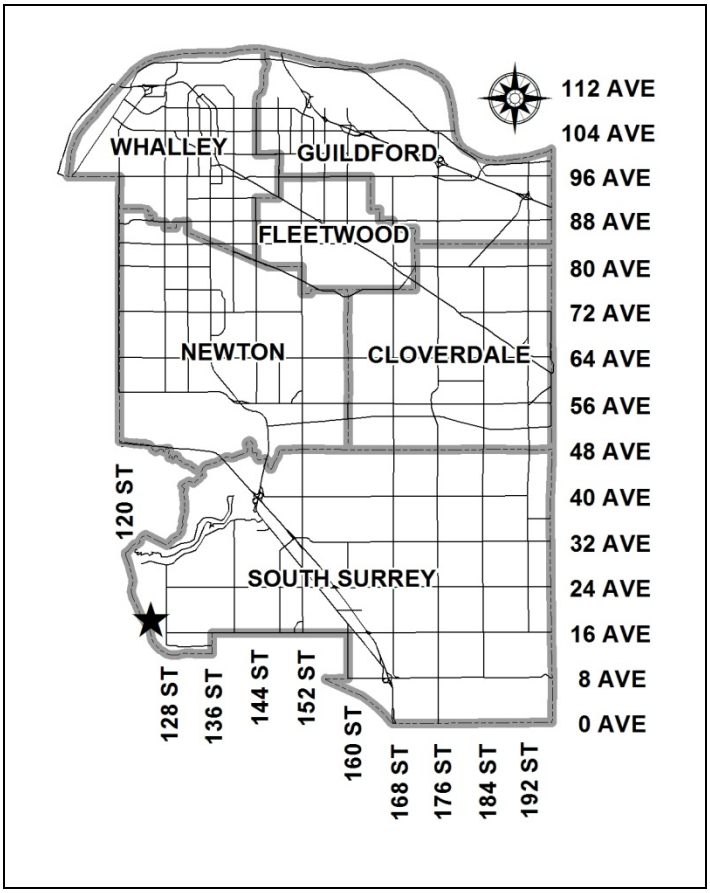


City of Surrey
PLANNING & DEVELOPMENT REPORT
File: 7910-0129-00

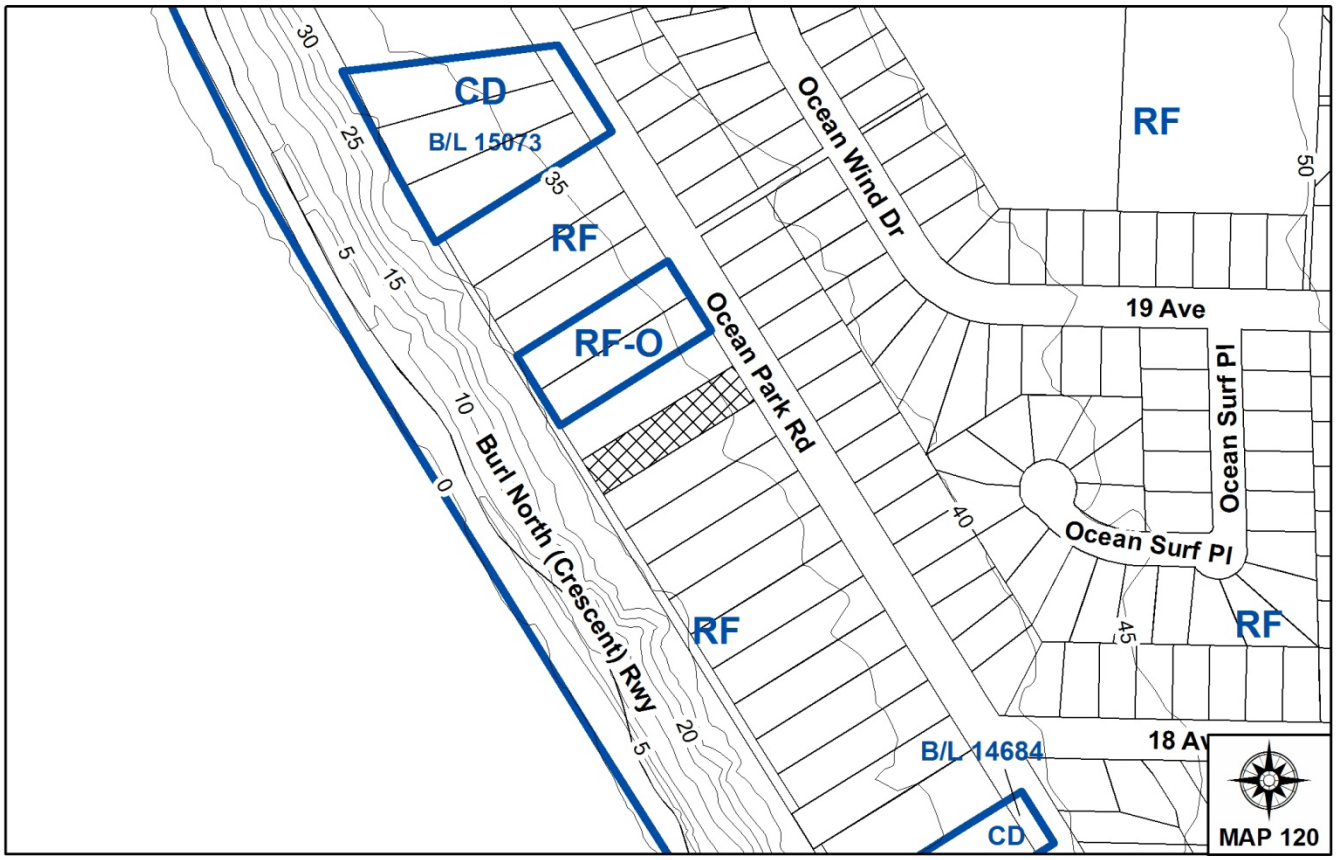
Planning Report Date: January 10, 2011

PROPOSAL:

- **Rezoning** from RF to RF-O

in order to permit the development of a larger single family dwelling on an oceanfront lot.

LOCATION:	1885 Ocean Park Road
OWNERS:	Lawrence and Janette Sinitsin
ZONING:	RF
OCP DESIGNATION:	Urban
LAP DESIGNATION:	Urban Residential



RECOMMENDATION SUMMARY

- By-law Introduction and set date for Public Hearing for Rezoning.

DEVIATION FROM PLANS, POLICIES OR REGULATIONS

- None.

RATIONALE OF RECOMMENDATION

- Complies with OCP Designation.
- Complies with the Semiahmoo Peninsula Local Area Plan.
- The subject parcel meets the criteria of the RF-O Zone.

RECOMMENDATION

The Planning & Development Department recommends that:

1. a By-law be introduced to rezone the subject site from "Single Family Residential Zone (RF)" (By-law No. 12000) to "Single Family Residential Oceanfront Zone (RF-O)" (By-law No. 12000) and a date be set for Public Hearing.

2. Council instruct staff to resolve the following issues prior to final adoption:

    (a) ensure that all engineering requirements and issues including restrictive covenants, and rights-of-way where necessary, are addressed to the satisfaction of the General Manager, Engineering;

    (b) submission of a finalized tree survey and a statement regarding tree preservation to the satisfaction of the City Landscape Architect;

    (c) registration of a Section 219 Restrictive Covenant to ensure tree retention;

    (d) registration of a Section 219 Restrictive Covenant to ensure future house construction is in accordance with the recommendations in the approved geotechnical report; and

    (e) registration of a Section 219 Restrictive Covenant to ensure the proposed dwelling complies with the approved house design plans.

REFERRALS

Engineering: The Engineering Department has no objection to the project subject to the completion of Engineering servicing requirements as outlined in Appendix III.

SITE CHARACTERISTICS

Existing Land Use: Single family dwelling.

Adjacent Area:

Direction	**Existing Use**	**OCP/LAP Designation**	**Existing Zone**
North-East (Across Ocean Park Road):	Single family residential.	Urban/Urban Residential	RF
South-East:	Single family residential.	Urban/Urban Residential	RF
South-West:	Burlington Northern Railway	Urban/Urban Residential	RF

Direction	Existing Use	OCP/LAP Designation	Existing Zone
North-West:	Single family residential.	Urban/Urban Residential	RF and RF-O

DEVELOPMENT CONSIDERATIONS

Proposal

- The subject site is located at 1885 Ocean Park Road, along the ocean bluff in South Surrey. It is designated Urban in the OCP.

- The applicant is proposing a rezoning from Single Family Residential Zone (RF) to Single Family Residential Oceanfront Zone (RF-O) to permit the construction of a larger, oceanfront, single family home (463 sq.m. / 4,989 sq.ft.).

