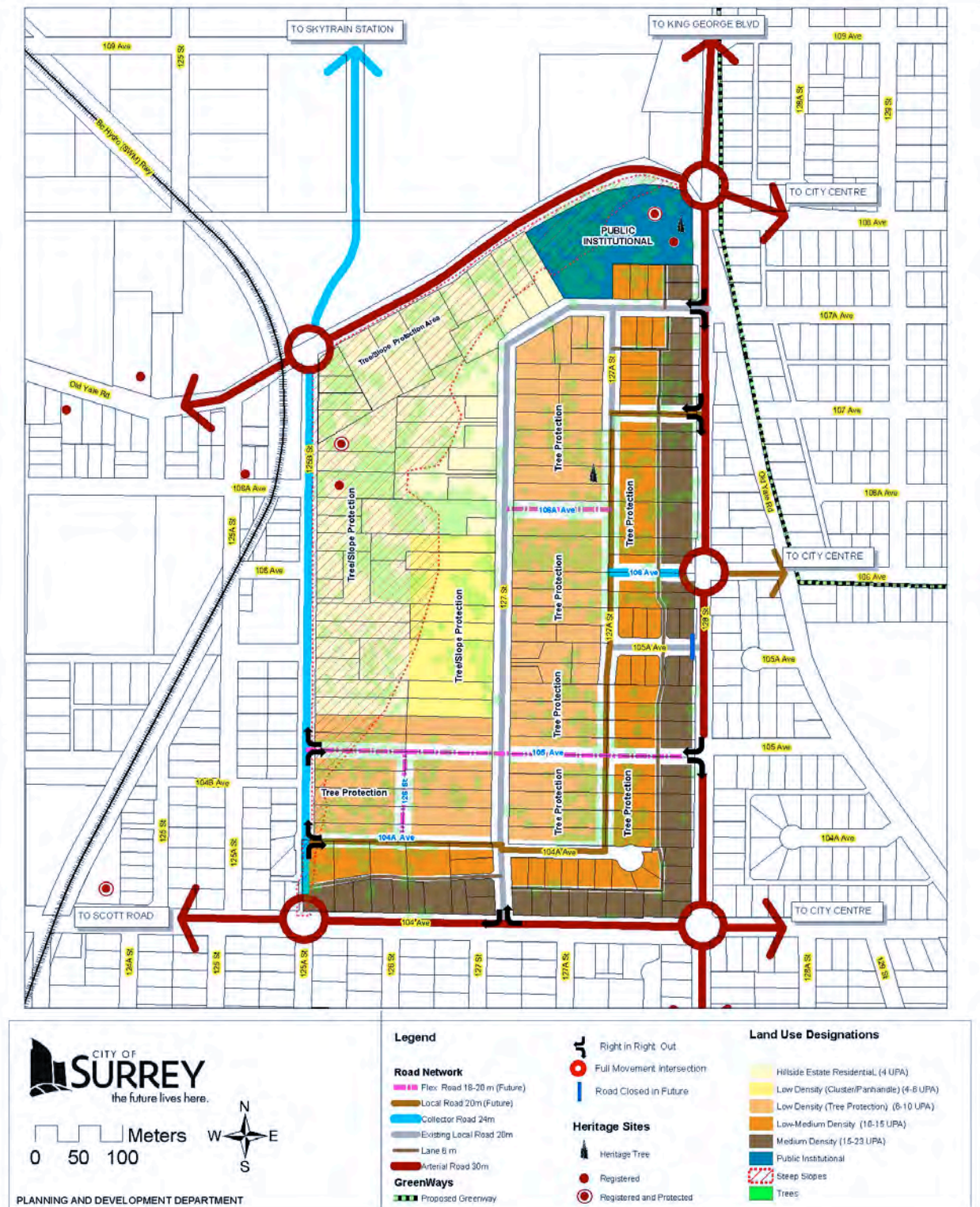


Figure 10 – South Westminster Heights Infill Area Concept Plan

2. HILLSIDE ESTATE RESIDENTIAL (4UPA)



Location:

This designation located West of 127 Street along Old Yale Road and 125A Street along the steep sloped well treed hillside areas. There are limited future road access opportunities and site constraints, due to slopes.



C2



TYPE I: 4 UPA NET (Panhandles)

Large Fee Simple Single family housing, which may be in the form of panhandle lots, (provided they form part of a comprehensive design and provide tree preservation on large estate lots, and mitigate geotechnical slope hazards.

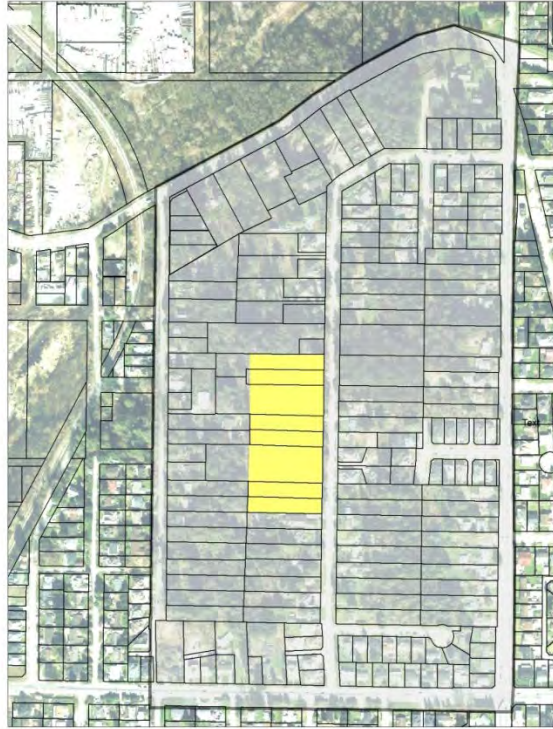
TYPE II: 4 UPA NET

(Increased House Floor Area Cap)

Larger Estate style houses with possibility of increased (Floor Area) or additional attached units considered in lieu of higher subdivision yield.



2. LOW DENSITY CLUSTER/PANHANDLE (4-6 UPA)



This designation located west of 127 street, and east of escarpment, with special characteristics of lots required adjacent to ridgeline of steep slopes.

C3



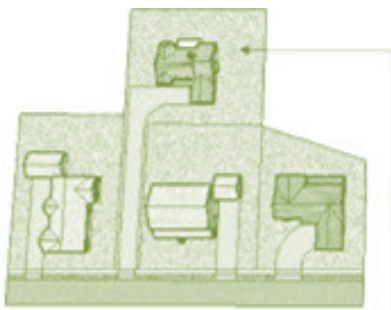
TYPE I: 4-6 UPA NET (Panhandles)

Large Fee Simple Single Family Homes on panhandle lots to provide principal vehicle access to 127 Street via narrow driveway strip of land to avoid steep slopes.

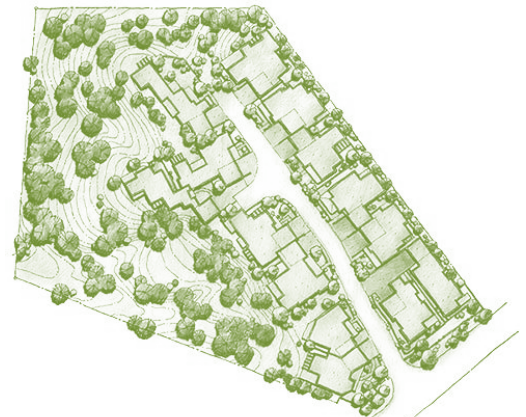
TYPE II: 4-6 UPA GROSS (Cluster)

Family oriented housing on large comprehensively planned consolidated site, as opposed to fees simple, with substantial open space provided for tree and slope preservation. Open space for tree preservation as follows:

- A. *Variable Small Single Family Dwelling and Duplexes (20-30% of site are for subdivision)*
- B. *Ground-Oriented Multiple Unit Residential Buildings (30-50% of site are for subdivision)*

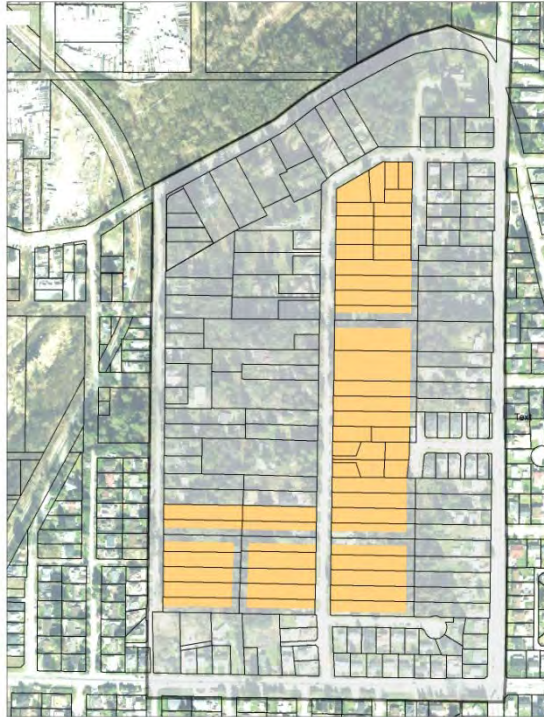


Panhandle Lot



Single Family Cluster Subdivision

3. LOW DENSITY TREE PROTECTION (6-10 UPA)



This designation intended for deep single family and/or on larger sites, ground oriented low density housing within high mature tree preservation areas, between 127 Street and 127A Street, South of 105 Street, in the centre of the neighbourhood, outside steep slopes.

