



BEDWELL BAY SUSTAINABILITY PLAN

A SUSTAINABLE APPROACH TO THE MANAGEMENT OF RESIDENTIAL MOORAGE IN BEDWELL BAY

Prepared by:
Village of Belcarra

October 2007

ADOPTED BY COUNCIL October 15, 2007

1.0 Introduction

One of Belcarra's major focal points as a waterfront community is Bedwell Bay; an amenity that draws residents and visitors to recreate, socialize, and enjoy the natural setting of Indian Arm. As with any other popular waterfront recreation area, there is always a need to incorporate sound environmental management and planning to sustain a healthy balance with social and recreational demands. As part of a continued effort to effectively manage these competing values, the *Village of Belcarra* has prepared a plan to manage residential moorage development in Bedwell Bay that has sustainability as its foundation and balances economic, social, and environmental values. This plan has been prepared in consultation with the Vancouver Port Authority (VPA) and Burrard Environmental Review Committee (BERC).

Historically, Bedwell Bay has been affected by a variety of land uses and marine activities. As a result, it has not been maintained as a pristine area. Industrial logging around Bedwell Bay continued throughout the first half of the 20th century, and included at least two log dumps at the head of the Bay (one at West Road) and designated log booming areas in the mid-zone of the Bay. Up until the 1960s, Bedwell Bay was also designated as a "Ships Graveyard" and was frequently used for the disposal of derelict vessels. In 1981, the *National Harbours Board* (NHB) permitted Bedwell Bay to be used as the salvage operations site for the barge *Kokohead*. Salvage activities left behind a substantial volume of debris in the shallow waters near the head of the Bay. Prior to the incorporation of Belcarra in 1979, neither Bedwell Bay nor its riparian habitat was adequately preserved or "respected". However, the municipality has been proactive in pursuing protective policies, and as a result, the last 25 years of sound management have brought considerable improvements to the Bedwell Bay marine and riparian habitats.

Protecting the environmental sensitivity of Bedwell Bay is not a new initiative for Belcarra. The municipality's existing *Official Community Plan* (OCP) has a number of policy statements regarding environmental protection, not the least of which is designation of the head of Bedwell Bay for protection as a "natural tidal" area. In addition, a group wharfage facility approach was instituted as a means of controlling the number of individual docks within Bedwell Bay. Another important initiative that the municipality has actively pursued over the years is to have Bedwell Bay designated as a pleasurecraft *no sewage discharge zone*. The Federal Government has supported the initiative, and in May 2007, Bedwell Bay was so designated.

The *Village of Belcarra* is a low-density residential area consisting primarily of ½-acre lots. It should be recognized that there is minimal potential for additional residential development within the Village as a whole, and within the Bedwell Bay residential area (Woodhaven Subdivision) in particular, as the build-out of residential properties is nearly complete, and there are virtually no opportunities for further subdivision to take place. As of June 2004, it is estimated that there are only about 20 undeveloped properties remaining within the municipality (~10 properties within the Woodhaven Subdivision).

The Village recognizes that there are a variety of stakeholders who have an interest in the sustainability of Bedwell Bay. Accordingly, this *Sustainability Plan* is intended to:

- Work towards meeting the expectations of the *Burrard Environmental Review Committee* (BERC) and the *Vancouver Port Authority* (VPA);
- Provide direction for the preparation of a *Best Practices Guide* to maintain sustainable coexistence of natural and public values; and
- Be the catalyst for the creation of a community-based *Stewardship Committee* that includes representatives from VPA, BERC, Council, and residents of Belcarra.

2.0 Jurisdictional Responsibilities

The Bedwell Bay area falls under the proprietary jurisdiction of the VPA which includes all those federally-owned parcels of land together with the foreshore and land covered by water of Burrard Inlet and Indian Arm, the boundary of which is generally defined by the legal High Water Mark.

Given the presence of Marine Avenue along the majority of the developed portion of the east side of Bedwell Bay, a municipal road, the *Village of Belcarra* is considered the upland owner. Consequently, it is VPA's practice to grant licenses to the *Village of Belcarra* for the purpose of operating non-commercial moorage facilities in Belcarra, including Bedwell Bay. In turn, VPA has agreed that the rights granted to the Village by the license may be sub-licensed to a third party for a non-commercial moorage facility. In Bedwell Bay, sublicenses exist for single user, group and shared facilities.