- The proposed development complies with the criteria of the RF-O Zone as follows:

    - The property is an oceanfront lot, as it is located such that no residential lots exist between the subject site and the ocean water front;

    - The subject site is 20 metres (65 ft.) wide, 87 metres (285 ft.) deep, and has a total area of 1,752 sq.m. (18,860 sq.ft.); as such it fully satisfies and exceeds the dimensional and area criteria of the RF-O Zone [20 metres (65 ft.) width; 45 metres (150 ft.) depth; 1,000 sq.m. (10,764 sq.ft.) area]; and

    - The proposed floor area for the new dwelling is within the maximum floor area ratio (FAR) of 0.32 and the permitted lot coverage of 25%; 0.32 FAR and 20.3% lot coverage is proposed.

Building Design

- The proposed single family dwelling is a two-storey Tuscan-style home with an in-ground basement (Appendix II). Exterior materials consist of wood, stucco, cobblestone and slate. Decorative elements include terracotta tile, concrete tile, and solid wood windows and doors.

- The garage is proposed to be integrated into the single family dwelling with the entrance to the garage facing the side yard, enhancing the visual appeal of the front facade. The single family dwelling is proposed to be setback 32 metres (105 ft.) from Ocean Park Road and will be heavily screened by existing forest cover, which is proposed to be retained.

- The building plans will be registered on title as a Section 219 Restrictive Covenant to ensure that the final construction complies with the approved building plans.

Geotechnical Report

- The subject site slopes gently from northeast to southwest. The crest of the ocean bluff lays approximately 24 metres (7.9 ft.) to 30 metres (98 ft.) adjacent to the existing dwelling.

- A geotechnical report to evaluate slop stability was prepared by GeoPacific Consultants Ltd. (Appendix V). The proposed single family dwelling is to be located beyond the 2 Horizontal ; 1 Vertical line by 1.6 metres (5.2 ft.) to 2.9 metres (9.5 ft.), as measured from the toe of the slope (the 2H : 1V line is drawn by moving 2 units horizontally for every 1 unit vertically from the base of the slope). GeoPacific confirms that the property may be safely used for the proposed single family dwelling and pool, provided all of its recommendations are incorporated into the design. Staff have reviewed the geotechnical report and have found it satisfactory.

- The locational requirements and geotechnical report will be registered on title. At Building Permit stage, the Building Division will require Letters of Assurance from a geotechnical engineer to ensure that building plans comply with the recommendations in the approved geotechnical report.

Trees and Landscaping

- Max Rathburn, Certified Arborist of Arbortech Consultants Ltd., prepared the Arborist Report, Tree Replacement Plan, and Raptor Assessment for the subject site (Appendix V). No evidence of Raptors was found on the site.

- The Arborist Report indicates there are 23 bylaw-sized trees on the subject site. The following is a table providing the breakdown by species:

Tree Species	Total # of Trees	Total Retained	Total Removed
Western red cedar	10	5	6
Hemlock	1	0	1
Grand fir	6	0	6
Cherry	1	0	1
White pine	1	0	1
Blue atlas cedar	1	0	1
Douglas-fir	3	1	2
Total	**23**	**6**	**17**

- The arborist conducted an assessment of tree retention and has determined that 17 trees must be removed. Only 4 viable and 1 non-viable trees are being removed due to encroachment into the building envelope. 3 trees are being removed based on their hazard risk, and a further 9 trees are being removed for landscape management purposes.

- Despite the removal of trees on the subject site, the applicant will be required to replant the trees on a 2 to 1 replacement basis for coniferous trees and a 1 to 1 replacement for deciduous trees. This will require a total of 34 replacement trees on the subject site. The property is fairly heavily treed along the front of the property. The proposed single family dwelling is set back approximately 23 metres (75 ft.) from Ocean Park Road and will be well screened by the retained forest cover.

PRE-NOTIFICATION

Pre-notification letters were sent on June 21, 2010 to 37 households within 100 metres (328 ft.) of the subject site. Staff received the following comments:

- Staff received 1 letter from the public. The author of the letter raised concerns over the preservation of views and sightlines, protection of the bluff from erosion, and the removal of trees.

  (No trees are proposed to be removed from the bluff with the exception of tree 878, which requires the approval of Burlington Northern Railway. Tree removal is limited to the area north east of the proposed dwelling (between the existing dwelling the Ocean Park Road). The proposed single family dwelling will not encroach on views; existing sightlines will be preserved as the proposed single family dwelling will maintain the existing 10-metre (30 ft.) rear yard setback. As per the City of Surrey Noise Control By-law, 1982, No. 7044, construction is permitted only between the hours of 07:00 to 22:00 Monday to Saturday.)

INFORMATION ATTACHED TO THIS REPORT

The following information is attached to this Report:

Appendix I.	Lot Owners, Action Summary and Project Data Sheets and Survey Plan
Appendix II.	Site Plan, Typical Floor Plans and Elevations
Appendix III.	Engineering Summary
Appendix IV.	Summary of Tree Survey and Tree Preservation
Appendix V.	Geotechnical Report

INFORMATION AVAILABLE ON FILE

- Geotechnical Study prepared by GeoPacific Consultants Ltd. dated October 29, 2010.

original signed by Nicholas Lai

Jean Lamontagne
General Manager
Planning and Development

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APPENDIX I

Information for City Clerk

Legal Description and Owners of all lots that form part of the application:

1. (a) Agent: Name: Mark Peers, Tuscan Developments Inc.
Address: 12851 – 16 Avenue
Surrey, BC
Tel: 604-542-9114

2. Properties involved in the Application

(a) Civic Address: 1885 Ocean Park Road

(b) Civic Address: 1885 Ocean Park Road
Owners: Lawrence Sinitsin and Janette Sinitsin
PID: 000-615-145
Lot 21 Section 18 Township 1 New Westminster District Plan 1062

3. Summary of Actions for City Clerk's Office

(a) Introduce a By-law to rezone the property.

DEVELOPMENT DATA SHEET

Proposed Zoning: RF-O

Required Development Data	Minimum Required / Maximum Allowed	Proposed
LOT AREA* (in square metres)		
Gross Total		
Road Widening area		
Undevelopable area		
Net Total		1,752 m²
LOT COVERAGE (in % of net lot area)		
Buildings & Structures	0.25%	0.203%
Paved & Hard Surfaced Areas		
Total Site Coverage		
SETBACKS (in metres)		
Front	min. 10 m	35.25 m
Rear	min. 10 m	10.07 m
Side #1 (East)	min. 1.8 m	2.31 m
Side #2 (North)	min. 1.8 m	1.8 m
BUILDING HEIGHT (in metres/storeys)		
Principal	9 m	9 m
Accessory	5 m	4.67 m
NUMBER OF RESIDENTIAL UNITS		
Bachelor		
One Bed		
Two Bedroom		
Three Bedroom +	1	1
Total	1	1
FLOOR AREA: Residential	max. 560.71 m²	560.39 m²
FLOOR AREA: Commercial		
Retail		
Office		
Total		
FLOOR AREA: Industrial		
FLOOR AREA: Institutional		
TOTAL BUILDING FLOOR AREA	560.71 m²	560.39 m²