C4



TYPE I: (6 UPA NET DENSITY)

Urban Fee Simple Single Family lots with a typical minimum 13.4-15 m lot width, and deep 40-50 meter lot depth with tree preservation (no build) zones, with front loaded driveway access and one permitted Secondary Suite.

Variable minimum and maximum building setbacks will be considered for tree preservation priorities. Minimum Lot Consolidation may also be required. Tree Protections Guidelines also Apply.



4. LOW DENSITY TREE PRESERVATION (6-10 UPA)

TYPE II: (8-10 UPA GROSS DENSITY CLUSTER WITH OPEN SPACE)

Family-oriented housing on a clustered consolidated site, in the form of single-family dwellings, or duplexes on individual lots or in the form of ground-oriented multiple unit residential buildings with substantial open space set aside for mature clumps of trees, in accordance with comprehensive design. **Minimum Lot Consolidation may also be required.**

The maximum unit density may be increased from 6 dwelling units per net acre to 10 Dwelling units per gross acre on the basis of the entire lot as part of a compressive development zone, provide that :

Open space for tree preservation as follows:

- A. Variable Small Single Family Dwelling and/or Duplexes (15-30% of site are for subdivision)
- B. Ground-Oriented Multiple Unit Residential Buildings (30-50% of site are for subdivision)

C4



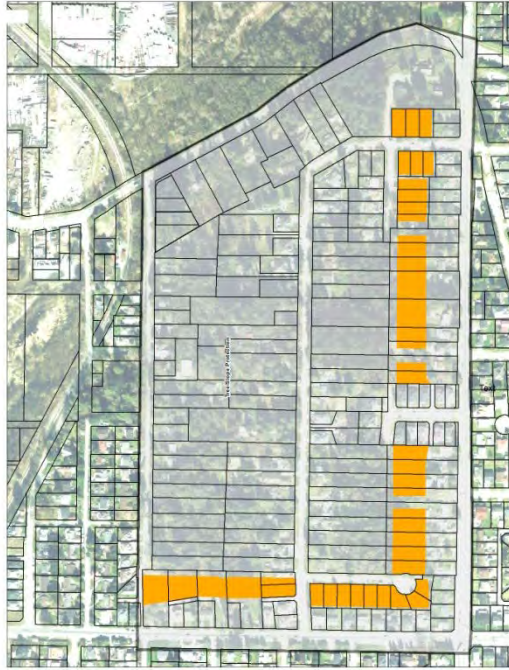
Single Family Cluster Subdivision



Ground Oriented Multiple Unit Cluster



5. LOW-MEDIUM DENSITY (10-15 UPA)



This designation intended for single family and/or large ground oriented low-medium density housing, with lane access. Provides an inner ring transition between Low and Medium Density Housing on the back side of lots adjacent to Aerial Roads.

C5



Single Family



Semi Detached

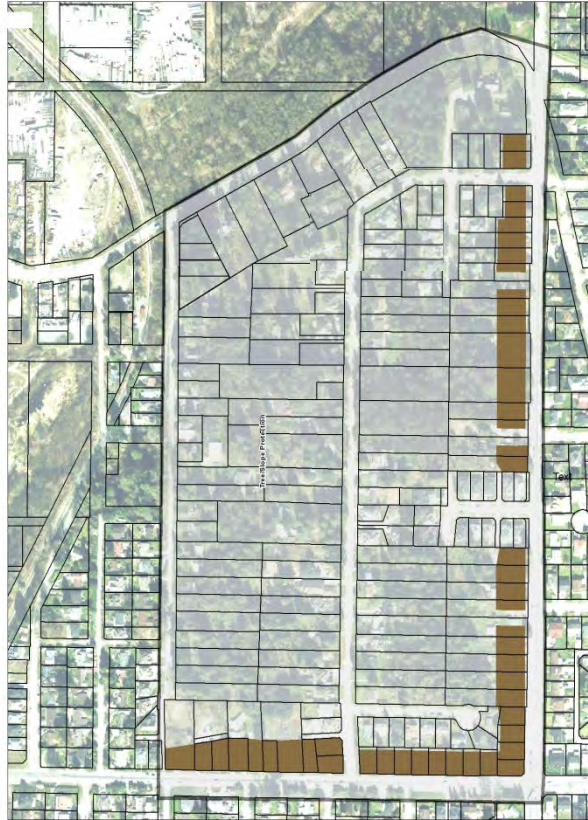


TYPE I: (10-12 UPA NET DENSITY)

Urban Single Family lots with a typical minimum 12 m lot width, with rear lane access and one permitted Secondary Suite; and/or Semi-detached or Duplex (Attached dwellings) Lots with comprehensive design, with similar appearance to Single Family, with rear lane access and no permitted Secondary Suites.



6. MEDIUM DENSITY (15-23 UPA)



Small Lot, Semi Detached, and /or Row Housing may be located in areas with lane access on the edge of a neighbourhood, where the lot fronts or flanks onto an arterial road. No future, individual driveway access permitted onto 128 Street and 104 Ave.

C6



Lane Served
Single Family

Lane Served
Semi Detached

TYPE I: (15 UPA NET DENSITY)

Small Urban Single Family lots with a typical minimum 10 m lot width and 36 m depth and additional building setbacks from Arterial Roads, with rear lane access and one permitted Secondary Suite; and/or Fee Simple or Strata Duplex (Attached dwellings) Lots with a typical minimum 7.2 m lot width , with rear lane access and no permitted Secondary Suite.



6. MEDIUM DENSITY (15-23 UPA)

TYPE II: (23 UPA NET DENSITY)

Row Housing with a 6.3 m lot width, with lane or strata lane access and no permitted Secondary Suites. Minimum 3 attached units and a typical maximum of 6 attached units; and/or Multiple Family (Row Homes) may be considered with appropriate land consolidation, amenities and design. No Secondary Suites Permitted.

C6



Row Housing



An aerial photograph of a residential area. A paved road with a yellow center line runs diagonally from the top left towards the bottom right. The area is densely populated with green trees. Several houses with grey roofs are visible, interspersed among the trees. In the top right corner, there is a green rectangular overlay containing the title and a list of guidelines. On the right side, there is another green rectangular overlay containing a large white letter 'D'.

DEVELOPMENT GUIDELINES

1. TRANSPORTATION NETWORK
2. TREE PRESERVATION GUIDELINES
3. HILLSIDE DEVELOPMENT GUIDELINES
4. LOT CONSOLIDATION GUIDELINES

D

DEVELOPMENT GUIDELINES

D1

D. Development Guidelines

1. TRANSPORTATION NETWORK

A brief summary of the Transportation Network and recommended road network, for the South Westminster Heights Infill Area is provided below.

Existing Road Network Conditions

Existing traffic access to the internal road network of the South Westminster area is provided via 107A Avenue from the east and 127 Street from the north and limited one way access via 125B Street along the west which ends as a laneway prior to 104 Ave. **Figure 11** shows the existing road network in the South Westminster Heights Area.

Major Exterior Roads

- 128 Street is an urban standard arterial road with 60 km/h posted speed limit. It has 2-lane interim arterial cross section plus left-turn lanes at the intersections. No parking is allowed on either side of the street.
- 104 Avenue is categorized as an arterial road and has steep sections with areas of limited visibility. The posted speed limit is 50km/h and it has a 2-lane interim arterial cross-section with left-turn lanes at major intersections. No parking is allowed on either side of the street.
- Old Yale road is a historic arterial road with a 50 km/h posted speed limit. It has 2 lane cross section with no parking allowed on either side of the street.



128 Ave



104 Ave



Old Yale Road

Internal Roads

- 127 Street is a local road with existing ditches in sections with 50km/h speed limit. Each street has 2-lane cross. Parking is not permitted on the road and there are no sidewalks.
- 127A Street is a partially completed road with no sidewalks and a 50km/h speed limit. This road currently ends 100 meters north of 107A ave.
- 125B Street is a local road some sections of sidewalks with 50 km/h speed limit.
- 104A Avenue is currently a half local road with 50km/h speed limit and no sidewalks ending in a cul-de-sac. Parking is not permitted on the road.
- 105A Avenue is an urban standard local road with 50km/h speed limited and a 2-lane cross section with parking on both sides. Sidewalks and street trees area planted.

