

HISTORY OF DEVELOPMENT
AT
ROBERTS BANK
- AN OVERVIEW

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1.0 INTRODUCTION

1.1 BACKGROUND

Roberts Bank is located within the Corporation of Delta on the south side of the Fraser River estuary, approximately 35 km south of downtown Vancouver. It is an important area in terms of its environmental attributes, and as a key transportation corridor for the movement of goods and people. Roberts Bank supports numerous species of fishes, ecologically important eelgrass beds and contains mudflats that sustain significant communities of birds on the Pacific Flyway. Socially and economically, the Roberts Bank area maintains agriculture and fishing, First Nations use, and since the late 1950s has provided direct and indirect employment to local and regional residents due to local transportation developments. The Corporation of Delta supports a community of approximately 97, 200 residents.

Roberts Bank also hosts two key transportation facilities: the Roberts Bank Port Facility, operated by the Vancouver Port Authority (VPA); and the Tsawwassen Ferry Terminal, operated by the BC Ferries Corporation. The marine transportation facilities are connected to road and rail infrastructure, which continue the movement of goods and people across the region. The Roberts Bank Port facility is located at the end of an approximately five km long causeway and consists of Westshore Terminals, a major coal exporting terminal, and Deltaport, a two-berth container terminal operated by Terminal Systems Inc. (TSI). In response to the increasing demand in international container traffic, the VPA has proposed the Roberts Bank Container Expansion Project. This project involves the addition of a third berth at Deltaport and the creation of up to 30 ha of land for the purposes of container loading and storage facilities. In addition, it is proposed that a new three-berth container terminal, known as Terminal 2, be developed that could add up to 80 ha of new land base at the Roberts Bank Port Facility.

1.2 PURPOSE

In light of the proposed expansion plans at the Roberts Bank Port Facility, the purpose of this paper is to provide an overview of the developments that have occurred at Roberts Bank over the past fifty years. This will provide a context for understanding the past and future proposed

developments at Roberts Bank. However, this overview document does not provide a complete history of each development, nor does it provide a full review of the decision-making behind each development. It is a synthesis of the major projects that have been proposed or constructed at Roberts Bank. As such, the developments are presented chronologically, along with rationales for their development. A summary of this history is shown in Figure 1.

2.0 HISTORICAL DEVELOPMENT

This section summarizes the historical development at Roberts Bank, beginning with the planning of the Tsawwassen Ferry Terminal in the 1950s, and ending with the Deltaport Expansion in the late 1990s.

2.1 1950's - LOWER MAINLAND MARINE TRANSPORTATION

In the 1950s, the main route from Vancouver Island to reach the Lower Mainland was via steamships that stopped at towns along the Vancouver Island coast before crossing the Strait of Georgia to the Lower Mainland. In 1958, the employees of the steamship companies (Black Ball Ferries Ltd. and Canadian Pacific Steamships) went on strike, thereby stranding their passengers in their respective locations. In response, the BC government invoked the *Civil Defence Act* and authorized the government to take possession and use the property of the two steamship companies for such periods as might appear necessary. In 1958, the provincial government, led by BC Premier W.A.C. Bennett, announced that it would establish a ferry service between the Saanich Peninsula on Vancouver Island and the Lower Mainland.

2.2 1958 - 1960 - DEVELOPMENT OF TSAWWASSEN FERRY TERMINAL

As a result of the 1958 decision to establish a government ferry service, the Tsawwassen to Swartz Bay route was selected as the most favourable route between the Lower Mainland and Victoria. Tsawwassen was chosen based on the following factors: the shortness of the route; its close proximity to the Massey tunnel (a key transportation corridor to Vancouver and the US, constructed from 1957-1959); the fact that the area was already cleared and level due to human settlement; and the relative short causeway length (2.1 kilometres) needed to reach water of sufficient depth to receive the ferries.

Construction of the Tsawwassen Ferry terminal began in 1958 and the \$12 million dollar ferry operation (two terminals and two ships) was opened on June 9, 1960.

2.3 1961-1968 - PORT DEVELOPMENT

Vancouver's first shipping ports were coal terminals located in Burrard Inlet, on both the north and south shores of the Inlet. From 1961 – 1966, Burrard Inlet coal terminal capacity was approximately 13 million tonnes of coal.¹ However, by the mid 1960's, advances in shipping design, railway operations and bulk material handling trends meant that demand would soon exceed the maximum design capacity of 30 million tonnes of coal at the existing facilities.² Much of the demand was from Japanese metallurgical coal markets. In particular, the Kaiser Resources coal contract created much of the impetus for the initial Roberts Bank port development.