**** If the development site consists of more than one lot, lot dimensions pertain to the entire site.***

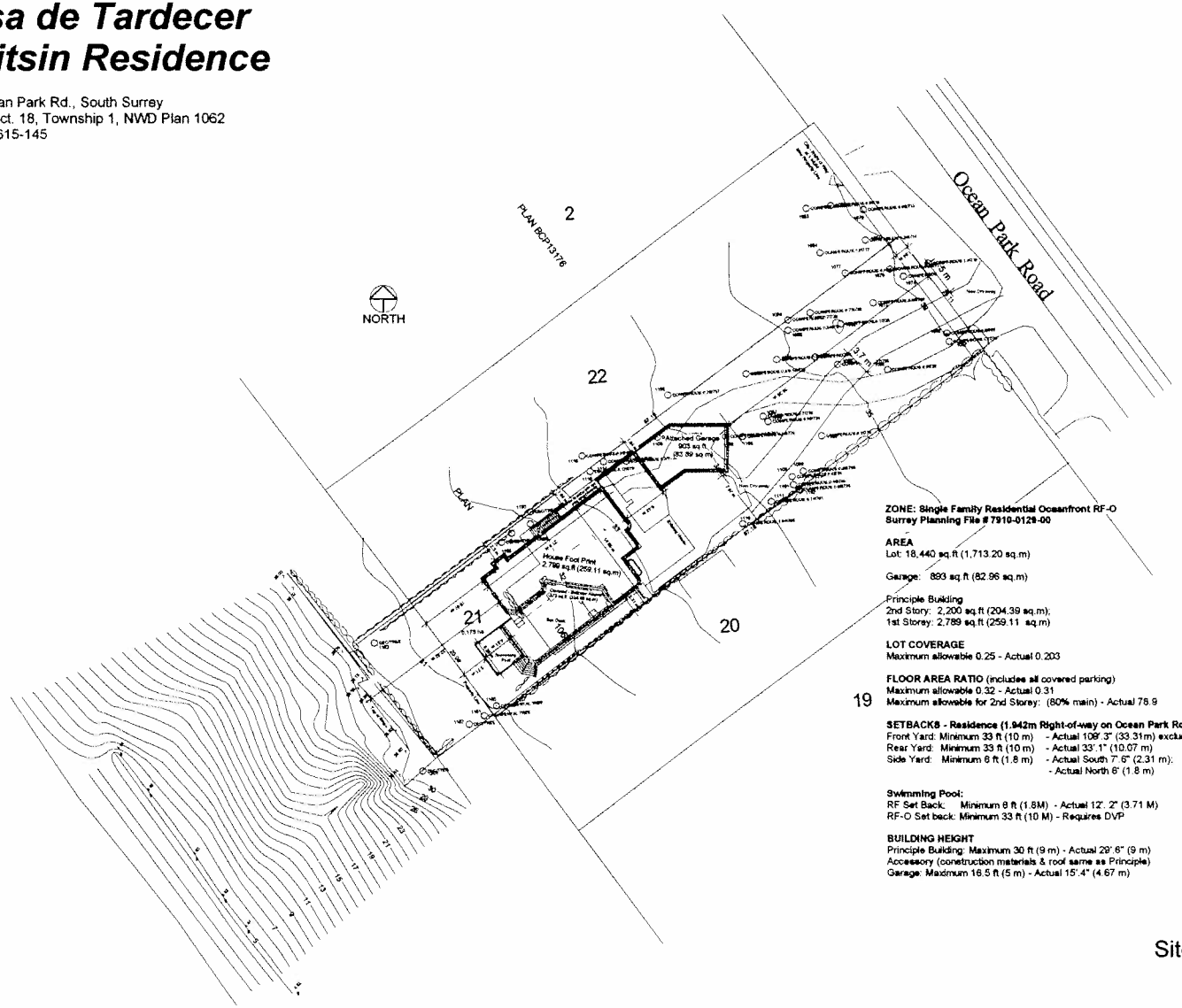
Development Data Sheet cont'd

Required Development Data	Minimum Required / Maximum Allowed	Proposed
DENSITY		
# of units/ha /# units/acre (gross)		
# of units/ha /# units/acre (net)		
FAR (gross)	0.32	0.32
FAR (net)		
AMENITY SPACE (area in square metres)		
Indoor		
Outdoor		
PARKING (number of stalls)		
Commercial		
Industrial		
Residential Bachelor + 1 Bedroom		
2-Bed		
3-Bed	2	3
Residential Visitors	3	2
Institutional		
Total Number of Parking Spaces		5
Number of disabled stalls		
Number of small cars		
Tandem Parking Spaces: Number / % of Total Number of Units		
Size of Tandem Parking Spaces width/length		

Heritage Site	NO	Tree Survey/Assessment Provided	YES

Casa de Tardecer
Sinitsin Residence

1885 Ocean Park Rd., South Surrey
Lot 21, Sect. 18, Township 1, NWD Plan 1062
PID: 000-615-145



ZONE: Single Family Residential Oceanfront RF-O
Surrey Planning File # 7910-0129-00

AREA
Lot: 18,440 sq.ft (1,713.20 sq.m)

Garage: 893 sq.ft (82.96 sq.m)

Principle Building
2nd Story: 2,200 sq.ft (204.39 sq.m);
1st Storey: 2,789 sq.ft (259.11 sq.m)

LOT COVERAGE
Maximum allowable 0.25 - Actual 0.203

FLOOR AREA RATIO (includes all covered parking)
Maximum allowable 0.32 - Actual 0.31
Maximum allowable for 2nd Storey: (80% main) - Actual 78.9

SETBACKS - Residence (1.942m Right-of-way on Ocean Park Rd.)
Front Yard: Minimum 33 ft (10 m) - Actual 109'.3" (33.31m) excludes R-of-W.
Rear Yard: Minimum 33 ft (10 m) - Actual 33'.1" (10.07 m)
Side Yard: Minimum 6 ft (1.8 m) - Actual South 7'.6" (2.31 m);
- Actual North 6' (1.8 m)

Swimming Pool:
RF Set Back. Minimum 6 ft (1.8M) - Actual 12'. 2" (3.71 M)
RF-O Set back: Minimum 33 ft (10 M) - Requires DVP

BUILDING HEIGHT
Principle Building: Maximum 30 ft (9 m) - Actual 29'.6" (9 m)
Accessory (construction materials & roof same as Principle)
Garage: Maximum 16.5 ft (5 m) - Actual 15'.4" (4.67 m)

TUSCAN DEVELOPMENTS
604-542-9114

12851 - 16th Ave., P.O. Box 45010
Surrey, British Columbia, V4A 2G

Phone: 604-542-9114
www.tuscandevelopments.com

Designed & Drawn by Mark Peers

Plan conforms to 2006 B.C. Building Code

SURVEY PLANS
Eugene Wong 604-583-1616
H.Y Engineering - Surveyors

GEOTECHNICL ENGINEERS
John Carter 604-439-0922
GeoPacific Consultants Ltd.

ARBORIST
Normen Hol 604-275-3484
Arbortech Consulting

RAINSCREEN & SEWER SUMP
Brian Fraser 604.270-8252
Nu-Westech Engineering

STRUCTURAL
Gezie Wegner 604-516-8427
Horace Engineering

NATIONAL HOME WARRANTY
Inspections 604 669-8430

Site Plan A102

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APPENDIX II

Casa de Tardecer
Sinitsin Residence

1885 Ocean Park Rd., South Surrey
Lot 21, Sect. 18, Township 1, NWD Plan 1062
PID: 000-615-145

Zone: File #7910-0129-00
Single Family Residential - Ocean Front

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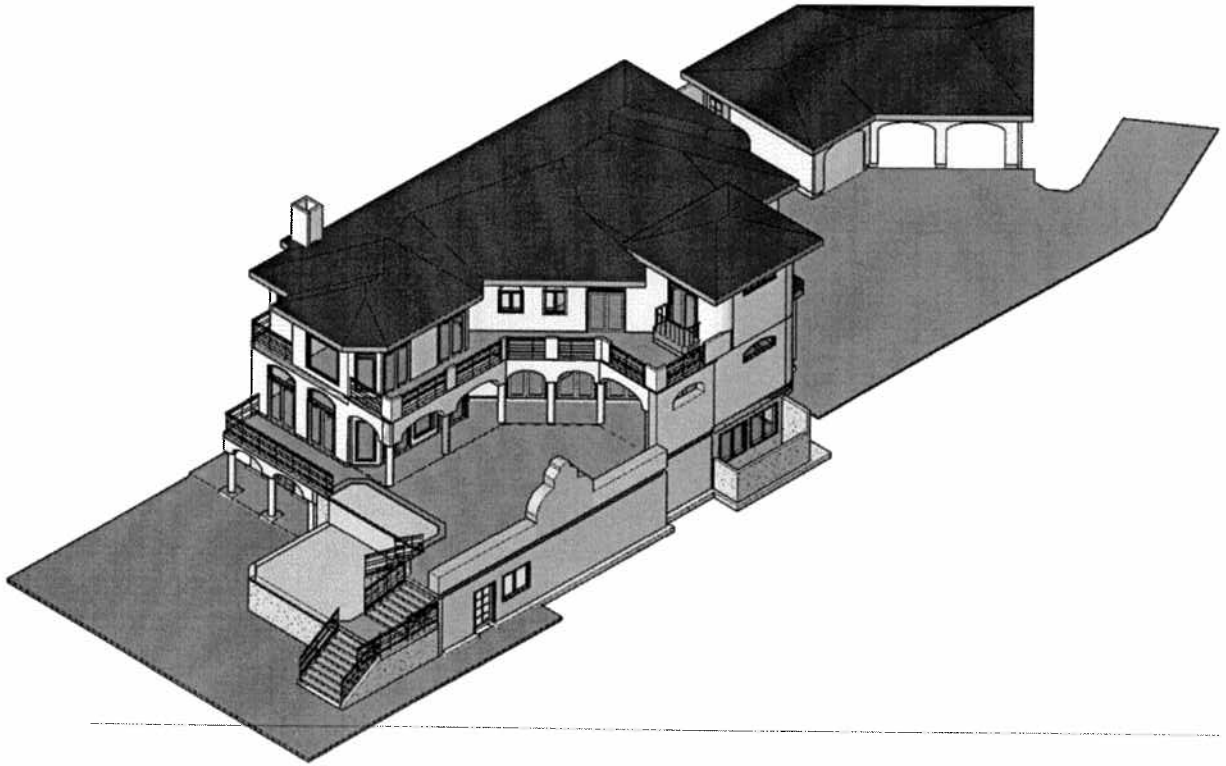

3D DESIGN PERSPECTIVE A101

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Casa de Tardecer
Sinitsin Residence