The Village includes in this Plan, as well as its overall OCP and Zoning Bylaw, policies related to the management of the Bedwell Bay foreshore and water area. VPA acknowledges that these policies and bylaws provide development guidelines for the Village, however the use of lands and water under VPA jurisdiction are ultimately at the discretion of VPA.

In VPA's March 2005 "Port Plan", Bedwell Bay falls under Planning Area 7 - Indian Arm. The intent of this planning area is for continued use for public marine recreational, vessel anchorage, residential waterfront moorage and marine commercial uses, where appropriate. Given this, the long-term use of Bedwell Bay for residential waterfront moorage is supported by VPA.

The VPA has established *Building Guidelines for Residential Waterfront Facilities* that govern marine development within its jurisdiction for non-commercial waterfront use. These guidelines include an application, review and approval process. All proposed new residential moorage facilities require a Residential Waterfront License, and VPA and BERC approval. All proposed improvements, alterations or renovations to existing structures within an existing License Area, require VPA, BERC member agencies, and Village approval.

As the license holder, the Village leads the application review process for Residential Waterfront Licenses. All applications related to new and upgrading existing facilities require prior review by the Village and then are referred to VPA. The Village reviews applications in accordance with its OCP and its bylaws, and the VPA in accordance with the *Building Guidelines for Residential Waterfront Facilities*. In the event that there are differences between Village and VPA policies and guidelines, the more stringent prevail.

This Management Plan is a combined effort of the Village, VPA and BERC. All parties will utilize this Plan for guidance when reviewing applications for new residential moorage facilities in Bedwell Bay.

3.0 Site Conditions

The intertidal zone was examined from the West Road beach access point to Kelly Road. The head of Bedwell Bay is designated a protected zone and is part of the GVRD parks system. Riparian vegetation from West Road to Lower Windermere Creek is largely intact, however a number of locations exist where the characteristics or lack of vegetation are such that a riparian crossing could be considered with having a minimal impact. Of concern though are a number of dinghies and other watercraft stored above the high water mark in or under trees. Where these craft are routinely launched, the intertidal zone has been smoothed from the high to the low water mark by the removal of rocks. Several artificially created groynes have resulted from rocks being placed off to each side of the launch paths. Storage of the watercraft in the riparian zone has resulted in broken branches, smothered shrubs, grass and forbs, and the creation of pedestrian paths on the slope up to the road or house above. Storage and path locations have resulted in localized erosion.

The riparian zone is fragmented along the shoreline, both by beach accesses and wharf catwalks, and by slumping, due to unstable fill slopes along the Marine Avenue right-of-way, which was an historic skid road, built on uncompacted, locally available rock and other stripped materials. One section of the road will be moved inland about 1 metre where the edge is slumping, rather than trying to compensate for encroachment into the riparian/intertidal zone, which would be required in order to stabilize the existing oversteepened slope. Where bedrock is exposed and/or overlaid with organic material, large cedars and typical understorey (*i.e.*, huckleberry, fern, salmonberry, salal, *etc.*) are intact.

Most property owners have abided by the local regulations and have not pruned or removed trees, and have built their access points so as to avoid damage to existing vegetation and large trees. Consequently, the riparian integrity has been maintained along stretches of the waterfront and the canopy completely encloses the access points (also desirable from the users' perspective as shade). Most beach accesses are wooden staircases, supported above the bedrock or overburden by wooden pilings, which allows vegetative growth under and around the access points.

From a marine flora and fauna habitat perspective, within the intertidal zone there were no differences noted under or to either side of the catwalks connecting the beach access points to the offshore floats. Rockweed was more prolific and denser in growth in some areas where some shading from decks and vegetation apparently reduced desiccation without limiting growth through significant sunlight reduction. Pilings, used to support the catwalks above the higher high water mark, offered additional surface area for the attachment of mussels and other sessile organisms, especially on the eastern side, which was shaded by the riparian trees, thus reducing exposure to direct sunlight and better heat regulation. As a consequence to the increased structural density caused by a deck, municipal zoning regulations now prohibit any structures, other than a stair or landing less than 2 meters in width, to cross the riparian zone.