In the mid 1960s, Kaiser Resources (a California based company) agreed to buy the coal rights from a coal operator in southeastern BC if a contract to sell coal to a Japanese buyer could be negotiated. As a first step towards a contract, Kaiser Resources needed to negotiate low rail transportation rates to the west coast for export to Japan. There were two rail options available to Kaiser: the US Great Northern Railway to a proposed port facility near Everett, Washington or the Canadian Pacific Railway to the Lower Mainland. Both provided a suitable deep draft bulk terminal facility with efficient train unloading facilities. Kaiser Resources selected the Canadian Pacific Railway alternative because it was the most cost effective solution. In 1968, as a result of securing rail transportation, Kaiser Resources signed a 15 year sales agreement with a large Japanese steel producer, Mitsubishi and Company. In the sales agreement, Kaiser Resources committed to ship coal by 1970. This meant that construction of both a coal port site and terminal facilities had to be completed within 16 months.

While the Kaiser Resources contract was unfolding, the National Harbours Board (NHB) was exploring port expansion in the Lower Mainland as a result of the increased shipping forecasts of bulk commodities from the west coast to Asian markets. In November 1966, the NHB began

¹ Swan Wooster Engineering. 1968. "Coal at Roberts Bank-now a reality".

² Swan Wooster Engineering. 1968. "Descriptive outline for deep-sea coal handling terminal at Roberts Bank outer port".

plans to develop the outer port area of Vancouver by extending the existing port of Vancouver waters to include all tidal waters south of the Burrard Inlet to the Canadian border at the 49th Parallel (Point Roberts). Swan Wooster Engineering consultants were commissioned by the NHB to plan the future development of this Lower Mainland port area. At this point in time, the NHB was considering the Lower Mainland for a new coal port facility on the west coast based on two factors: Vancouver received over 90% of all rail goods shipped overseas from Western Canada; and the Lower Mainland had large areas of undeveloped level coastal land to accommodate port associated rail transport facilities.

2.4 1968-1970 – ROBERTS BANK COAL PORT FACILITY

The 1968 Kaiser Resources contract with Mitsubishi and Company meant that there was an immediate need for a coal port site and terminal facilities on the southern BC coast. The proposed port facilities had to handle large bulk carriers, be equipped with efficient loading facilities, and have high-speed train access to lower transportation costs of coal from the mines.

The only locations on the southern BC coast where the required physical features of a new port facility existed close to railway services were located in the Fraser River delta area. Swan Wooster Engineering, on behalf of the NHB, considered five areas: North Sturgeon Bank, South Sturgeon Bank, North Roberts Bank, South Roberts Bank and Boundary Bay. The South Roberts Bank location was chosen over the Sturgeon Bank and Boundary Bay locations because it best fulfilled all requirements for a new port location: direct, uncongested railway access routes for all railway operators; large areas of level undeveloped land immediately adjacent to berth areas; direct access for vessels from deep water, with no tidal or other navigational delays; water depths of at least 20 m that could be increased by dredging if required; remoteness from densely populated areas to minimize impacts from occasional air, water, or noise pollution; direct access to a principal highway system; and minimal disturbance to bird and fish life.³ No environmental assessment was carried out during the design of the original terminal facility, as relevant environmental review procedures were not yet in place.

³ Swan Wooster Engineering. 1968. "Coal at Roberts Bank –now a reality".

Land reclamation of Roberts Bank and causeway construction started on July 2, 1968. The causeway was completed on April 8, 1969 providing road access to the site. In 1970 the Roberts Bank Coal Port facility, located just northwest of the Tsawwassen Ferry Terminal, was officially opened as a coal terminal (now known as Westshore Terminals). It was originally constructed as a 20-hectare artificial island connected to the mainland by a 5 km causeway and was one of the largest single berth terminals in Canada at the time. It accommodated coal train unloading and ship loading equipment, storage stockpiles for coal, a single ship berth and offices.

2.5 1975-1979 – PROPOSED EXPANSION OF ROBERTS BANK PORT FACILITY

In 1975, the NHB was again looking to expand its marine port facilities. The projected forecasts indicated that additional west coast bulk handling facilities would be necessary before 1980. The NHB contracted Beak-Hinton Consultants Limited (BHC) in February of 1977 to prepare an environmental impact assessment (EA) to support coal port expansion in accordance with the Federal Environmental Assessment and Review Process (EARP).