D1



127 Street



125 B Street



127 A Street



104A Avenue



105A Ave

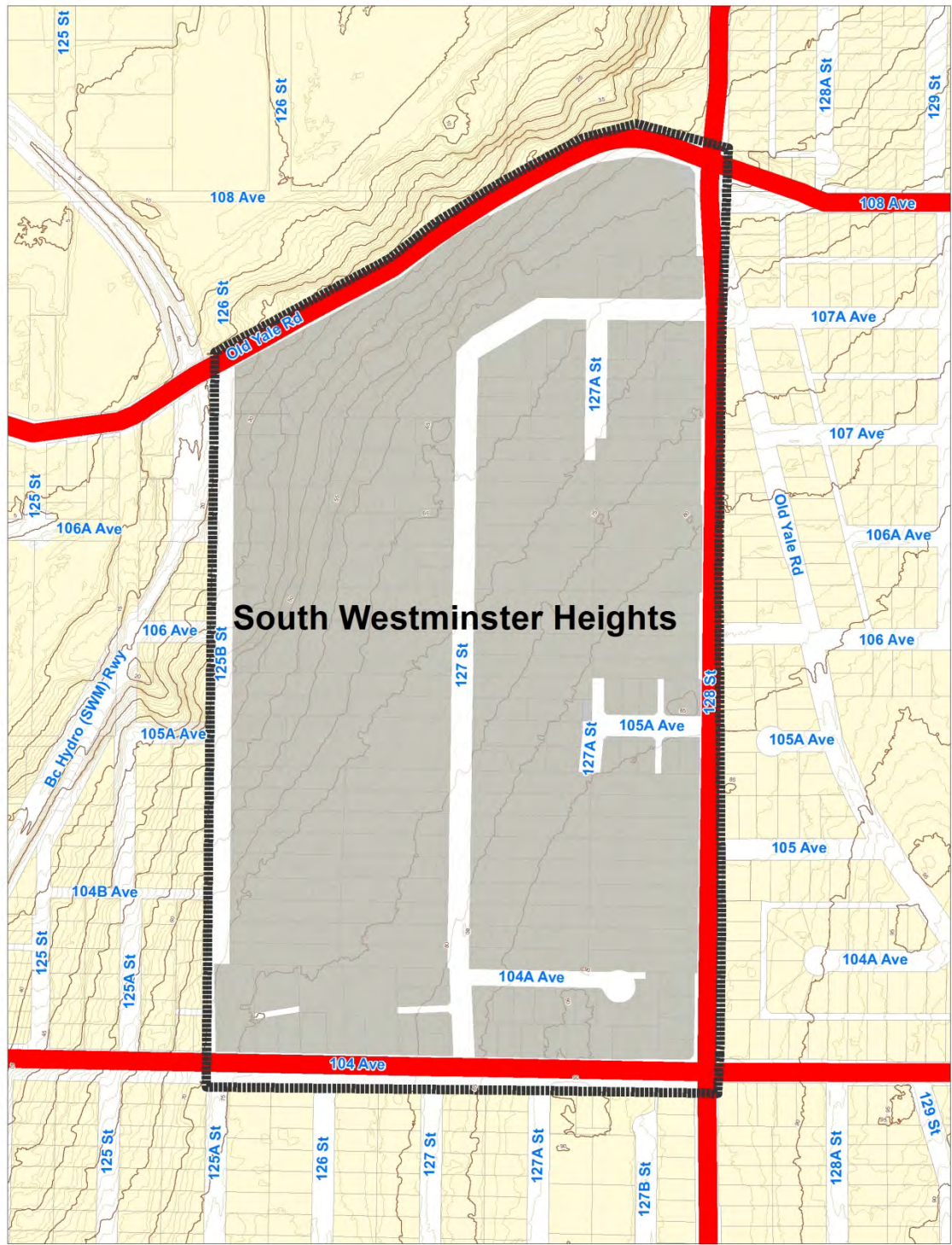


Figure 11 - Existing Road Network

Future Street Network and Road Classifications

The local street network is designed as a modified grid with longer block lengths than typical urban neighbourhoods in order to provide flexible connectivity around areas of steep slopes, preserve mature trees and maintain neighbourhood character. Future East West connections are proposed in two key locations to link to existing transportation network in areas and provide movement into and out of the Infill Area. A required full movement intersection is proposed at the intersection of 106 Avenue and 128 Street which will provide full movement of vehicles in and out of the Plan area, and provide a strategic connection to Surrey City Centre.

A full north-west connection is proposed in the centre of the plan to continue 127A Street. It will distribute traffic throughout the neighbourhood along 107A Avenue, 104A Avenue and future connections of 105 Ave and 106 Ave, so as to minimize impacts on local roads such as 127 street.

A full lane is proposed adjacent to 128 Street and 104 Avenue to ensure limited access to Arterial Roads and movement of vehicles.

Most proposed local roads conform to City of Surrey standards, including a 20-metre right-of-way with two travel lanes, on-street parking on both sides and standard boulevards with street trees and sidewalks on both sides of the street. Flex roads are proposed in key locations to allow flexibility in design for site constraints and pending future development type.

Future Connections:

- Future connections for 128 Street to King George Blvd are within the City's long term transportation plans. 128 Street is intended to provide major goods and truck movement and access to King George Blvd to bypass Surrey Central.
- 125 B Street is proposed to connect to 110 Avenue and provide future access to the Scott Road Skytrain Station as well as 104 Avenue. This connection will provide vehicle, bicycle and pedestrian access to Rapid Transit Service.

D1



Road Cross Sections

Typical road cross sections in the South Westminster Infill Area will adhere to the City standards for Arterial, Collector and Local roads. **Figure 12** illustrates the proposed Functional Road Classifications Guidelines for the South Westminster Heights Infill Area, as described in the Standard Road Classification Table below.



South Westminster Standard Road Classifications				
Cross Section	Road Name	Road Classification	Dedication Width (m)	Notes
	Old Yale Road	City Standard Arterial	30	2 Lane-interim with Sidewalks
C	128 Street	City Standard Arterial	30	Divided 4 Lane Ultimate with Sidewalk and Multiuse Pathway
A	127A Street	City Standard Local	18-20	Parking, Sidewalk both Sides
A	127 Street	City Standard Local	18-20	Parking, Sidewalk both Sides
A	126 Street	City Standard Local (Flex)	18-20	Parking, Sidewalk both Sides flexible location within 50 m
B	125B Street	City Standard Collector	22-24	2 Lane Parking & Sidewalks both Sides and Bicycle Lanes
A	107 A Ave	City Standard Local	18-20	Parking, Sidewalk both Sides
A	107 Ave	City Standard Local	18-20	Parking, Sidewalk both Sides
A	106A Ave	City Standard Local (Flex)	18-20	Parking, Sidewalk both Sides flexible location within 50 m
A	106 Ave	City Standard Local	18-20	Parking, Sidewalk both Sides
A	105A Ave	City Standard Local	18-20	Parking, Sidewalk both Sides
A	105 Ave	City Standard Local (Flex)	18-20	Parking, Sidewalk both Sides flexible location within 50 m
A	104A Ave	City Standard Local	18-20	Parking, Sidewalk both Sides
	104 Ave	City Standard Arterial	30	2 Lane-interim with Sidewalks