Eelgrass grows most densely and abundantly in the shallow subtidal zone from the 0 tide elevation to about -2 m (tide and chart). A few scattered fronds can be seen in depths up to -3 m. This band is relatively continuous along the waterfront and into the head of the bay (the northwest side of the bay was not assessed as it is outside the purview of the *Village of Belcarra* with respect to wharf developments), where the shallow subtidal bench offers the best environment for eelgrass growth. The shallowness of the eelgrass band within Bedwell Bay is apparently due to the turbidity of the water that restricts light penetration, and thus reduces the depth distribution to no more than -4 m (based on assessments done for recent wharf applications). Where the sea bottom drops off more rapidly towards the northern end of the Belcarra waterfront, eelgrass is very limited and scattered, or non-existent. There were no apparent differences in the density or width of the eelgrass band between the developed waterfront and the head of the bay. The distribution of eelgrass is probably affected by a number of factors, including shading from floats, localized substrate conditions, depth contouring and propeller wash. The Plan should include a requirement that negatively impacted sites be corrected through the regulatory cycle of renewing a waterlot licence.

4.0 Long Term Vision for Bedwell Bay

The broad long-term vision for Bedwell Bay is that it will serve the recreational interests of both the community and the region in a manner that respects its environmental features. Bedwell Bay will continue to provide community residents with residential moorage opportunities developed in a controlled manner; however, some previously contemplated residential moorage may be prohibited as a result of site specific conditions including those that identify an unacceptable loss of habitat. Anchorage for boaters who will also seek Bedwell Bay as a destination point will be restricted, and the dumping of sewage from boats will be prohibited. Either avoiding development wherever possible, or mitigating its impacts, will protect areas with sensitive environmental attributes such as the eelgrass habitat.

5.0 Belcarra's Strategic Initiatives

To work towards achieving the vision for Bedwell Bay, the *Village of Belcarra* will pursue the following strategic initiatives. A number of these initiatives are illustrated on the attached map:

- 1) Residential Moorage
Remove the "Residential Moorage" (mooring bouys) designation within Bedwell Bay, presently in the *Official Community Plan*, recognizing that boat anchoring has the greatest potential for damage to eelgrass habitat.
- 2) Car Top Boat Launch – West Road
Eliminate the potential "Cartop Boat Launch" facility from the proposed list of uses within the GVRD lease area adjacent to West Road, recognizing that such a use would necessitate alteration of the foreshore inter-tidal zone.
- 3) Anchorage Discouraged Zone
Create a "Sensitive Habitat Area - Anchorage Discouraged Zone" within the shallow subtidal zone (high water to -4m) as identified in Schedule A - *Bedwell Bay Residential Moorage Development and Restrictions Plan*, in order to avoid dragging and dislodging of eelgrass roots, recognizing that while mariners have a right to anchor, boat anchoring (dragging of anchors) has the greatest potential for damage to eelgrass habitat. (This would necessitate collaborating with DFO, BERC and GVRD Parks to establish criteria and restricted zones.)
- 4) No-Shore Landing Of Motorized Watercraft
Establish a "No-Shore Landing Of Motorized Watercraft" policy, the intent of which is to avoid inadvertent damage to all intertidal marine flora and fauna. The launching and landing of non-motorized watercraft such as kayaks, dinghies, and rowboats will be accommodated, and will be encouraged to utilize three specific locations – Tatlow Trail fronting 3424

Marine Avenue, the divers' access fronting 3641 Marine Avenue, and the public stair access fronting 4152 Marine Avenue. In the future, the Village in consultation with residents may identify other locations.

- 5) Community Wharf Zone
Create a "Community Wharf Zone" in Bedwell Bay to provide a community wharf to meet the needs of "water access only" residents; for example, Belcarra's Twin Islands property owners.
- 6) No Sewage Discharge Area
Designate Bedwell Bay within the *Official Community Plan* and *Zoning Bylaws* as a "No Sewage Discharge Area".
- 7) Riparian Area Crossings
Prohibit the development of new residential moorage facilities and riparian area crossings in areas designated No Development Zone on Schedule A - *Bedwell Bay Residential Moorage Development and Restrictions Plan* due to their high habitat value, environmental sensitivity, and municipal requirements.

Restrict riparian area crossings for new residential moorage facilities to situations where there is either an existing crossing or to a shared crossing. In cases where these conditions are not practical, then a new riparian area crossing may be permitted provided that the environmental impact is minimized and the remainder of the riparian area, considered as important fish and wildlife habitat, is enhanced.