1885 Ocean Park Rd., South Surrey
Lot 21, Sect. 18, Township 1, NWD Plan 1062
PID: 000-615-145

Zone: File #7910-0129-00
Single Family Residential - Ocean Front

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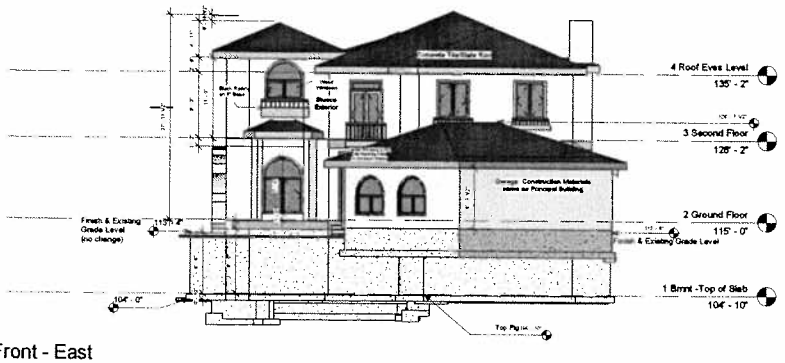

Front - East

Back - West

Elevations East & West A104

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Casa de Tardecer
Sinitsin Residence

1885 Ocean Park Rd., South Surrey
Lot 21, Sect. 18, Township 1, NWD Plan 1062
PID: 000-615-145

Zone: File #7910-0129-00
Single Family Residential - Ocean Front

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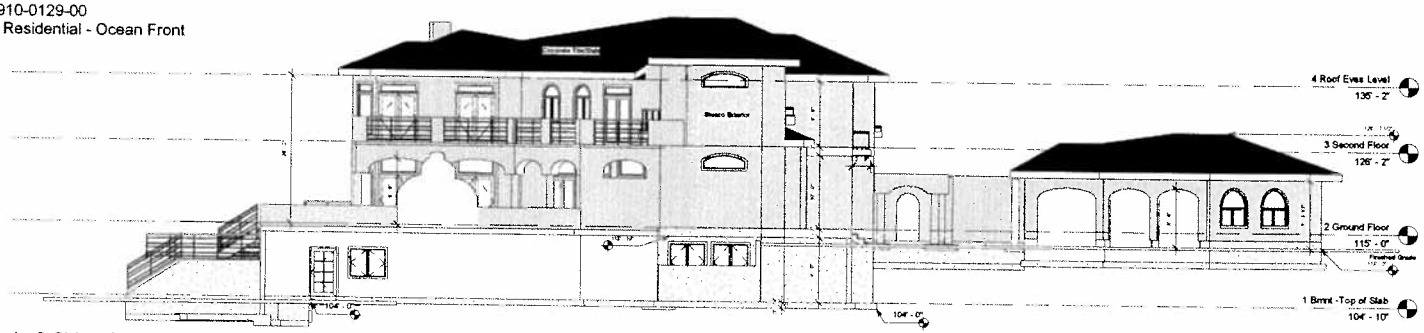
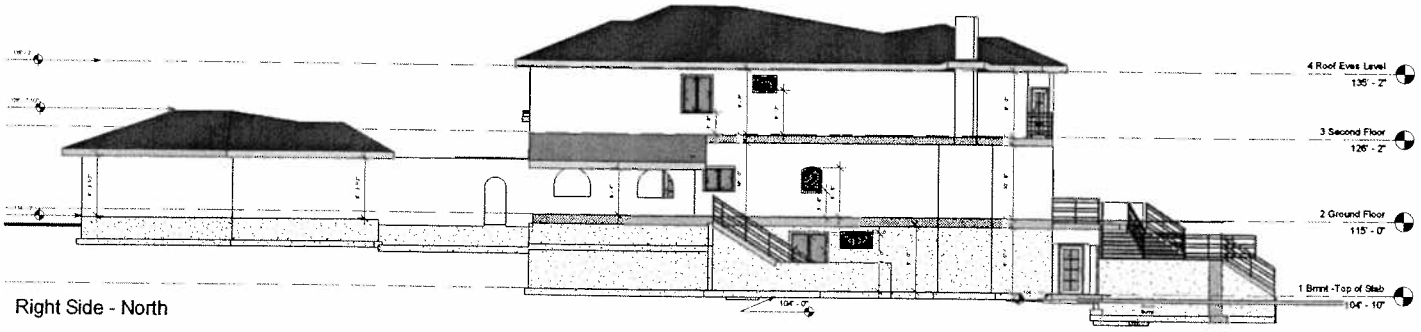


Left Side - South



Right Side - North

Elevations North & South A105

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LAND DEVELOPMENT ENGINEERING REVIEW

File: 7810-0129-00

Location: 1885 Ocean Park Rd.

Applicant: Tuscan Developments Inc.
Address: 12851 16 Ave.
Phone: 604-542-9114
Fax: 604-542-9115
Email: markpeers@tuscandevelopments.com
Owner: Donna L. Scott

☐ OCP Amendment ☐ NCP Amendment ☐ ALR Exclusion

☒ Rezone ☐ LUC Amendment ☐ Subdivision
Existing Land Use: RF
Proposed Land Use: RF-O
Existing Lots:
Proposed Lots:

☐ DP ☐ DVP

Land Development Engineering Contacts:
Ileana Kosa, Project Manager
604-604-591-4140, IKosa@surrey.ca
Bob Ambardar, P.Eng., Development Project Engineer
604-598-5893, BAmbardar@surrey.ca

Attachments:
Project Layout
Road Right-of-Way Requirements Sketch

Distribution:
Applicant
Transportation Manager
Sewer Engineer
Water Engineer
Drainage Planning Manager
Project Manager, Development Services

No.	Date	Revision
2	December 15, 2010	Revised survey sketch
1	December 9, 2010	Original

LAND DEVELOPMENT ENGINEERING REVIEW

File 7810-0129-00, Map #120

Background

The applicant is proposing to Rezone the property from RF to RF-O to allow for development of a larger dwelling. These comments are based on the attached site layout prepared by Tuscan Developments Inc., dated June 21, 2010.

This Review represents the key issues that the Engineering Department is aware of at this time. The issues listed may not be fully comprehensive and exhaustive and the applicant is required, as part of the planning and design process (including Public Hearing) to identify and resolve all items relating to the proposed land development.

Property and Right-of-Way Requirements

The following road right-of-way dedication, as illustrated on the Road Right-of-Way Requirements sketch attached, is required on existing roads fronting the site:

- 1.942 metres on Ocean Park Road.

The applicant should address all road dedication and rights-of-way issues prior to finalizing layout or commencing legal survey or detailed design.

Servicing Requirements

These Works are required as a condition of this Rezone.

Transportation/Traffic Management

The following road works are required on existing roads fronting the site:

- Provide cash in lieu for the construction of the west side of Ocean Park Road to the Through Local standard (4.25-metre wide pavement, curb and gutter, sidewalk and street lights) and the City will complete to the ultimate Major Collector standard by funding the additional pavement to the ultimate 7.0-metre width plus incremental cost to upgrade to the standard pavement structure and street lighting;
- Provide cash-in-lieu for the construction of minimum 6.0 metre wide concrete letdown as per SSD-R.42.1

The proposed access to Ocean Park Road is acceptable.

Drainage/Environmental

The following City storm drainage facilities are located in the vicinity to the site:

- 1350mm sewer on the east side of Ocean Park Road.

The site is located adjacent to a steep bluff fronting Boundary Bay where known slope stability problems exist. The site is also adjacent to the Burlington Northern (Crescent) Railway line which is located near the toe of the bluff. A Restrictive Covenant must be

registered on title with respect to the safety of the proposed dwelling on the subject property and stability of the ravine slope.

As part of this rezone, the applicant will be required to:

- Obtain a *recent* geotechnical slope stability review/report to assess the slopes to the west of the proposed house and to confirm that the slopes are unaffected by surface and/or sub-surface issues.
- Prepare a drainage servicing concept:
  (1) if servicing is proposed to the sewer on Ocean Park Rd, the applicant is to identify the onsite drainage concept; if pumping system is required, the sump pump overflow must be below the MBE of the proposed house.
  (2) if servicing is proposed to the west through the BN Railway property, BNSF approval will be required.

A service connection, complete with inspection chamber, must be provided to service the subject development. **The preferred servicing is to be from the frontage sewer on Ocean Park Rd.**

A sediment control plan must be developed in accordance with DFO/MWLAP Land Development Guidelines and Best Management Practices to manage soil erosion and sedimentation **during the off-site land development servicing**.

Water

The following City water facilities are located in the vicinity to the site:

- 300mm water main on Ocean Park Rd.

This existing water system has adequate capacity to meet the domestic and fire flow requirements of the proposed development.

Our records indicate that the site is serviced by a 19mm water service connection. The applicant is required to confirm the age and conditions of the existing service connection; must be replaced if more than thirty years old. The service connection must be metered.

This site is within an area where the corrosion protection and seismic design standards are to be applied. The applicant may submit a geotechnical report for further review by the City's consultant, at the applicant's expense, to confirm if seismic design standards are necessary. The review and recommendation by the City's consultant is final.