SOUTH WESTMINSTER HEIGHTS: ROAD NETWORK

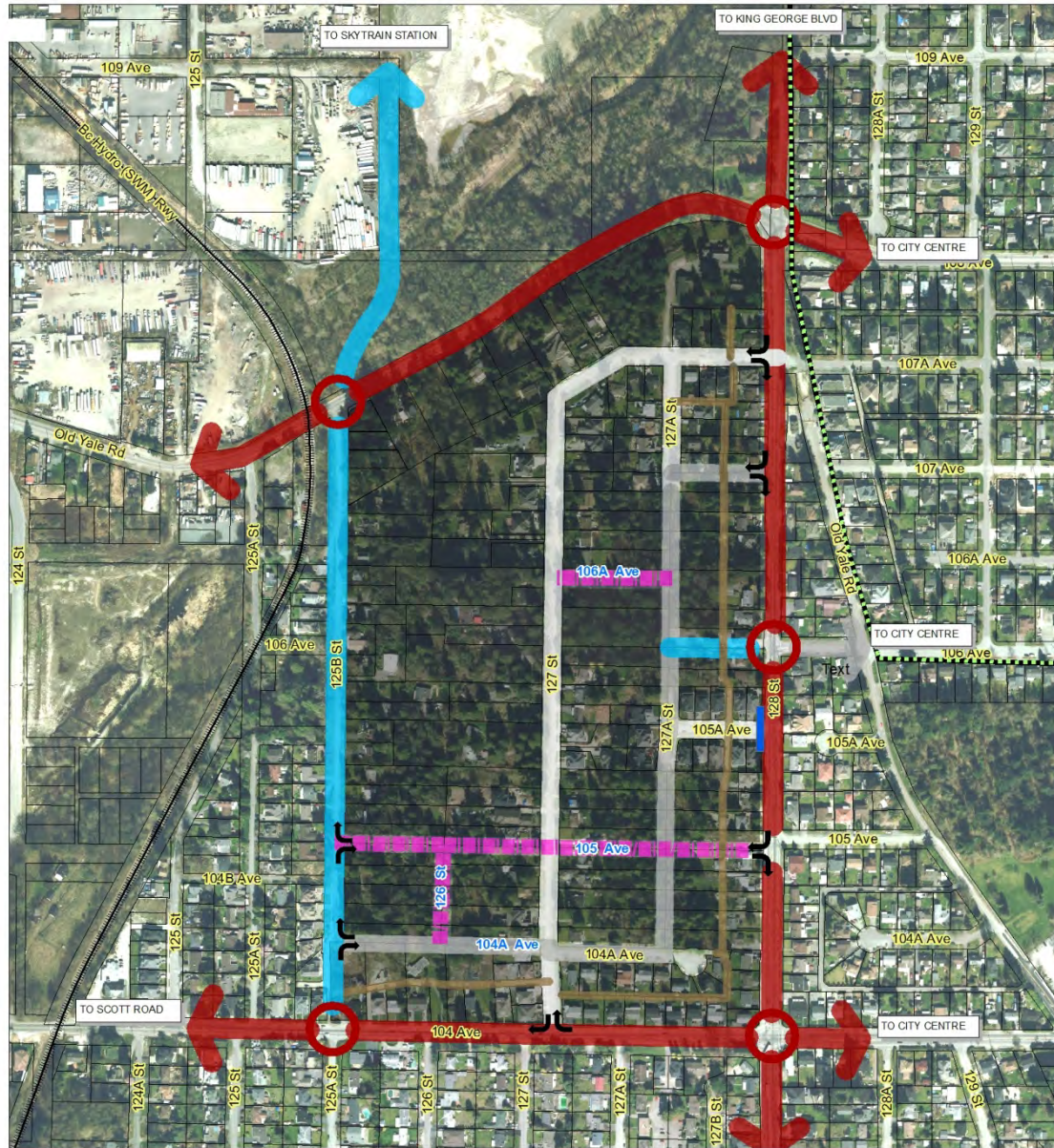
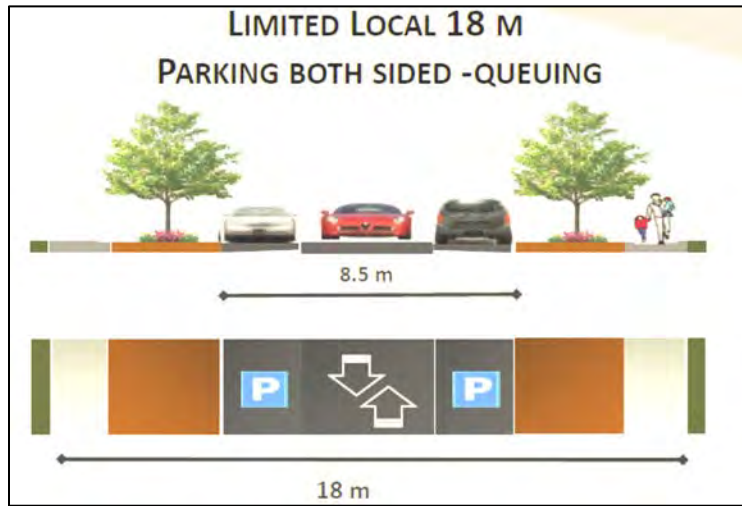
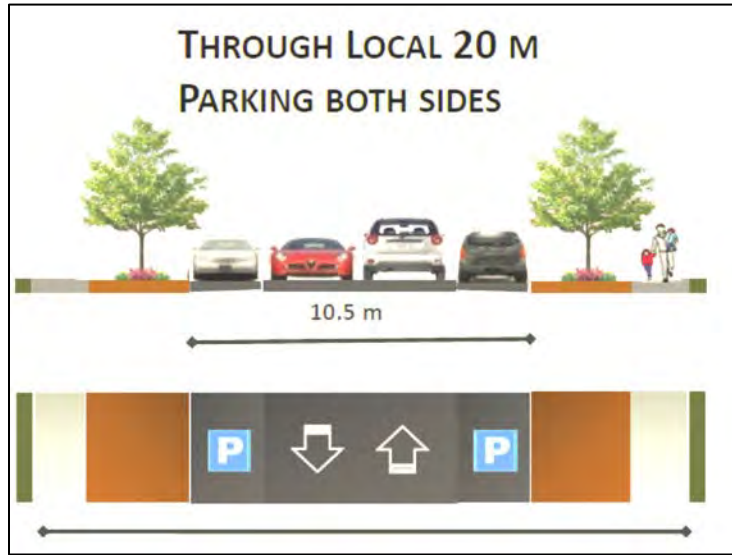
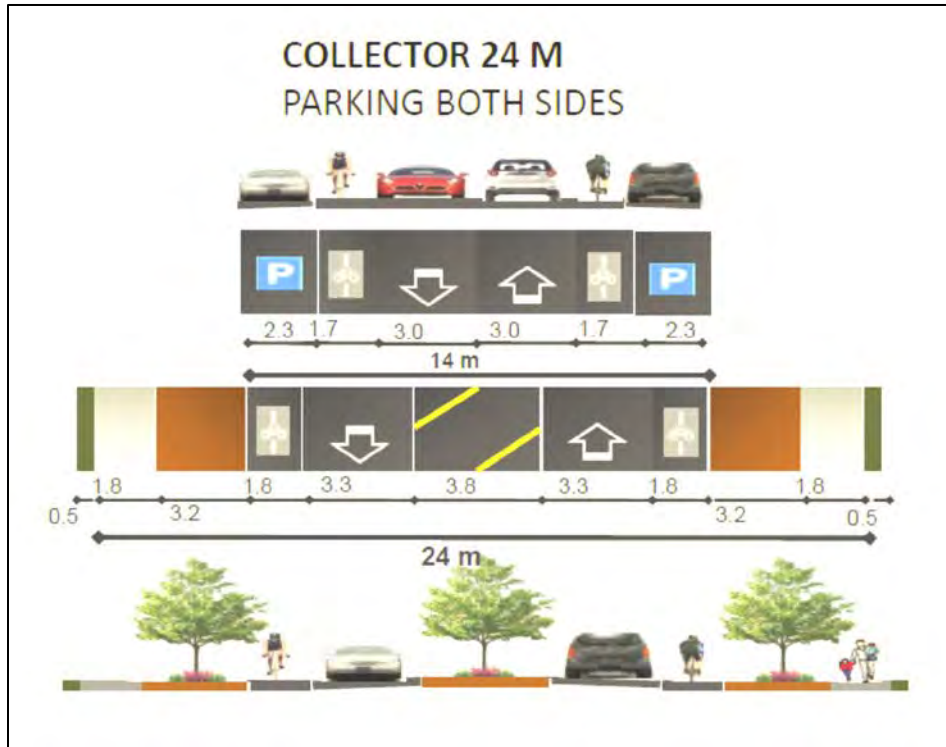