- 8) Number and Location of New Residential Moorage Facilities
Restrict the number and location of new residential moorage facilities (structures below the high water mark not including the riparian area crossing) in accordance with the attached Schedule A - *Bedwell Bay Residential Moorage Development and Restrictions Plan* as follows:
 - ❑ Area 1 - between West Road and Young Road – 3;
 - ❑ Area 2 - between Young Road and Kelly Road – 3;
 - ❑ Area 3 - between Kelly Road and Windermere Creek – 4; and
 - ❑ Area 4 - between Windermere Creek and the Village boundary – 4.This may result in an increase in a potential maximum of 14 new residential moorage facilities which would mean a maximum total build out of 44 single, shared, and group facilities. It should be noted that wharf development at the potential sites will still require full environmental reviews, including assessments of impacts to eel grass and other fish habitat, shoreside vegetation and other environmental impact factors as well as construction feasibility. This is particularly relevant for those facilities that lie within or adjacent to the Sasamat / Lower Windermere Creek fan.

- 9) Group Wharfage Associations
Create a new policy that encourages existing *Group Wharfage Moorage Associations* to increase their membership, albeit to a maximum of six upland owners, to accommodate community needs.
- 10) New Residential Moorage Facilities within Area 1
Revise the Zoning Bylaw such that new residential moorage facilities within Area 1 shall be group wharves.
- 11) Existing Residential Moorage Facilities
Support the maintenance or replacement of existing residential moorage facilities that would comply with all VPA, Village, and all other appropriate legislation and regulations, and *Best Management Practices*.
Encourage owners of existing residential moorage facilities that do not conform to current VPA or Village requirements to upgrade their facilities to comply. (Note: When the sub licensees for existing facilities are up for renewal, VPA will require the facility to be upgraded to current standards as a condition of renewal of the sub licensing agreement.)
- 12) Environmental Assessment Reports
Assess all applications for new docks and dock upgrades within Bedwell Bay on a case-by-case basis that will necessitate an applicant to obtain an *Environmental Assessment Report* prepared by qualified experts.
- 13) New Residential Moorage Facility Construction
Require all new residential moorage facility construction, including replacement or upgrading, to comply with:
 - a) VPA, Village, and all other appropriate legislation and regulations, and *Best Management Practices*;
 - b) the *Building Guidelines for Residential Waterfront Facilities*, a set of guidelines established by VPA for new construction below the high water mark. (Please see Implementation Measure 8); and
 - c) a new *Best Management Practices Guide* that will address construction activity in the context of environmental issues to be prepared by the Village in consultation with VPA and BERC. The *Best Management Practices Guide* would address the following issues:
 - i) placement of wharf floats and boat moorings to avoid shading effects;
 - ii) orientation of structures;
 - iii) elevation of catwalks above the high water mark;
 - iv) light penetration through floats and catwalks;
 - v) size of floats; and
 - vi) alternatives to anchor chains.

14) Marine Avenue Riparian Zone Management Policies

Incorporate a series of existing and new *Marine Avenue Riparian Zone Management Policies* within the *Official Community Plan*. Items that would be addressed include:

- a) informing all users of the foreshore along Bedwell Bay of the value of native vegetation along the waterfront in terms of its supply of food and nutrients to the marine habitat, shade for temperature regulation, and protection from desiccation for intertidal organisms, stormwater run-off control, and general water and air quality improvement;
- b) the *Village of Belcarra* undertaking an invasive species control program, replanting with native species appropriate to the coastal area;
- c) pursuing habitat enhancement opportunities, such as boulder clusters and cobble beds for habitat complexity,
- d) considering the identification of 'no-go' zones for specific environmentally sensitive areas in order to minimize disturbance of foreshore intertidal communities and shallow subtidal eelgrass or kelp beds by dogwalkers, seadoos, kayakers, hikers, etc; and
- e) signing of designated waterfront/beach accesses, the intent of which is to discourage access in locations that would be subject to erosion and vegetation loss.

15) Bedwell Bay Stewardship Committee

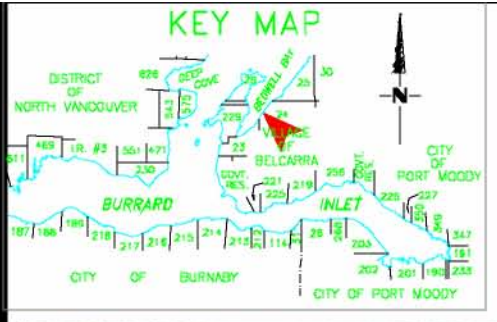
Establish a *Bedwell Bay Stewardship Committee* in conjunction with VPA and BERC. The *Stewardship Committee* would consist of not only members of the community, but could include representatives from GVRD Parks and the *Vancouver Water Ski Club*. The *Stewardship Committee* could take charge of habitat enhancement and/or restoration opportunities, not only within the intertidal zone, but also freshwater streams and riparian buffer zones. By encouraging community involvement, the individual members will take ownership of the environment and will take pride in protecting the marine and terrestrial habitat in the area.