The terms of reference for the EA consisted of project justification and site selection studies, as well as environmental impact studies. Fourteen prospective west coast bulk terminal sites were evaluated as part of the project justification and site selection studies: Nass River, Port Simpson, Ridley Island, Kitson Island, Prince Rupert (Fairview), Bella Coola, Kitimat, Squamish, Britannia Beach, Burrard Inlet (three sites), Fraser River, Roberts Bank, Boundary Bay, and Puget Sound Terminal Sites (four sites). The site selection process compared and evaluated each site based on engineering requirements. The sites were rated based on land transportation systems (rail and road access), ocean transportation systems (ship access, tug requirements, ship downtime at berth), site development needs (land development, marine construction, site services), basic infrastructure, and expansion potential. The site selection ranking indicated that the existing Roberts Bank Port Facility was the best site from an engineering standpoint for a bulk terminal⁴.

Swan Wooster Engineering developed 15 different plans for the development at Roberts Bank³. Based on a cursory review of the potential environmental impacts of the various plans for

⁴ Swan Wooster Engineering. 1977. "National Harbours Board – Environmental Impact Assessment of Roberts Bank Expansion – Volume 6 Appendix D Engineering Aspects", prepared for Beak Hinton Consultants.

Roberts Bank, and on input from the NHB on their berthing requirements, one plan was chosen to be put forward for the EA application. The chosen plan (shown on Figure 2) included four additional terminal areas (each approximately 20 hectares in size), an administrative area, an increased ship-berthing channel, and a ship turning basin. The causeway was to be widened to accommodate additional rail trackage and roads required for the new terminals. The proposed facilities included two terminals for coal, one terminal for grain and one terminal for potash or potash and sulphur. It was also proposed to set room aside for the possible future handling of some bulk liquids using a pipeline connection between one of the berths and a tank farm in an industrial area that would have been located on the northwest side of the causeway.

1977-1979 Roberts Bank Port Expansion Environmental Impact Assessment

BHC completed their six volume EA in October of 1977 and submitted it to the Federal Environmental Assessment Review Office (FEARO). The EA identified environmental impacts of the proposed design and mitigation measures to reduce the impacts. Some of the key environmental impact areas identified in the EA included marsh areas along the shoreline, crab habitat north of the causeway (mating and migration habitat), and the eelgrass beds between the causeways.

In terms of anticipated impacts and proposed mitigation, BHC determined that erosion would likely occur in the eelgrass beds and thus recommended to dyke around the dredged ship channel to prevent more erosion shoreward. BHC concluded that the layout and design of the proposed development would help prevent environmental damage to the water quality of the area. Damage within the benthic environment was expected during construction but was expected to be temporary as recolonization would occur rapidly. A key mitigation measure to address impacts to the benthic environment was the proposed introduction of rocky shoreline, which was expected to add diversity to the community over the long term. BHC also concluded that dredging a deeper bottom area at -10.7m would cause an increase in productive crab habitat. BHC concluded that of the 477 hectares of eelgrass found on Roberts Bank, 30 hectares would be eliminated but ten hectares would be recolonized in the eroded area after the dyke was built. To reduce impacts to salmon and herring, no dredging would occur during key fisheries windows (*i.e.*, spawning of herring and rearing of salmon). BHC claimed that there would be minor

impacts on birds from the removal of habitat; the assumption was that normal operations should not affect birds except near the terminals.

After receiving the EA, the FEARO Panel (Panel) invited public participation in the review through media, advertisements and direct mailings. In February of 1978, after receiving comments from the public, the Panel issued a statement to BHC outlining what they considered to be areas of deficiency in the EA.⁵ BHC responded to the Panel's statement of deficiencies in June of 1978.⁶ In 1979, the Panel issued its final report on the proposed Roberts Bank expansion.⁷ In making its recommendations, the Panel took into consideration all the issues and impacts that were put forward by participants at the public hearings, as well as concerns that were identified by Panel members.