Figure 12 - Future Road Network Classification

A. Typical Local Cross Sections



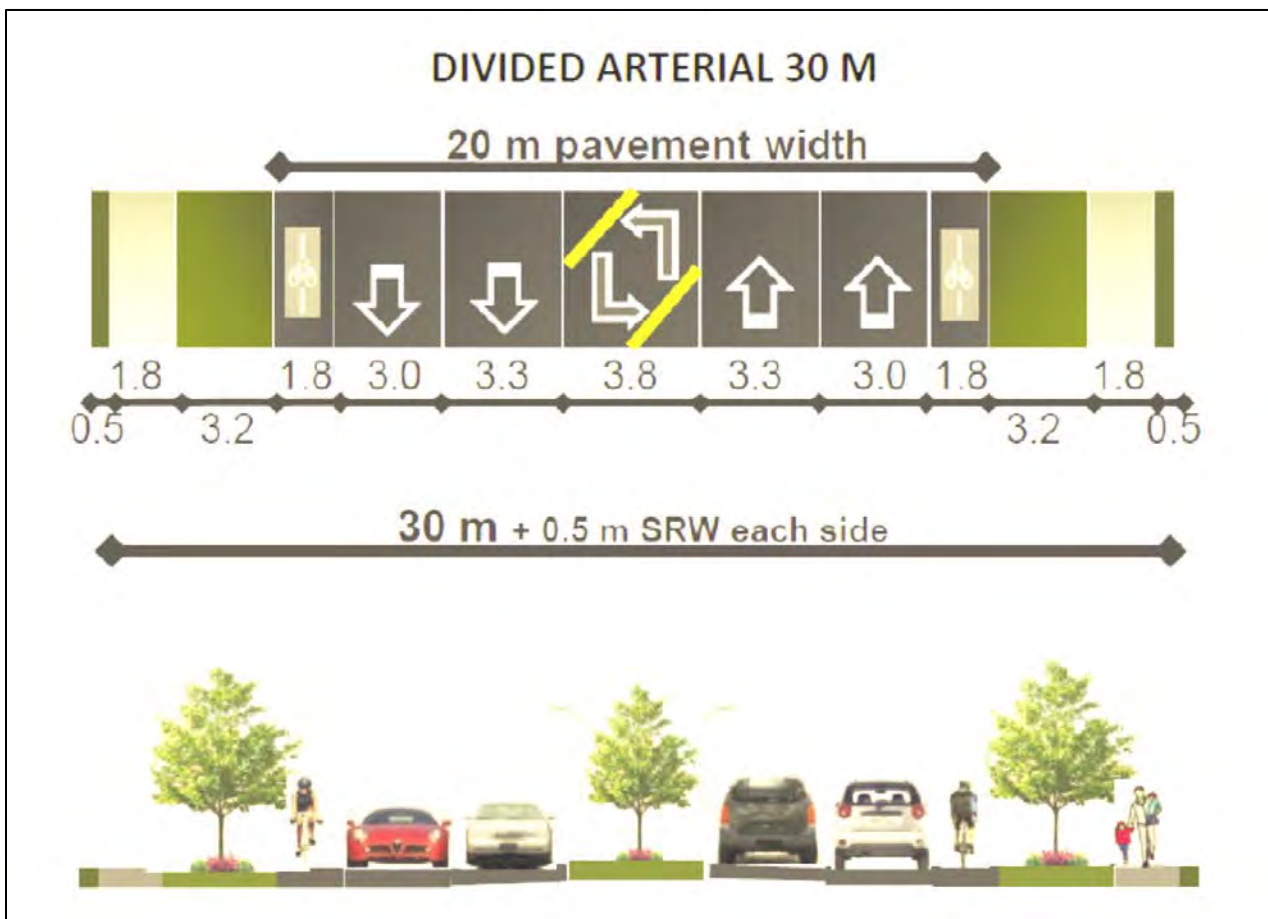
B. Typical Collector



D1



C. Typical Divided Arterial



2. TREE PROTECTION GUIDELINES

Tree Preservation

The preservation of forest grown mature trees in relation to residential development presents many challenges. Selective preservation of trees from the protected confines of a forest stand often results in unpredictable tree behaviour. The typical tall and thin form of forest grown trees can result in unsuitable candidates for tree retention. There have been significant failures from selective and thin clusters of forest grown trees where preservation has been attempted in the past. Douglas Fir is known to release large limbs when under strong wind loading. The loss of limbs is how the tree responds to wind as opposed to full tree failure. When large Firs shed large limbs, the branches tend to be end weighted and can fall in a vertical spear-like orientation. As a result, residential development directly under large mature Firs is not recommended.

Various studies and experience in Greater Vancouver slopes has resulted in a guideline recommendation that the width of leave strips of forest grown trees should at a minimum equal the height of the tallest trees in the group. The wider the leave strip, the more stable trees within the retained group tend to be. It is recommended that redevelopment of some of the deep lots between 128th and 127th Streets, especially where mature, fir-dominated stands exist with the tallest and oldest (100 years) trees, include bands or clusters of 20-30 m width. It is recommended that tall, mature trees along the crest of the steep slopes in the Area, such as along pan-handle lots west of 127th St. be retained in a wider strip.

The location of existing trees should be considered in the design of development. Trees of high quality or those with wildlife, cultural or heritage value should be identified before the site plan has been completed.

D2



Tree Enhancement

Encouraging the planting of additional trees to enhance development properties and streetscapes beyond the requirements of boulevard trees is suggested. The developed areas with no immediate development plans should also be encouraged to add trees and landscape where appropriate. Whenever possible, Douglas Fir and Western Red Cedar should be encouraged, as these are the native climax species of trees for this area of Surrey.

Trees on steep slopes should be retained, wherever possible. Where trees of large size are retained, large groups or wide leave strips (e.g. 20-30 m) are preferred.

Tree Replacement

Where development is approved, a policy of no net loss of trees through the planting of replacement trees should be encouraged. Surrey's current policy of two-for-one replacement is supported.

Tree Protection Guidelines

Tree Protection Guidelines (TPG) are intended to provide guidance, advice and direction for landowners and developers on how to inventory trees on a proposed development site and prepare a Tree Protection Plan. The guidelines also lay out the principles for retaining trees, protecting trees during construction, ensuring trees are maintainable, and replanting/replacement tree requirements.

Note: *Other tree preservation regulations of the City may also apply at the time of a subdivision and at the time of development, and in accordance with specific City of Surrey tree preservation bylaw requirements.*

i. Purpose

The guidelines of this section give guidance to help preserve trees and mitigate for the loss of trees through development to:

- Maintain the natural beauty of the Neighbourhood and its natural heritage;
- Reduce erosion, siltation, and flooding;
- Provide buffering from noise, wind, and storms;
- Provide visual screening, and view protection;
- Filter stormwater and mitigate stormwater runoff;
- Maintain or increase property values;
- Stabilize slopes and
- Maintain wildlife habitat.

D2



“The City recognizes that not all trees can or should be preserved. Trees that are structurally unstable, in poor health, or an undesirable species may be candidates for removal. Also, with new urban intensification, there may not be sufficient space at some development sites to permit saving all trees due to current or future hazards and servicing requirements.

City staff will assess tree preservation along with grading and servicing constraints, to ensure that any trees identified for protection will be likely to survive.”

The City recognizes that the goal of maximizing tree preservation cannot be carried out in isolation, and planning and engineering constraints may exist which affect tree preservation

ii. Where these Guidelines Apply

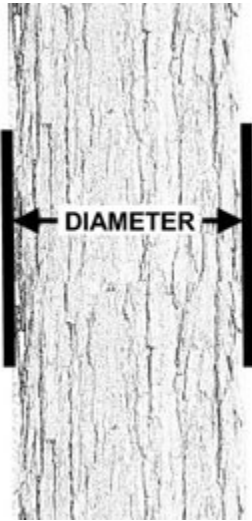
Unless exempted by this section, these tree preservation guidelines apply to all lands within the Tree Stand Map areas *as identified in Figure 6*, within the South Westminster Heights Infill Area Concept Plan:

- There is at least one *protected tree* on the site as defined by the Surrey Tree Protection Bylaw; or
- There is at least one tree that is at least 15 cm in diameter on the site.

iii. Exempt from These Guidelines

- Trees that are listed as nuisance or prohibited on the Surrey Tree Protection Bylaw Plant List;
- Trees that pose an immediate danger to life and safety as determined by the City Forester or an arborist;
- Trees that are dead, as determined by the City Forester or an arborist;
- Trees that are diseased in a manner that threatens their continued viability, or represents a significant threat to the health of surrounding trees, as determined by the City Forester or an arborist;
- Trees that are within 3 meters of an existing building that will remain on the site;
- Trees where the primary trunk is partially located in the right-of-way or on an adjoining site that is not part of the land division or development application site; and
- Trees that are less than 15 cm in diameter, and not listed as a Protected Tree at a smaller diameter than 15 cm in the Surrey Tree Protection Bylaw.

D2



iv. Tree Preservation Recommendations

Existing Trees

Before the City considers a rezoning for any increased density or smaller lots and or issues a building permit, tree protection requirements must be resolved and existing trees must be preserved where feasible. The total tree diameter on the site is the total diameter of all trees on the site, minus the diameter of trees that are listed above as Exempt from these Guidelines. The applicant must choose one of the following options. Significant trees are listed in the Surrey Tree Protection Bylaw.

- Option 1:** Preserve at least 25 % of the total tree diameter on the site;
- Option 2:** Preserve at least 35 % percent of the protected trees on the site and at least 15 % of the total tree diameter on the site;
- Option 3:** Preserve at least 50 % of the protected trees on the site and at least 20 % of the total tree diameter on the site;
- Option 4:** Preserve all of the protected trees on the site and at least 15 % of the total tree diameter on the site; or
- Option 5:** If the total development site is larger than one acre (4046 sq. m), preserve at least 50 percent of the total tree canopy area on the site.



v. Calculations

Tree diameter and protected trees

When calculating the amount of tree diameter and the number of protected trees on the site, the applicant may choose one of the following methods of measurement:

- **Tree inventory:** A tree inventory identifies all trees on the site, specifying location, species, retention potential and diameter of each tree;
- **Statistical sampling:** Statistical sampling may be used to estimate the total tree diameter and total number of significant trees present. Sampling must be carried out by a professional arborist or forester based on standard methodologies.

Tree canopy Coverage

When calculating the amount of tree canopy on the site, the total canopy area is based on the most recent aerial photograph available.

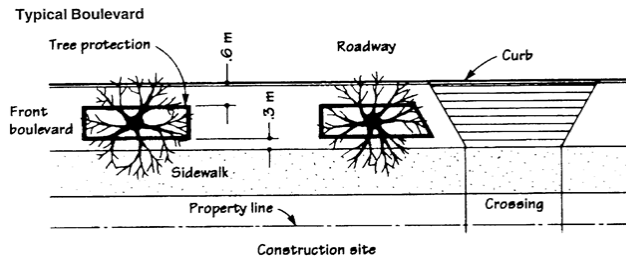
vi. Tree Preservation Standards

Trees must be preserved either in a tree preservation zone or by use of a tree preservation plan.