6.0 Implementation Measures

To achieve the vision for Bedwell Bay, and to implement Belcarra's aforementioned strategic initiatives, the municipality will pursue the following course of action:

- 1) Commence the process of initiating amendments to the *Official Community Plan*, Zoning Bylaw, and the *Village / GVRD Agreement Package*.
- 2) Prepare the *Marine Avenue Riparian Area Management Policies* in consultation with VPA and BERC.
- 3) Continue approaching the Federal and Provincial Governments with respect to establishing sewage disposal regulations for pleasurecraft (recreational boaters) within Bedwell Bay.
- 4) Revisit the *Group Wharfage Association* policies and procedures for new residential moorage facilities.
- 5) Prepare a *Best Management Practices Guide* for new dock construction, including the required content of environmental assessment reports.
- 6) Establish the *Terms of Reference* for a *Bedwell Bay Stewardship Committee* in conjunction with VPA and BERC.
- 7) Seek commitments from VPA and BERC with respect to ensuring Village involvement regarding the processing of residential moorage applications.
- 8) Collaborate with VPA by providing input into the revision of VPA's *Building Guidelines for Residential Waterfront Facilities* for non-conforming structures so that they include a procedure to bring those facilities into compliance with applicable current regulations and policies.

Aerial Photographs - Bedwell Bay - 27 April 2005



REFERENCES: - VPA PLAN S2006-060

NOTES:
- DATE OF PHOTOGRAPHY:
APRIL 27, 2005

DATE PLOTTED: 2009/03/17

No.	Date	REVISION	Dr'n	Ch'd



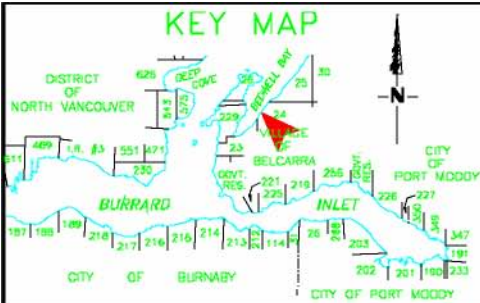
VANCOUVER PORT AUTHORITY
ENGINEERING DEPARTMENT

DESIGN BY	
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APPROVED	
DATE	Mar 17/06
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VPA SITE	116