Sanitary Sewer

The following City sanitary sewer facilities are located in the vicinity to the site:

- 200mm sewer on Ocean Park Rd.

This existing sanitary sewer system has adequate capacity to service the proposed development.

Our records indicate that the site is serviced by a 100mm gravity service connection. The applicant is required to confirm the age and conditions of the existing service connection; must be replaced if more than thirty years old.

The existing inspection chamber must be relocated to the new property line.

Commercial Utilities

The development must be serviced with hydro, gas, telecommunication, and cablevision in accordance with utility company requirements and City standards.

Project Management/Financial

A Mini-Servicing Agreement must be executed before the proposed Rezone can be completed. A processing fee of $2,643.20 (HST included) is required for the Mini-Servicing Agreement. *If new storm mains are proposed as part of the drainage servcing concept, then a servicing agreement will be required, including associated fees.*

The following legal documents are known at this time to be required for this project:

- Amend the existing slope stability restrictive covenant (RC) as required (based on a recent geotechnical/slope stability report).
- RC for pumped sanitary and/or storm sewer servicing, if required.

All Engineering legal documents required for this project must be executed prior to issuance of the Servicing Agreement.

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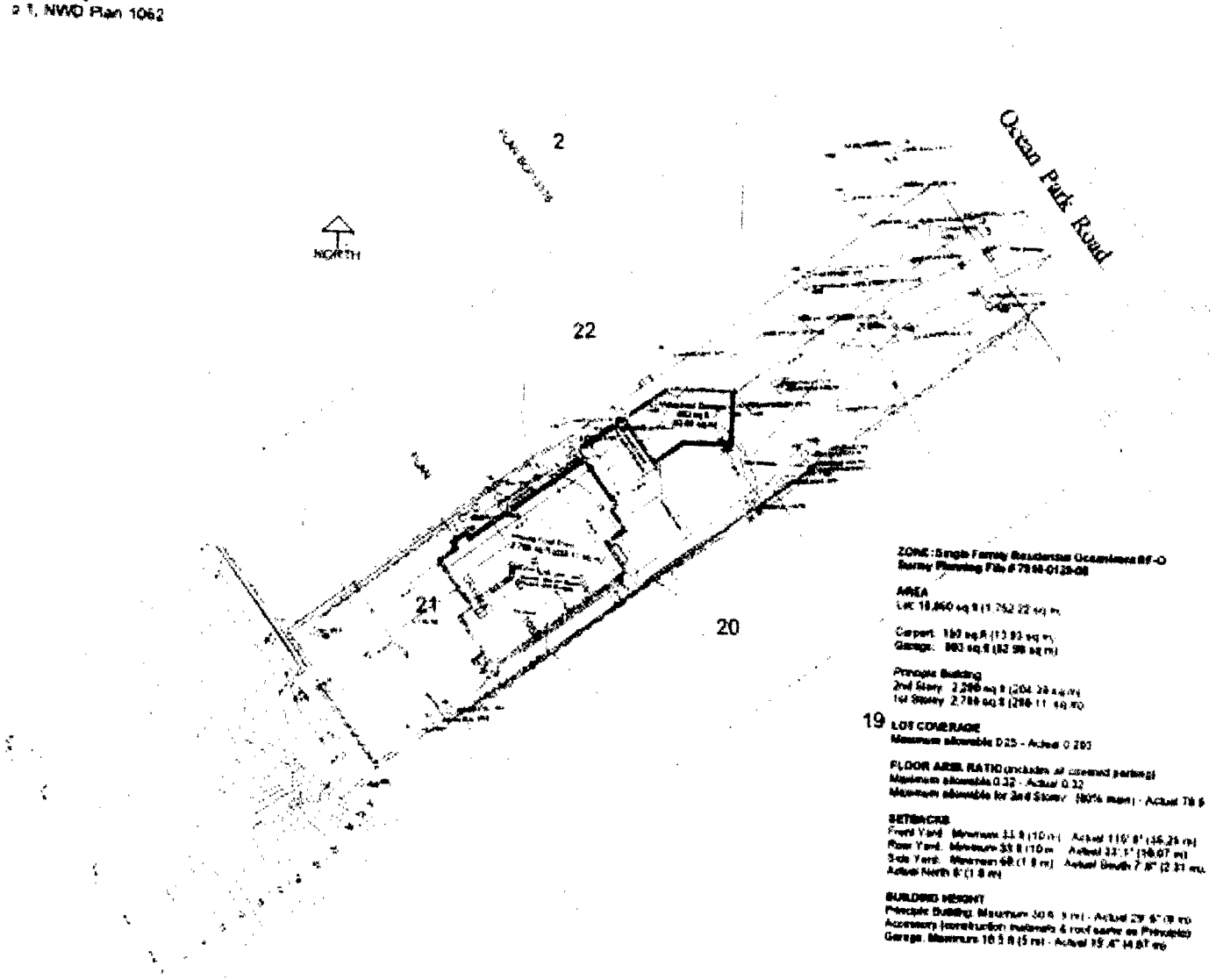


ZONE : Single Family Residential Occasional RF-O
Survey Planning File # 7918-0123-00

AREA
Lot: 18,860 sq ft (1,752.22 sq m)

Carport: 160 sq ft (13.93 sq m)
Garage: 883 sq ft (82.06 sq m)

Principle Building
2nd Storey: 2,200 sq ft (204.39 sq m)
1st Storey: 2,788 sq ft (259.11 sq m)

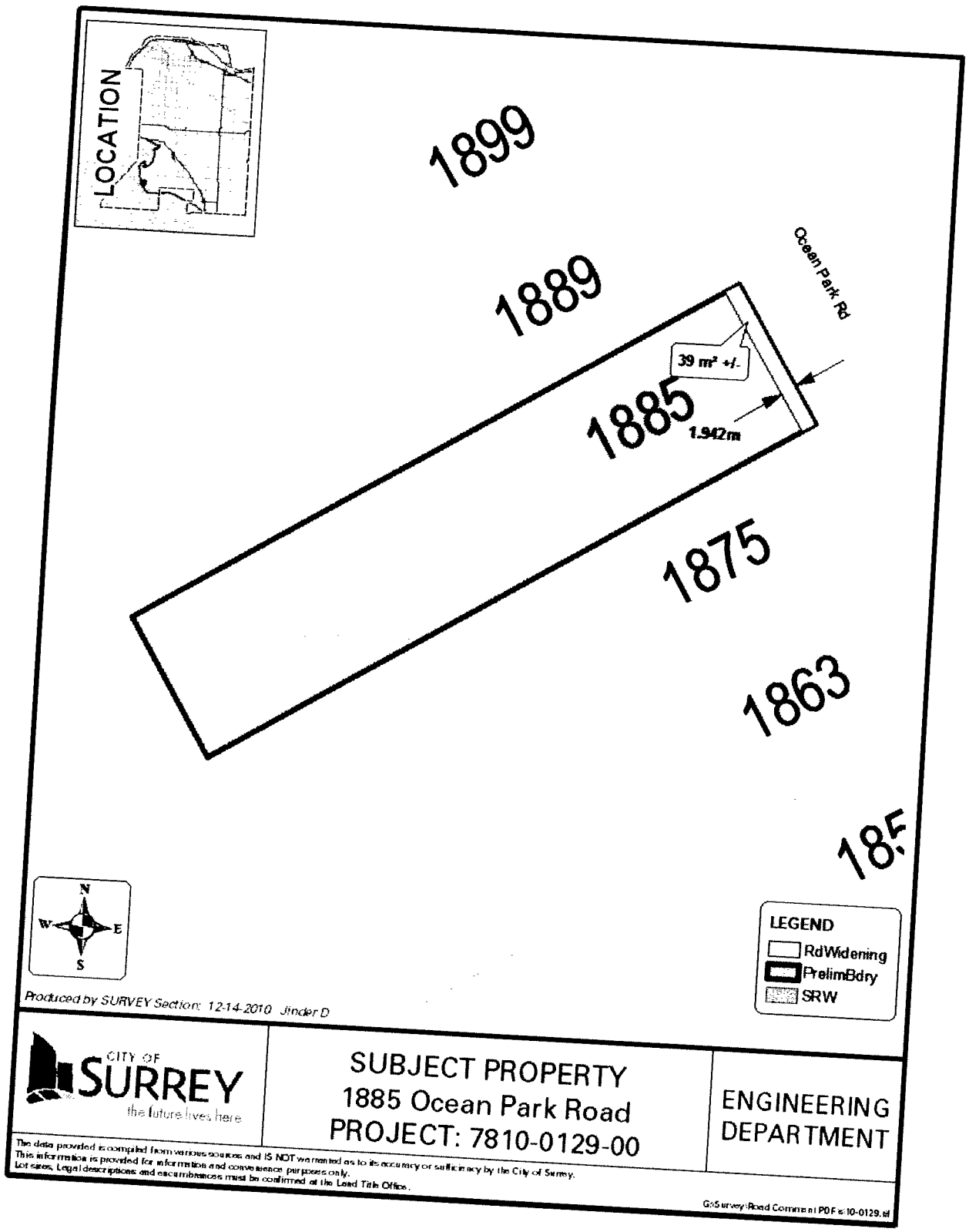
LOT COVERAGE
Maximum allowable 0.25 - Actual: 0.283