A. Tree preservation zone areas.

Tree Preservation Zone Area boundary:

- The distance from tree depends on the diameter at breast height (DBH) of the tree and must be at least 1.5 meters from the root protection zone of any trees to be protected within the tract.
- Where the edge of the root protection zone is less than 5 meters from the edge of the site, the zone boundary will be located along the edge of the site.

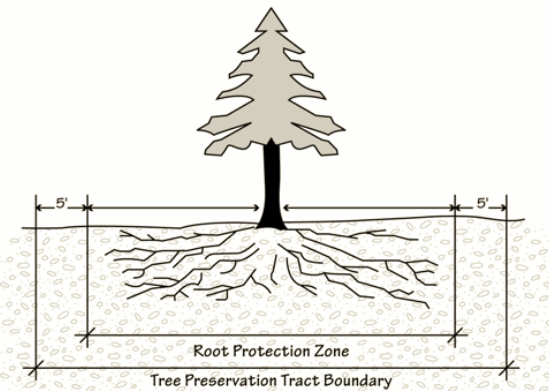


D2



Tree Protection Barriers:

- Barriers must be built to standard, and remain in place during the entire construction process. The location and material of the fence must be shown on the clearing and grading plan;
- The fence must be in place before clearing, grading, or construction starts and remain in place until construction is complete, ; and
- The tree protection barrier fence must be 2 x 4 construction with top, bottom rail, display an X pattern, be wrapped in orange mesh, and pass a City arborist's inspection. The barrier must meet the complete specifications outlined in the Tree Barrier Installation and Inspection Bulletin.



B. Tree preservation Survey plan

Trees that will be preserved on individual lots must be permanently identified for preservation through a tree preservation Survey plan. Trees to be preserved must be healthy and the tree, including the root protection zone, must be outside of areas proposed for structures, services, and utilities. For the purposes of these guidelines, the tree preservation plan must be completed by a certified arborist or forester.

The submitted land survey must include the following:

- trees on property;
- adjacent trees on neighbouring property;
- trees on adjacent City property.

Also make sure plan drawings include tree locations and tree protection zones of associated trees.

v. Replacement Tree Requirements.

- When 1 tree is removed to allow construction, 2 replacements are required. The Replacement Tree Requirements include a \$300 deposit per tree, returned once the replacement tree is planted.
- Tree Security Bonding of \$3000 per tree, up to a maximum of \$10,000. This money is returned following inspection upon receipt of building final, as long as trees have not been damaged during construction.
- Arborist Supervision during construction is required in instances when works occur inside Critical Root Zones of trees. These works would be anticipated and prescribed in the Arborist Report. A Comfort Letter must be signed by both the homeowner and the arborist.

D2



vi. Design Consideration for Existing Trees

Protection of existing mature tree resources is critical to the urban forest. Large, healthy trees are a valuable asset to the neighbourhood. Most mature trees grow slowly over time and are not easily replaced.

Damage to trees occurs as a result of development and construction of houses, retaining walls, curbs and sidewalks, various types of paving, excavation of underground utilities, and road widening. The damage to trees includes root compaction and severance, trunk damage, bark removal, branch scrapes and breakage, and total tree destruction. Such trees become public hazards which increase municipal liability. At time of design and construction consider location of trees for retention for building placement and infrastructure servicing.

Illustrations 2 below identifies some techniques for tree preservation and design considerations including varying setbacks and no build areas in rear of lots.

D2

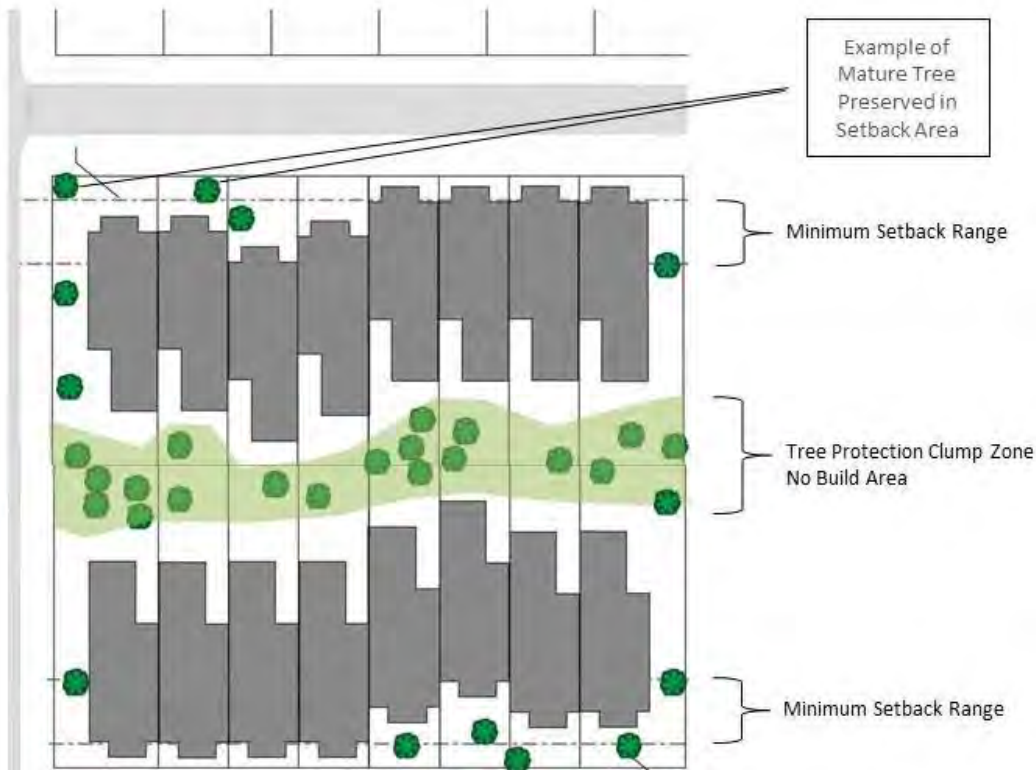


Illustration 1- Vary Setbacks for Tree Protections



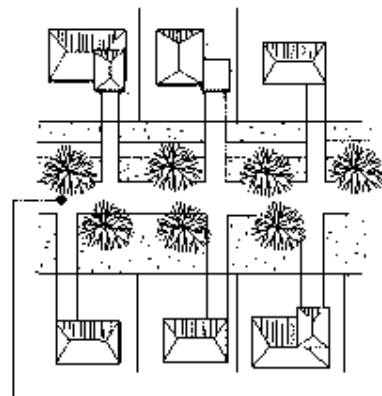
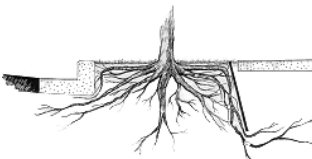
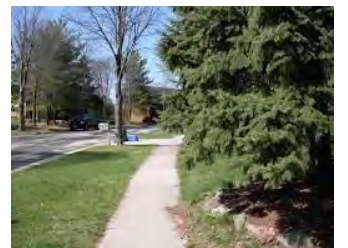
Utilities and Infrastructure

Design of right of way infrastructure such as roads, sidewalks, water and sewer lines are to consider tree retention and replacement from the outset of design development will help to mitigate damage and reduce maintenance and replacement costs.

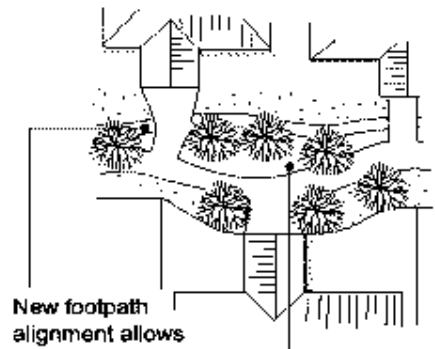
In order to maximize space for successful tree planting, infrastructure should be consolidated wherever possible. Tree roots and underground lines can initially coexist without problems; however the installation, maintenance or renewal of underground services in existing streets usually necessitates digging a trench through the root zone resulting in significant root loss. The location and depth of existing utilities is often difficult to verify from a plan. When the wrong tree is planted in proximity to utilities, the ultimate result is utility damage and tree removal.

The use of trenchless technology in areas with existing trees allows for less invasive inspection, repair and installation of utility infrastructure to minimize cutting through root zones.

Utilities may also be shifted out of soft landscaping areas available for tree planting and into the street or under the paved pedestrian area. Maintenance costs can be a limiting factor in this alternative. Utilities can be located along the curb or in the bike lane to reduce traffic disruption, and removable sidewalk panels ease utility access for maintenance and construction. The use of nonshrinkable backfill can significantly impede root growth and should be avoided.



Traditional setback creates unusable space which reduces the function and aesthetics of the street



New footpath alignment allows for integrated stormwater management and responds to natural features

Variation in width of the reserve facilitates integrated design of stormwater management



vii. Mitigation Option

As an alternative to meeting tree protection standards outlined above, approval of a mitigation plan may be requested. The Trees and Landscaping division of the Planning and Development Department will approve the mitigation plan where the applicant has shown that the applicant has met criteria A. and B. and one of the criteria in C., below:

- A. As many trees as possible are preserved; and
- B. The applicant has submitted a mitigation plan that adequately mitigates for the loss of trees, and shows how the mitigation plan equally or better meets the purpose of these tree preservation guidelines. Mitigation can include tree planting, preservation of groups of smaller trees, eco-roof, porous paving, or pervious surface permanently preserved in a no build setback contiguous area no less than 20 X 30 m in size as identified in **Illustration 2**.