BEDWELL BAY
SOUTHERN PORTION
2005 ORTHOPHOTOGRAPHY
Village of Belcarra

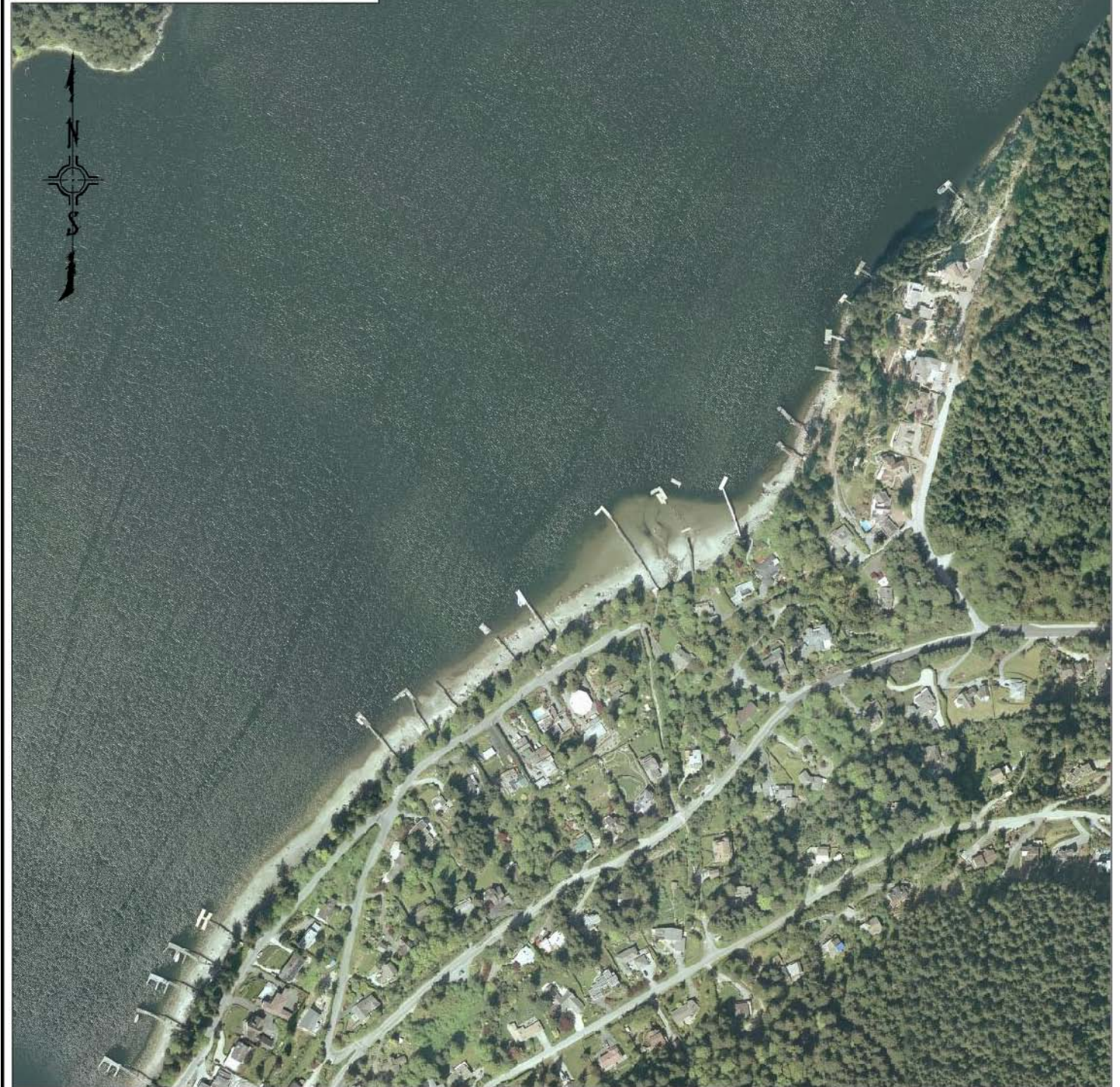
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SKETCH PLAN S2006-067



REFERENCES: - VPA PLAN S2006-060

NOTES:
- DATE OF PHOTOGRAPHY:
APRIL 27, 2005



DATE PLOTTED: 2008/03/17

o. Date	REVISION	Dr'n	Ch'd



VANCOUVER PORT AUTHORITY
ENGINEERING DEPARTMENT

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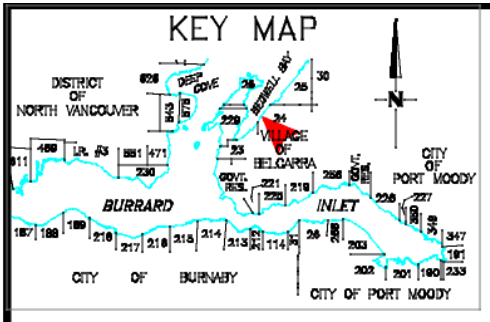
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NORTHERN PORTION
2005 ORTHOPHOTOGRAPHY
Village of Belcarra