The 1979 Panel report concluded that the potential impacts on the Fraser River Estuary were too great and therefore rejected the initial proposal for expansion. The Panel also identified a number of gaps in the EA document that needed to be addressed on the potential impacts on the estuary at Roberts Bank. Some of the concerns put forth related to the adequacy of the EA: the short time frame for studies; insufficient supporting quantitative information on the environment; and the absence of a social impact assessment. The Panel's concerns regarding the 1977 EA document⁸ and the associated 1978 statement of deficiencies response report⁹ are summarized in Appendix A, Table 1.

1979 FEARO Recommendation of Reduced Expansion

Although the FEARO Panel rejected the initial proposal, it did acknowledge the growing market for BC coal and the need for additional port facilities to assist in meeting this demand. As a result, the Panel recommended a reduced expansion. The reduced expansion was limited to areas shoreward of the existing terminal and between the two causeways because the ecological

⁵ Environmental Assessment Review Panel, 1978. "Roberts Bank Port Expansion: a Compendium of Written Submissions on Deficiencies in the Environmental Impact Statement."

⁶ Beak Hinton Consultants, 1978. "Response to A Statement of Deficiencies in the Environmental Impact Assessment of Roberts Bank Port Expansion."

⁷ Federal Environmental Assessment Review Office, 1979. "Report of the Environmental Assessment Panel: Roberts Bank Port Expansion."

⁸ Swan Wooster Engineering. 1977. op.cit.

⁹ Beak Hinton Consultants. 1978. op. cit.

damage would be minimal and other adverse impacts could be mitigated. However, the Panel strongly advised against enlarging the ship channel.

The Panel issued two sets of recommendations, general and expansion. The general recommendations included those to be acted upon whether or not expansion occurred (Appendix A, Table 2). The expansion recommendations included measures to be implemented if the reduced expansion was approved (Appendix A, Table 3).

The Panel also concluded that there would be little further value in the NHB preparing and submitting a new environmental impact assessment for a reduced expansion; however, the following actions were to be taken:

- conduct further environmental studies to support the development of an acceptable design for the reduced expansion; and
- the federal Department of the Environment was to organize and coordinate the monitoring of and implementation of the recommendations of the Panel.

The second recommendation led to the formation of the Roberts Bank Steering Committee (RBSC). The RBSC consisted of representatives from federal and provincial government agencies with an interest in development at Roberts Bank.

2.6 1980-1984 – EXPANSION OF ROBERTS BANK COAL PORT FACILITY (WESTSHORE TERMINALS)

The NHB responded to the FEARO recommendations by modifying the expansion proposal and agreeing, under the *British Columbia/Canada Agreement* of August 1980, to construct the expansion in accordance with the Panel report. With signing the agreement in 1980, the RBSC became the Roberts Bank Environmental Review Committee (RBERC). RBERC's mandate was to ensure that the recommendations of the Panel about the expansion activities were implemented. RBERC initiated and oversaw studies and projects that emerged from the Panel's recommendations. The expansion proposal for Roberts Bank was completed in 1980 and received public comment at information meetings held in Delta later in the year. The Department of Environment (DOE) approved the revised port expansion proposal in 1981.

The 1980 expansion proposal differed from the 1979 Panel's recommendations in two important ways. First, the results of the hydraulic study completed in 1980, new information about marine habitat in the intercauseway area and project economics caused the number and location of the terminals (pods) to be altered. The number of pods proposed in the original plan was four plus an administrative area (Figure 2). The 1980 proposal included three pods (pods 2, 3 and 4) as shown on Figure 3. These pods were located in the least impact zone identified by the Panel. Secondly, on the advice of Canadian Coast Guard, the ship channel was significantly enlarged to ensure navigational safety.

Under the guidance of RBERC, the implementation of the Panel's ten expansion and nine general recommendations was initiated, and construction commenced with dredging in late 1981. The dredging was conducted over two winters to minimize impacts on juvenile fish populations. Land reclamation activities were completed in the spring of 1983 and the Roberts Bank Coal Port Facility's new handling and loading facilities on pods 1 and 2 (Westshore Terminal) were completed in 1984 (Figure 3). Pods 3 and 4 were constructed as part of the 1981-84 construction activities, but remained undeveloped (vacant).

The *Canada Port Corporation Act* was enacted in 1983 and replaced the *NHB Act*. As a result, the Vancouver Port Corporation (VPC) was responsible for Vancouver port facilities including Roberts Bank.

2.7 1991 – EXPANSION OF TSAWWASSEN FERRY TERMINAL

B.C. Ferries Corporation had grown significantly since its creation in 1958. Due to increasing transportation demands, a second route from the Tsawwassen Ferry Terminal to Vancouver Island was required in 1991. This required expansion of the Tsawwassen Ferry Terminal.