- C. It is not possible under any reasonable scenario to meet the Tree Preservation Standards and one of the following:

- Meet all City of Surrey service requirements, including connectivity;
- Implement an adopted street and transportation network plan;
- Provide a practicable arrangement of lots, tree preservation zones, and streets within the site that would allow for the division on the site with enough room for a reasonable building site on each lot;
- Provide a practicable arrangement of lots, tree preservation zones, and streets within the site that would allow for the division of the site with enough room for a reasonable building site on each lot, considering the uses and development allowed in the zone, or Preserve the trees within the environmental zones on site while providing a practicable arrangement of building sites and disturbance area.

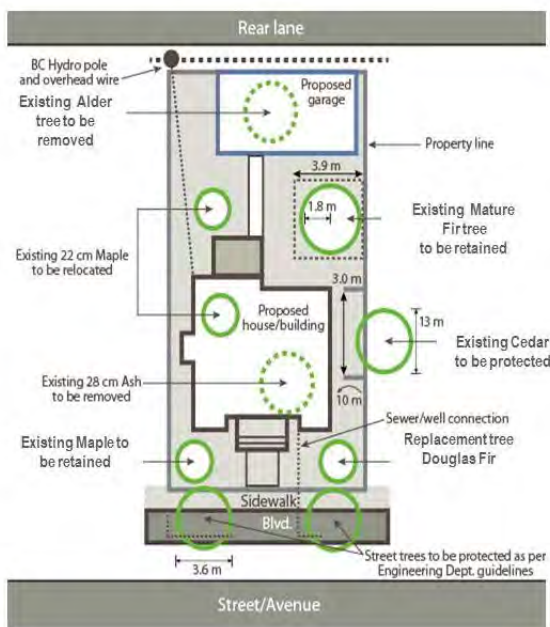


Illustration 2 – On Site Tree Protections and Mitigation Techniques

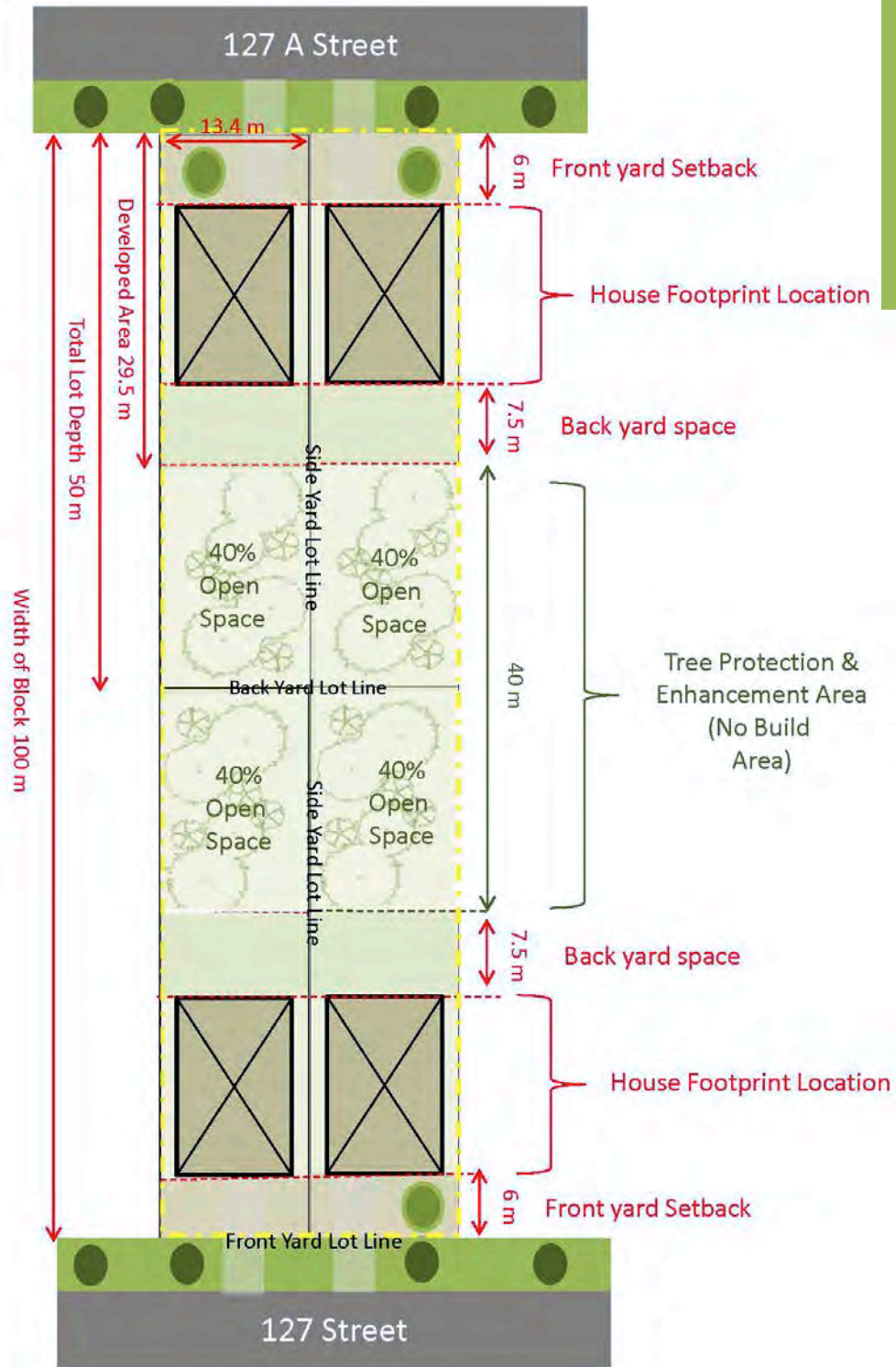


Illustration 3 - No Build Maximum Setback Area on Deep Lots

3. HILLSIDE DEVELOPMENT GUIDELINES

Not all architectural styles or developments are appropriate on steep hillsides. Typical house and subdivision designs assume flat sites and are inappropriate for sloped sites. The following points are intended to suggest ways of harmonizing built structures with hillsides in ways that benefit the owner and the community.

i. Purpose:

New development on steep slopes should:

- contribute to the hillside character of the areas residential neighbourhoods in a positive manner;
- protect wildlife habitat and environmentally sensitive areas;
- integrate or protect unique or special natural features of the site such as landforms, rock outcroppings, mature trees and vegetation, drainage courses, hilltops and ridgelines;
- avoid unstable or hazardous portions of the site and protect lives and property from hazardous conditions such as landslides, erosion, etc.
- provide safe access for residents, visitors and service providers;
- maintain the aesthetic and scenic quality of Surrey’s hillsides;
- be compatible with the natural features, building location and existing open spaces of neighbouring properties;
- respect the existing views, privacy, access to light and safety of neighbouring properties; and
- support economic and efficient construction and maintenance standards.

On sites with slopes equal to or greater than 15%, undertake a geotechnical survey and evaluation of all or portions of the site, prior to site planning or design. The survey should include measures to address geotechnical concerns, including:

- Geotechnical evaluations,
- An assessment of existing surface and subsurface conditions;
- Identification of hazards;
- Increased building setbacks,
- Deep foundations,
- Potential impacts of development;
- The control and conveyance of stormwater,
- The planting and maintenance of vegetative ground cover on the slope itself; and
- Recommendations for safety, site protection, development and mitigation.

D3



ii. Single-Family Subdivision Development

- When calculating lot coverage within single-family subdivisions, it should be exclusive of any slope of 30% or greater. Where the minimum lot size cannot be achieved on lands with slopes less than 30%, a larger minimum lot size may be considered.
- Use building setbacks in a flexible manner to protect slopes and natural features from development encroachments.

iii. Open space (Cluster housing) Areas

Development should be used as an alternative to a conventional single-family subdivision in applicable land use areas, where one or more of these criteria can be met:

- it reduces site manipulation and preserves more of the natural character of the hillside than a standard single-family subdivision.
- it protects designated Biodiversity Conservation Corridor on the property.
- it avoids developing steep or hazardous (e.g., erodible or flood-prone) portions of the property.
- the open space provides a natural corridor through or around the property, or connects to open space in the neighbourhood.
- the open space buffers higher density development from neighbouring single-family development, if applicable.
- the proposed building forms are of a character and quality that fit into and enhance the surrounding neighbourhood.
- the development maintains a visually attractive ridgeline;
- installation of infrastructure and provision of public services can be economized.

D3



In existing residential areas, open space development should be in the form of smaller single-family lots, duplexes, triplexes, manor homes, patio homes or small-scale townhouse complexes. The amount and distribution of open space to be retained, the availability of undeveloped buffers to neighbouring properties and the nature of surrounding development must be considered when deciding the appropriate mix of building form.