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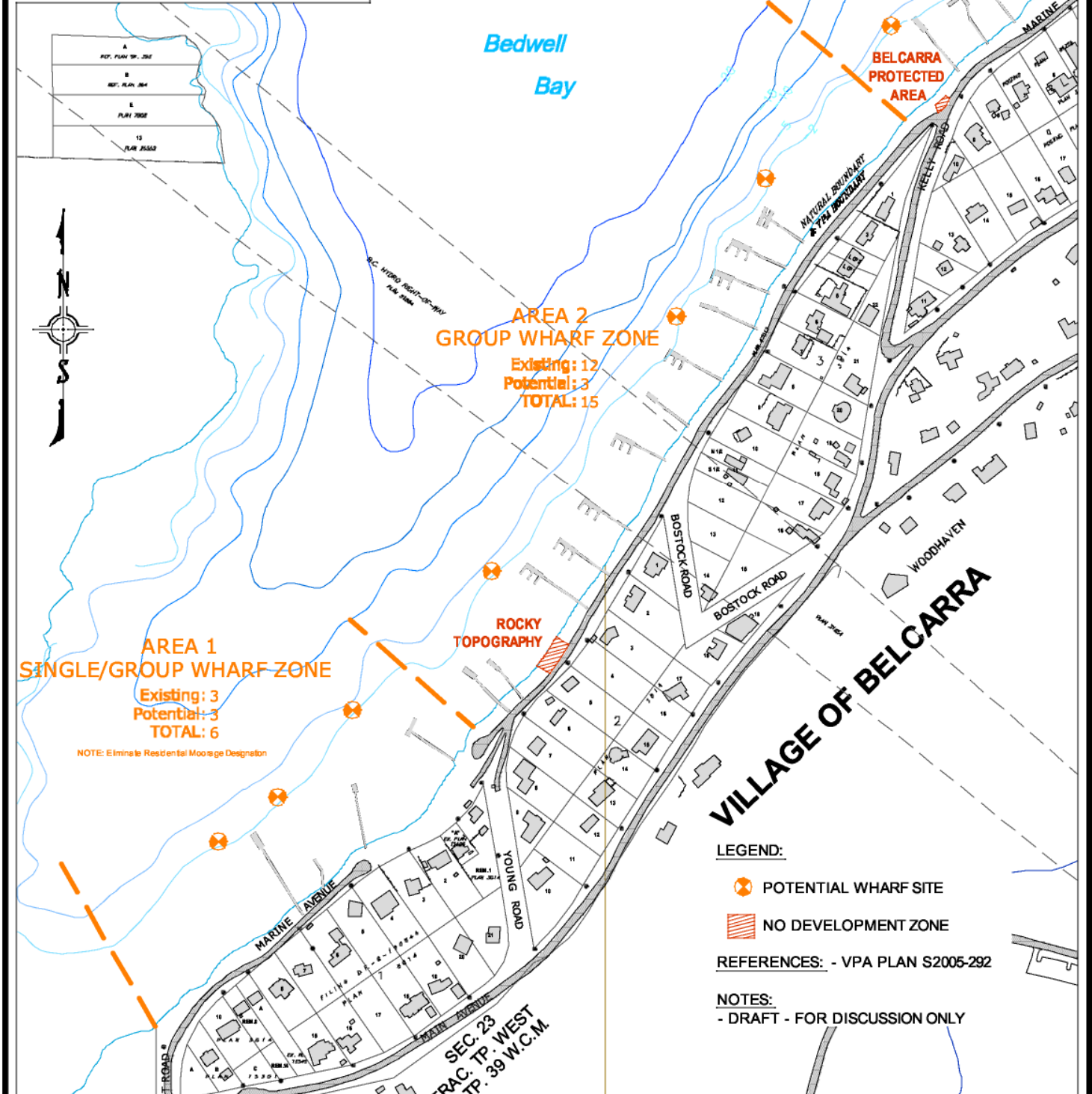
SKETCH PLAN S2006-067

Schedule A

Proposed Bedwell Bay Residential Moorage Development and Restrictions Plan



WHARF DEVELOPMENT AT THE POTENTIAL SITES WILL STILL REQUIRE FULL ENVIRONMENTAL AND CONSTRUCTION FEASIBILITY REVIEWS. INDICATION OF DEVELOPMENT POTENTIAL DOES NOT GUARANTEE APPROVAL



DATE PLOTTED: 2008/04/07



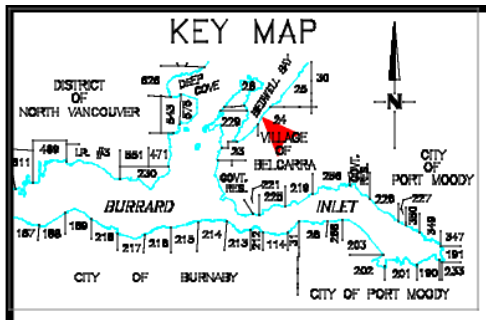
Village of Belcarra
Between Forest and Sea



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DATE	Mar 16/06
REVISED	Apr 7/06
SCALE	1:5,000

BEDWELL BAY
SCHEDULE A-1: PROPOSED WHARFAGE
DEVELOPMENT AND RESTRICTIONS

VPA Reference: SKETCH PLAN S2005-060



WHARF DEVELOPMENT AT THE POTENTIAL SITES WILL STILL REQUIRE FULL ENVIRONMENTAL AND CONSTRUCTION FEASIBILITY REVIEWS. INDICATION OF DEVELOPMENT POTENTIAL DOES NOT GUARANTEE APPROVAL