FLOOR AREA RATIO (includes all covered parking)
Maximum allowable 0.32 - Actual: 0.32
Maximum allowable for 2nd Storey (80% max) - Actual: 78.9

SETBACKS
Front Yard: Minimum 33 ft (10 m) - Actual 116' 8" (35.25 m)
Rear Yard: Minimum 33 ft (10 m - Actual 33.1' (10.07 m)
Side Yard: Minimum 6ft (1.8 m) - Actual South 7' 8" (2.31 m)
Actual North 6' (1.8 m)

BUILDING HEIGHT
Principle Building: Maximum 30 ft (9 m) - Actual 29' 6" (8 m)
Accessory Construction (washroom & roof same as Principle)
Garage: Maximum 16.5 ft (5 m) - Actual 15' 4" (4.67 m)

Site Plan


LOCATION
1899
1889
Ocean Park Rd
39 m² +/-
1885
1.942m
1875
1863
185
N
W
E
S
LEGEND
RdWidening
PrelimBdry
SRW
Produced by SURVEY Section: 12-14-2010 Jinder D
CITY OF SURREY
the future lives here
SUBJECT PROPERTY
1885 Ocean Park Road
PROJECT: 7810-0129-00
ENGINEERING DEPARTMENT
The data provided is compiled from various sources and IS NOT warranted as to its accuracy or sufficiency by the City of Surrey.
This information is provided for information and convenience purposes only.
Lot sizes, Legal descriptions and encumbrances must be confirmed at the Land Title Office.
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CONCLUSIONS

Table 4. TREE RETENTION AND REPLACEMENT SUMMARY

Tree Retention:	**On-Site**	**Off-Site**	**City**	**Total**
Trees to be Retained	6	2	1	9
Trees to be Removed	17	2 (conditional)	0	19
Total Trees Considered	23	4	1	**28**

Tree Replacement:	**On-Site**	**Off-Site**	**City**	**Total**
Quantity of Trees at 1:1 Replacement Quota	0	0	0	0
Quantity of Trees at 2:1 Replacement Quota	17	2	0	19
Total Replacement Trees Required	34	4 (if required)	0	**38**

Thank you for choosing Arbortech for your tree assessment needs. If you require any further information, please call me directly at 604 275 3484 to discuss.

Regards,

Norman Hol,
Consulting Arborist
ISA Certified Arborist #PN-0730, Certified Tree Risk Assessor #0076, Wildlife and Danger Tree Assessor (Parks and Recreation Module)

Enclosures;

Tree Inventory, Tree Protection Guidelines, Tree Retention and Replacement Plan

GeoPacific
Consultants Ltd.

#215 -1200 West 73rd Avenue, Vancouver, BC, V6P 6G5
Phone (604) 439-0922 / Fax (604) 439-9189

FILE # 7910-0129-00

Tuscan Developments
PO Box 45010, 12851 16th Avenue
Surrey, BC
V4A 2G1

October 29, 2010
Our File #: 8668

Nov. 12/10
Accepted.

Attention: Mark Peers

Re: Proposed Residential House -1885 Ocean Park Road, Surrey, B.C.

1.0 INTRODUCTION

We understand that Tuscan Developments intends to construct a new residential home at 1885 Ocean Park Road in Surrey, B.C. We have been provided with a site plan by Tuscan Developments showing the location of the proposed home on the property. The proposed home and pool does encroach closer to the top of bank than the existing home on the property.

This report presents the results of a geotechnical investigation at the above referenced site and presents design recommendations for the property and foundations. This report has been prepared exclusively for Tuscan Developments for their use, the use of others on the design team, and the City of Surrey for use in the development and permitting process.

We confirm that the property may be safely used for the intended purpose as described above, and based on the proposed home design, provided that all of the recommendations in this report are incorporated into the design. Our confirmation of the safe use of the property is null and void if any geotechnical related works are completed on the property without the direction and approval of GeoPacific Consultants Ltd. We also accept no responsibility for future impacts to the development property as a result of works completed on other properties by third parties.

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2.0 OBSERVATIONS

The site consists of a single residential lot which is adjacent to a moderately sloping property on the southwest side, which is owned by the Burlington Northern Railway (BNR). The site currently includes a two storey above grade house with a walkout basement. The site generally slopes down from northeast to southwest at a gentle slope.

Based on the topographic survey provided by H.Y. Associates Land Surveying Ltd. (Drawing No. 103098_TO, dated March 16, 2010), the existing house is currently setback between 24 and 31 metres from the adjacent top-of-bank. The gradient of the adjacent slope is generally between 23 and 45 degrees from the horizontal, with some local oversteepened areas at an inclination of approximately 70 degrees.

Based on our site review and our experience in the local area, the subsurface conditions at the subject site consist of topsoil over sand or silt then dense glacial deposits of the Vashon Drift formation. The dense glacial deposits were encountered at a depth of between 0.6 and 1.2 metres below grade at exposures on the adjacent slope. Quadra sand is known to underlie the Vashon Drift formation at depth.

Light seepage was noted from perched groundwater on the dense glacial deposits. We expect that the static groundwater table is well below the proposed development grades.

The adjacent BNR slope is well vegetated with light vegetation and moderate tree cover. Surficial erosion and minor scarps were noted on portions of the slope where seepage was evident. The scarps were generally noted immediately downslope of older growth and bowed trees. Small to medium sized newer growth trees were comparatively vertical with no signs of instability surrounding them. Thus, we expect that the surficial soils are susceptible to periodic minor and shallow instabilities due to lack of sufficient vegetation and/or the presence of large, heavy trees rooted in the shallow surficial soils. No signs of deep seated movements or heavy seepages were noted during our review.

3.0 DISCUSSION

3.1 General Comments

We have shown the proposed house outline on the attached topographic survey, and prepared Sections A-A and B-B on drawings 8668-01 through 8668-03, attached to this report. At the location of our Sections A-A the proposed home is setback beyond the City of Surrey's typical prescribed 2H:1V slope offset by a distance of 2.9 metres. At Section B-B the proposed home is setback from the 2H:1V offset line by 1.6 metres. But, the proposed pool encroaches 3.1 metres into the setback area. However, it is our opinion based on the geology of the site that the proposed home and pool will be safely setback from the slope to mitigate issues with respect to erosion and surficial slumping of the slope.

3.2 Slope Stability Assessment

We have completed a slope stability analysis of the slope adjacent to the subject property. Our slope stability analysis was undertaken in accordance with Revision 7 of the 2006 BC Building Code, which became effective February 1, 2010. Revision 7 was addressed using the "Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC" (Revised May, 2008). The results of our analysis indicate that the possibility of deep seated instability under static and seismic loading is extremely remote (Factor of Safety > 2). Therefore, we consider the results of our analysis acceptable for the proposed development.

While our analyses show this slope to be stable, even under seismic conditions, we recommend that the home owner review our restrictions of disturbance on and around the slope as noted in our recommendations in Section 4.0. In particular drainage alterations, grade alterations, and retaining wall construction should only be done under the advice and recommendations of a Geotechnical Engineer with experience in slope stability evaluations.

GeoPacific has visually reviewed the conditions of the slopes on the adjoining properties and have noted no signs of instability and we have no geotechnical concerns with the proposed development on the subject

property. However, it must be appreciated that GeoPacific has not investigated the soil conditions on neighbouring properties and as a result our conclusions pertaining to stability on neighbour properties is based on visual observation only.

GeoPacific accepts no responsibility for future instability of neighbouring properties, or impacts on the subject property, caused third parties.

4.0 RECOMMENDATIONS

4.1 Foundations

The results of our site investigation and slope stability assessment indicate that the proposed home and pool can be placed safely on conventional strip and pad foundations at the location shown on our drawing 8668-01.

Service bearing pressures on strip footings should not exceed 100 kPa. Factored ultimate bearing pressures should not exceed 200 kPa.

Strip foundations should be no less than 0.45 m in width. Pad footings should be no less than 0.6 m wide. All footings should be buried at least 0.45 m below finished grade for frost protection.

For foundations designed as recommended total and differential settlements should not exceed 25 mm and 20 mm in 10 metres differential, respectively.

4.2 Slab-On-Grade Floor

We recommend that any fill placed under the slab should be granular and essentially "clean" with not more than 5% passing the #200 sieve. In addition, this granular fill must be compacted to a minimum of 98% Standard Proctor (ASTM D698) dry density with a water content within 2% of optimum for compaction.

4.3 Earth Pressure on Basement Walls

We recommend that foundation walls should be designed for static and seismic earth pressures.