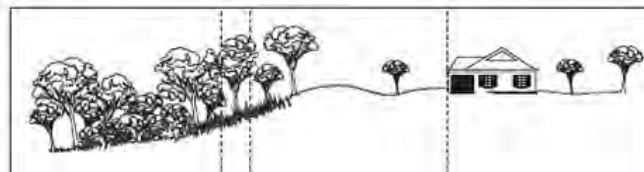
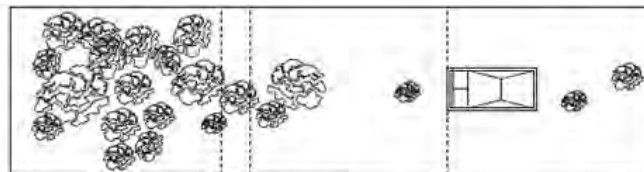
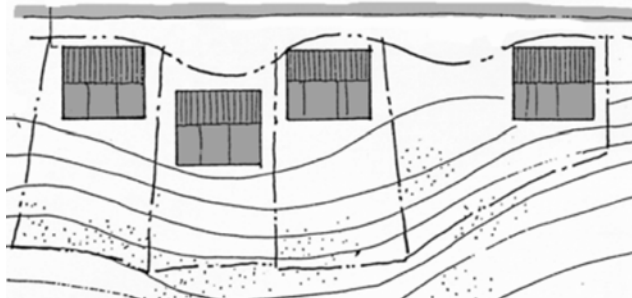
To qualify as open space development on those lots proposing to cluster, a minimum amount of opens space as identified in the Land Use Designation, of the gross site area shall be provided as permanent open space as part of a bare land strata development

iv. Roads and Lot Layout

- Straight lines and rectilinear shapes generally do not complement natural hillsides. Lay out roads and lots in a pattern that offers a variety of sizes and configurations that complement the topography and features of the site.
- Use flag or panhandle lots only where they can minimize cut and fill and can provide access to developable areas not readily accessible by public roads. Panhandle accesses shall meet the requirements of the City for servicing and fire protection.



Varied and staggered setbacks are encouraged



D3



**CAUTION
STEEP
SLOPE**

4. LOT CONSOLIDATION GUIDELINES

Land consolidation areas have been identified to advise future developers of consolidation requirements and to ensure feasible development areas which achieve an equitable distribution of road dedication, land development, and construction costs. Land consolidation may be required for:

- small acreage parcels;
- encumbered properties with little development potential;
- cluster designation areas;
- road construction costs.

Within the plan area there are a number of parcels where lot consolidation is required in order to develop, especially in existing developed lots. These land consolidation opportunities can often be determined on a case by-case basis at development application stage. In some cases, however, predetermined consolidation requirements are identified in the Land Use Plan in order to avoid creating remnant pieces that could not develop on their own. These particular properties should be developed together through consolidation and land assemblies or through coordinated development.

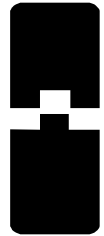
If land consolidation is not possible during the development process, the developer must:

- Demonstrate that the development potential of the excluded property is not compromised; and
- Share road construction costs amongst properties shown in the land consolidation area.

Typical Consolidations:

- For Land Use designation areas indicating that Open Space retention is required for tree preservation or slope protection a minimum lot consolidation of 2 acres is typically required.
- ½ acre lot consolidation is typically the minimum requirement for the majority of conventional development within the area, but will vary depending on individual Land use designation as determined by the Planning and development department at time of application.

D4



APPENDICES

APPENDIX I: Hillside Development Checklist



APPENDIX I: Hillside Development Checklist

The following checklist summarizes development guidelines and standards for designated hillside areas within the South Westminster Heights Area. A "yes" indicates the project complies with the recommendation, a "no" indicates it does not. N/A is the abbreviation for "not applicable."

This checklist is intended to measure overall development quality. The checklist incorporates standards and suggested guidelines to insure high quality projects. Standards are indicated with an asterisk and are required. Exceptions to standards can only be granted by the City of Surrey Planning and Development Department.

Guidelines are recommendations and are indicated in the text by the term "should." Staff will be guided by compliance with these guidelines in making their recommendations on the project design. The project architect or engineer must justify any variations. Only projects with high quality designs will be considered for approval.



HILLSIDE DEVELOPMENT CHECKLIST	Applicable		
	Y	N	N/A
A. PRESERVATION OF EXISTING NATURAL FEATURES			
1. *Ridgeline setback of development within 30 vertical meters of a visually significant ridgeline.			
2. Maintains mature trees and preserves significant native vegetation on slopes of 15% or greater based on QEP recommendations.			
3. Minimizes grading and alterations of natural land forms with balanced cuts and fills.			
4. Minimizes off-site impacts and preserves natural drainages.			
5. Roads located and landscaped to minimize visual impacts.			
6. Retains significant trees or criteria for removal is met and *replacement criteria of 3:1 with native trees is met.			
7. Existing trees are preserved by avoiding grading in the dripline, or change in grade or compaction. Arborist's recommendations are met.			

B. HILLSIDE GRADING AND DRAINAGE	Y	N	N/A
1. Grading is minimized and all grading maintains a natural appearance with slopes of 2:1 to 5:1. Grading within 6 meters of property lines is minimized or similar to existing adjacent slopes.			
2. Terracing uses incremental steps and visible retaining walls are of a minimum height and use stone or earth coloured materials.			
3. Building Pads are of a minimum size for structures and open space (pads for tennis courts and swimming pools are discouraged).			
4. Off-site drainage impacts are minimized and drainage plans avoid erosion and damage to on-site and adjacent properties. Impervious surfaces are minimized and storm water from roofs is conveyed to a comprehensive site drainage system Storm drainage improvements and drainage devices create a natural appearance.			
5. Erosion control plans and re-vegetation plan provided.			
6. Geotechnical review has been done and mitigation measures will not substantially modify the character of the existing landform, expose slopes that cannot be re-vegetated or remove large areas or existing mature vegetation. Existing geologic hazards have been corrected.			

C. LOT CONFIGURATION, BUILDING SETBACKS AND LOCATION (SUBDIVISIONS)	Y	N	N/A
1. Lot configurations provide a variety of shapes based on topography and natural features and lot lines are placed on the top, not the toe, of the slope.			
2. Panhandle and/or bare Land Strata lots with common access driveways, and open space allocation are encouraged.			
3. Building setbacks are varied or staggered according to terrain and natural features.			
4. Building locations are not located near visually prominent ridgelines and existing view of residences are respected.			
5. * Front yard setbacks are minimized on steep downhill lots.			

D. STREET LAYOUT, DRIVEWAY AND PARKING DESIGN	Y	N	N/A
1. Streets use narrower street widths if it reduces grading, visual impacts are minimized by terracing any retaining walls.			
2. * Street layout follows the natural grade and long stretches of straight road are avoided. Proper sight distances are maintained.			
3. Local road grades do not exceed 12% or 15% for short sections not exceeding 100 meters in length) or have received an exception.			
4. Driveway grades do not exceed 18% or an exception has been granted. Parking has been designed so that vehicles will not back out into substandard streets.			
5. Driveway grades on the first 3.5 m from the property line do not exceed 7%.			

E. REDUCTION OF BUILDING BULK ON HILLSIDES	Y	N	N/A
1. The building steps up the slope and/or has been cut into the hillside.			
2. Roof forms and rooflines are broken up and parallel the slope. The slope of the roof does not exceed the natural contour by 20%.			
3. Overhanging or elevated decks and excessive cantilevers are avoided.			
4. Large expanses of a wall in a single plane are avoided on downhill elevations.			
5. Building materials blend with the setting.			

F. HILLSIDE ARCHITECTURAL CHARACTER	Y	N	N/A
1. Rooflines are oriented in consideration of views from adjacent areas and properties.			

<p>2. Gabled, hip and shed roof forms with a moderated pitch are encouraged. Changes in roof form accompanied with offsets in elevations are encouraged. Flat roofs with membranes or built up roofing materials are discouraged when visible.</p>			
<p>3. Multifamily Building projects have different floor elevations to achieve height variation and avoid long continuous building masses. Articulated facades and variations in roof forms are required. Buildings near hillside rims have a staggered arrangement and are screened with planting.</p>			
<p>4. Building Materials, texture and color meet criteria and color coordinate with the predominant colors and values of the surrounding landscape. Building walls and roofs are of recommended materials.</p>			
<p>5. Walls, fences and accessory structures are compatible with adjacent buildings and are designed to respect views. Front yard fences are of an open design and provide a landscaped buffer. Walls and materials are of appropriate materials.</p>			
<p>6. Retaining walls meet height restrictions of 4 feet on upslopes and 3 feet on downslopes. Terraced retaining walls are separated by a minimum of three feet and landscaped. Retaining walls holding back grade to accommodate a patio or terrace conform to the natural contours as much as possible and excessively high retaining walls are prohibited.</p>			
<p>7. Decks do not create excessively high distances between the structure and grade.</p>			