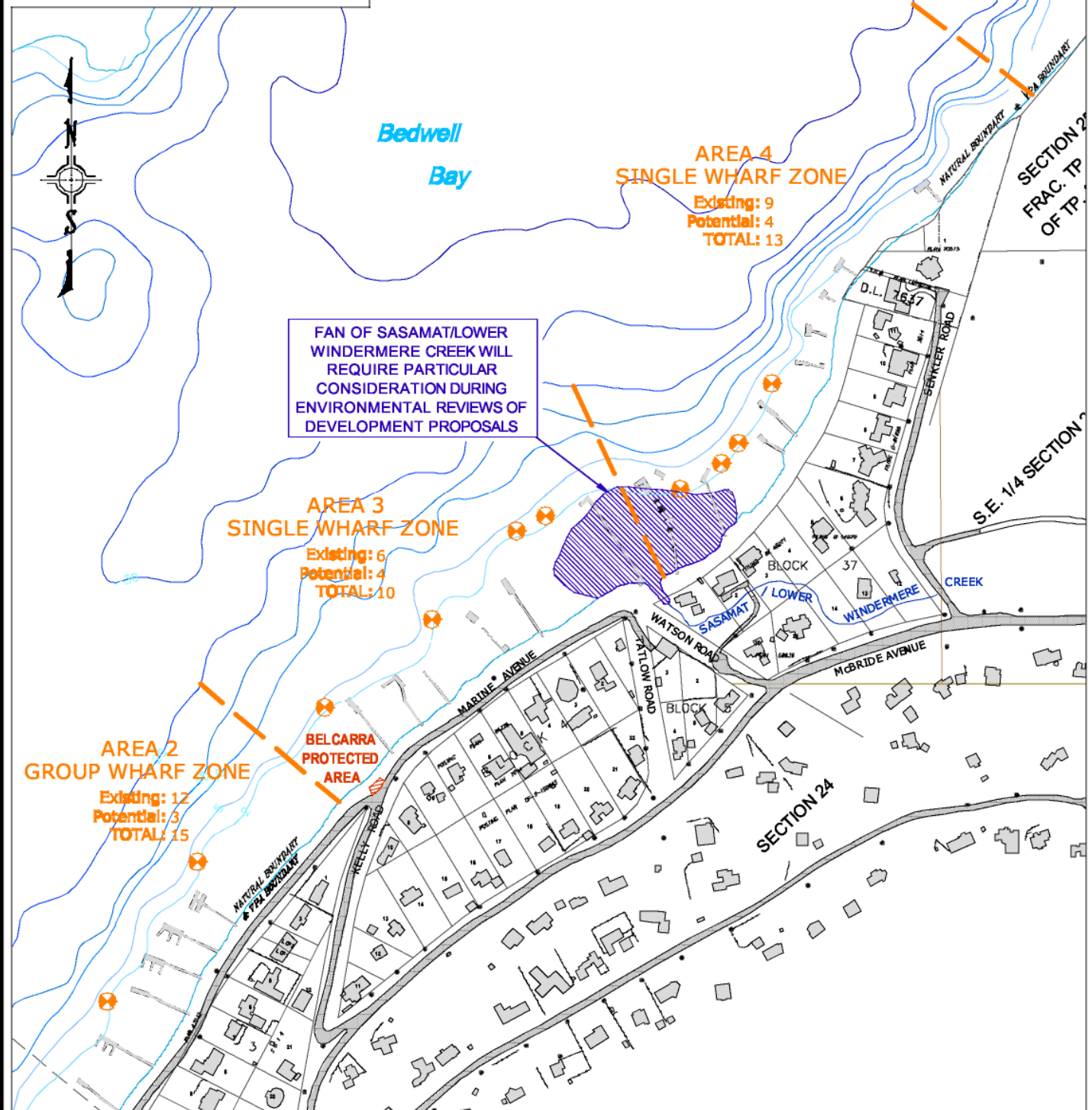
LEGEND:

- POTENTIAL WHARF SITE
- NO DEVELOPMENT ZONE

REFERENCES: - VPA PLAN S2005-292

NOTES:

- DRAFT - FOR DISCUSSION ONLY



DATE PLOTTED: 2006/04/07



Village of Belcarra
Between Forest and Sea



DRAWN BY	vavt
DATE	Mar 16/06
REVISED	Apr 7/06
SCALE	1:5,000

BEDWELL BAY
SCHEDULE A-2: PROPOSED WHARFAGE
DEVELOPMENT AND RESTRICTIONS

VPA Reference: SKETCH PLAN S2005-090