We recommend that a wall designed for static pressure employ a pressure distribution of 6H (kPa) triangular, where H is the height of the restrained soil in metres. Dynamic loading induced by an earthquake should be added to the static loads and should be taken as 6.5H (kPa) inverted triangular, based on the 2006 British Columbia Building Code design earthquake (1/2475 return period). The preceding loading recommendations assume that the backfill is a clean, free draining sand and gravel, the backfill is level behind the wall, and the wall is frictionless.

Our calculations assume that a back-of-wall drainage system will be installed to prevent the build up of any water pressure behind the walls.

All earth pressures are based upon unfactored soil parameters and are assumed to be unfactored loads.

4.4 Permanent and Temporary Lot Grading

Exterior finished grades as well as any new surfaces, such as slabs or patios, should be graded such that all water runoff is directed away from the crest of the slope. This water should be directed into catch basins connected to the site storm water disposal system.

Storage of temporary fills (including spoil piles) should be kept a minimum of 10 metres back from the existing slope crest. All spoil piles should be covered with poly sheeting. No permanent fill should be placed within 10 metres of the crest of the slope. Any permanent lot grading must be approved by GeoPacific Consultants Ltd.

We recommend that in-ground irrigation systems be designed with the main shut off at the supply point such that the in-ground lines are only pressurized during water cycling. Sprinkling should be kept to less than 0.5 hour intervals three times a week.

4.5 Landscaping

The slope should remain vegetated at all times. The presence of vegetation aids in increasing the stability of the slope against shallow instabilities. This is accomplished by the root systems which provide cohesion to the soil as well as remove water from the surficial soil layers, which increases the effective stress in the soil.

The addition of large trees to the slope is not recommended as the increased weight would be far more detrimental than any benefit gained by the presence of the root structure. However, certain small trees could be advantageous. Planting on the slope should be done in coordination with an environmental engineer and/or slope bio-remediation expert.

The disposal of any debris and/or organic waste down slope of the property is not recommended. The debris increases the loading on the slope while also reducing the drainage capacity of the soil. Surficial slope stability problems could arise if this situation occurred.

4.6 Site and Foundation Drainage

Perimeter drains are recommended for collection of surface water and/or perched ground water which is adjacent to foundation walls. The backfill should consist of a well graded sand to sand and gravel to prevent moisture retention within the backfill.

If drainage to City facilities is not feasible then discharge of all storm water to the base of slope will be required. The property down slope of the development property is owned by the BNR. The owner should ensure that they have permission from the BNR to discharge drainage water onto their property. GeoPacific can prepare a bottom of slope drainage design upon request.

Under no circumstances is water to be directly discharged onto the slope.

We understand for a pumped system that a back up emergency discharge to a diffuser pipe and rock pit in the rear yard may be required. We have no geotechnical concerns with this system provided that the following items are incorporated into the design by the developers mechanical engineer:

1. The diffuser pipe shall only be used in emergency situations during a power failure or failure of the pump.
2. An alarm system should be incorporated into the mechanical design which informs the home owner of a failure of the pump
3. The diffuser pipe shall be 150mm perforated CSA Schedule 40 PVC pipe
4. The diffuser pipe shall be at least 9 metres (30 feet) long and buried 0.75 metres below grade
5. The pipe trench shall be placed along the 30.5 metre elevation contour, which we understand is below the elevation of the proposed basement slab.
6. The diffuser pipe shall be placed in a 0.6 metre wide trench backfilled entirely in 3/4" clear crushed gravel to within 0.3 metres of the ground surface. The 3/4" clear crush gravel shall be covered with a layer of Propex 4551 non-woven filter cloth and then a sand based landscape fill/topsoil to finished grade

GeoPacific should be provided with the mechanical engineers design well in advance of construction to review. GeoPacific should also review the installation of the diffuser pipe and trench fills.

5.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

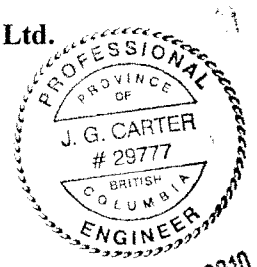
The preceding sections make recommendations for the design, construction, and slope monitoring of the proposed residential property development. We have recommended the review of certain aspects of the design and construction. It is important that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also important that any contractors working on the site review this document prior to commencing their work.

6.0 CLOSURE

This report has been prepared exclusively for Tuscan Developments and the City of Surrey. The report remains the property of GeoPacific Consultants Ltd. and any unauthorized use of, or duplication of, this report is prohibited.

If you require clarification of the report, please do not hesitate to call.

For:
GeoPacific Consultants Ltd.



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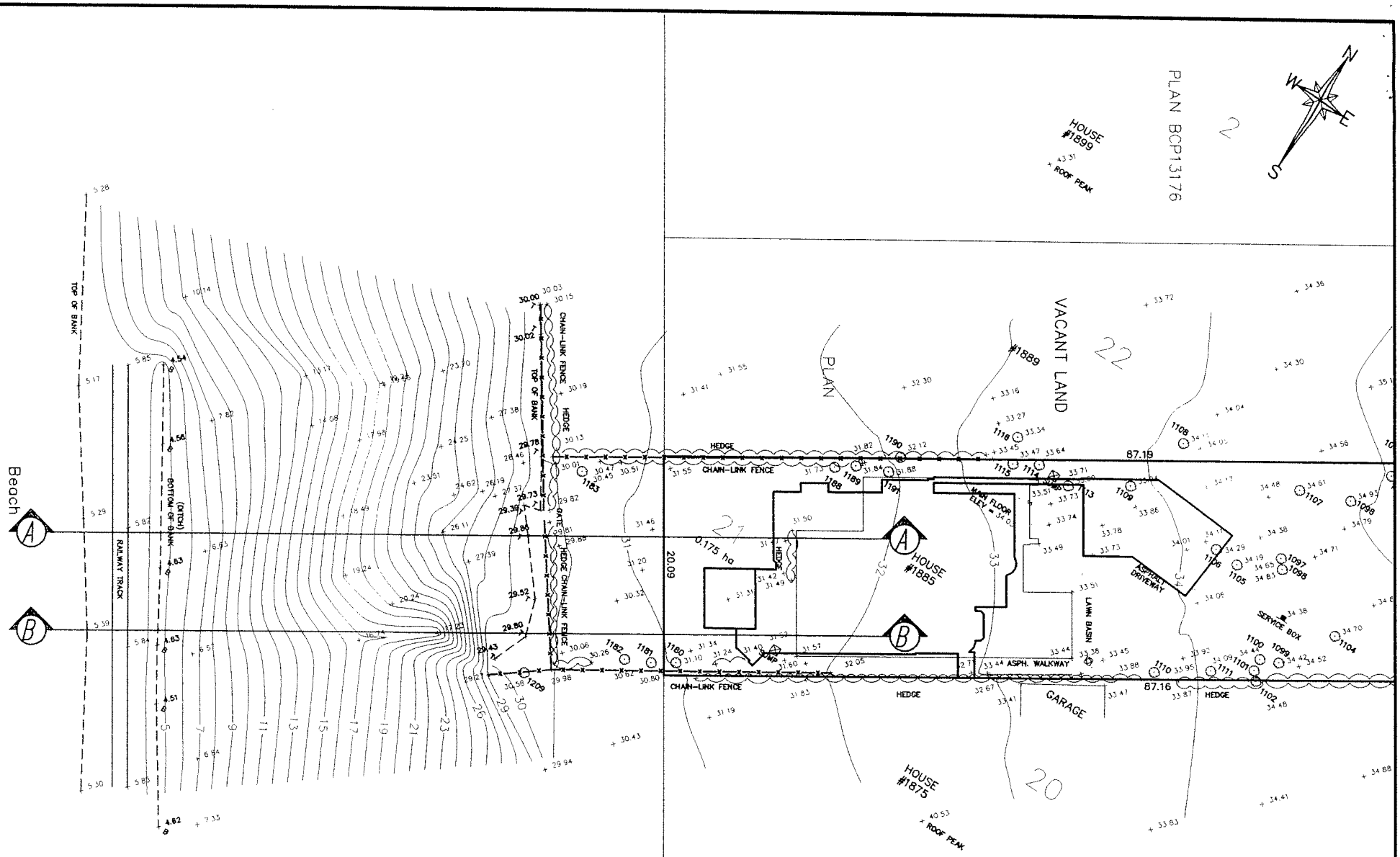
Reviewed By:

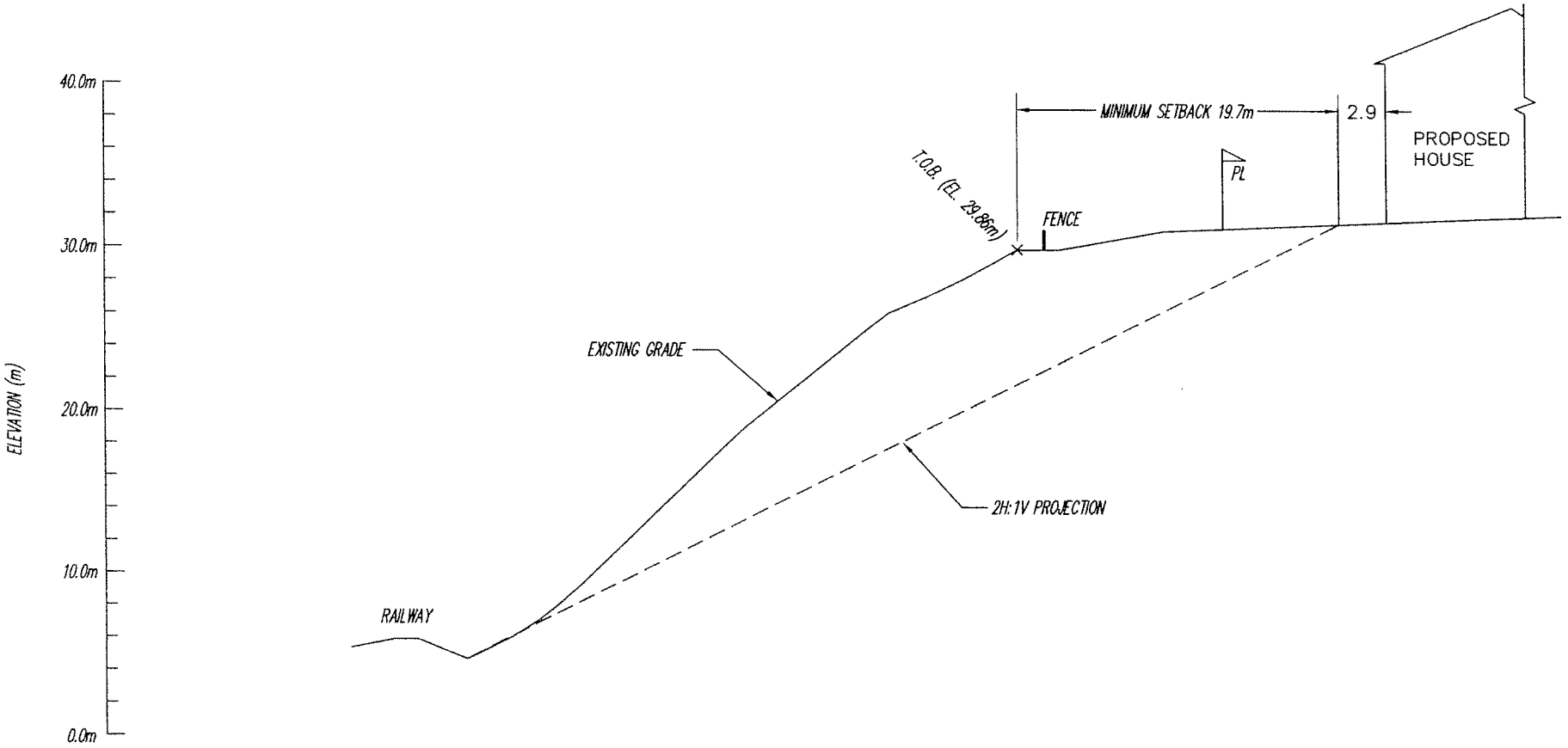
John Carter, M.Eng., P.Eng.
Project Engineer

Matt Kokan, M.A.Sc., P.Eng.
Principal



PLAN VIEW
SCALE 1:500

REFERENCE: H.Y. Associates Land Surveying Ltd. Drawing No. 103098_10 MARCH 16, 2010	215 – 1200 W. 73 AVENUE VANCOUVER, B.C. V6P 6G5 Ph.(604) 439-0922 Fax (604) 439-9189 GeoPacific Consultants Ltd.	DATE: March 26, 2010 DRN. BY: K.B. APP'D J.G.C. SCALE: AS SHOWN	PROPOSED RESIDENTIAL HOUSE 1885 OCEAN PARK ROAD, SURREY, B.C. PLAN VIEW	FILE NO.: 8668 DWG. NO.: 8668-01	REVISIONS: A. September 28, 2010 B. C.



SECTION A-A
SCALE 1:400

REFERENCE:
H.Y. Associates Land Surveying Ltd.
Drawing No. 103098_T0
MARCH 16, 2010

215 - 1200 W. 73 AVENUE
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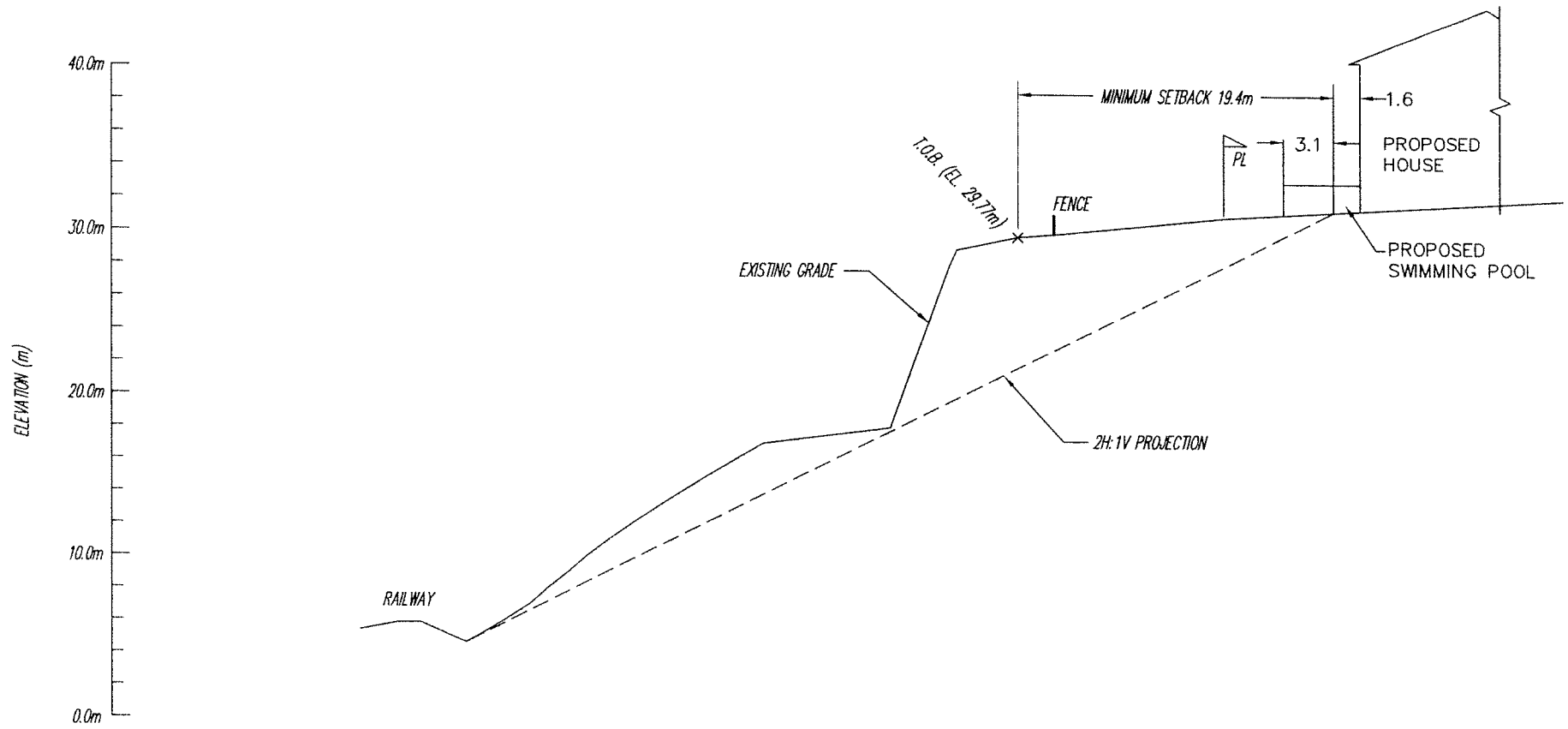
DATE: March 26, 2010
DRN. BY: K.B. APP'D. J.G.C.
SCALE: AS SHOWN

PROPOSED RESIDENTIAL HOUSE
1885 OCEAN PARK ROAD, SURREY, B.C.
CROSS-SECTION

FILE NO.: 8668
DWG. NO.: 8668-02

REVISIONS:
A. September 28, 2010
B.
C.



SECTION B–B
SCALE 1:400

REFERENCE:
H.Y. Associates Land Surveying Ltd.
Drawing No. 103098_T0
MARCH 16, 2010

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SCALE: AS SHOWN

PROPOSED RESIDENTIAL HOUSE
1885 OCEAN PARK ROAD, SURREY, B.C.
CROSS-SECTION

FILE NO.: 8668
DWG NO.: 8668-03

REVISIONS:
A. September 28, 2010
B.
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