A major element of the 1991 – 1995 terminal expansion was the creation of eight hectares of land on the north side of the existing ferry terminal facility to enlarge parking and loading lane areas. The mitigation and compensation program for the project included the construction of an intertidal marsh and the planting of several hectares of eelgrass.

2.8 1992-1996 – DELTAPORT: CONTAINER TERMINAL DEVELOPMENT ON POD 4

In the 1990's there was an increasing need for more container facilities in the Lower Mainland due to increasing volumes of goods shipped by containers. The two Burrard Inlet facilities, Vanterm and Centerm, were projected to reach their maximum capacity of 500,000 twenty foot equivalent units (TEUs) (1 TEU = 1 twenty foot container) by 1995¹⁰. As a result, the VPC was faced with two expansion possibilities to provide an extra capacity of 400,000 TEUs: upgrade the current Vanterm and Centerm facilities or develop a new container facility at the Roberts Bank site. In 1992, a new container facility terminal (Deltaport) was proposed for Roberts Bank to meet the demand of a growing container market.

The Deltaport development at Roberts Bank was identified as having many features that made it more attractive than Vanterm and Centerm expansions: ships arriving at Roberts Bank would save four hours in sailing time as compared to Burrard Inlet; the road and rail infrastructure in place at Roberts Bank was less congested than Burrard Inlet; Pod 4 was vacant and available for immediate development; the design and construction timeline were relatively short, approximately three years; and finally, the cost of developing at Roberts Bank was 50% of the cost to develop the same capacity at Vanterm and Centerm. By developing a container terminal at Roberts Bank, the VPC hoped to avoid losing customers to expanding US ports and also hoped to attract new business moving through US ports. The VPC contracted Gartner Lee Limited (GLL) to undertake an environmental assessment for a container terminal on Pod 4.

The 1992 GLL proposal identified all required physical works to be undertaken at Pod 4, the impacts on the surrounding environment, and mitigation measures to reduce such impacts. Infrastructure of the Pod 4 development included wharf structures to dock ships, a main electrical sub-station and yard lighting, wastewater collection systems, and an inter-modal system to support the efficient movement of an increased level of train traffic. An extension of Deltaport Way would also have to be constructed to reduce the traffic congestion on the surrounding areas due to an increase in truck traffic.

¹⁰ Gartner Lee. 1992. "Environmental Appraisal of Proposed Container Terminal, Roberts Bank."

In terms of potential environmental impacts, GLL determined that the project would not involve any dredging or alteration of marsh habitat adjacent to the site and that there would be limited impacts to the environment¹¹. The mitigation measures proposed by GLL included: environmental construction windows to avoid impacts on herring or juvenile salmonids; dock structures to be constructed with built-in refugia for reef fishes and shellfish; the removal of Pod 4 riprap (shoreline protection) in November to avoid disturbance to male lingcods guarding eggs; and the creation of a riprap reef nearby to replace the rock habitat provided by the Pod 4 riprap (1:1 replacement ratio). Mitigation measures for the Deltaport Way extension included the construction of ditches along both edges of the right-of-way, culvert installations to follow DFO guidelines, and the establishment of grassy borders to encourage the recolonization of voles and other small mammals. Topsoil was to be removed from the affected project areas and stockpiled for improving adjoining farmland to minimize potential impacts to agriculture (i.e., loss of 8.8 hectares of agricultural land) due to the Deltaport Way extension.

1992-1994 Deltaport Environmental Assessment Process

An EARP review was not required for the Deltaport development on Pod 4 because the development did not require a federal permit or approval (pods 3 and 4 were originally approved and constructed as part of the 1981-84 construction activities and the land was being used for road and rail access to the Westshore Terminals operations). It was also determined that the project was not subject to the provincial Major Project Review Process¹². However, due to the increasing requirements for environmental approval, the VPC established in-house Environmental Appraisal Procedures. These were developed to meet or exceed the appropriately applicable objective standards and goals set out in federal environmental legislation. The Environmental Appraisal Procedures included government and public consultation, preparation of an Environmental Appraisal Document (made available to the public), and the appointment of an Independent Review Panel to conduct the project review.

In 1992, a three-member Independent Review Panel was appointed by the VPC to conduct an independent public and technical review of a proposed container terminal on Pod 4. Public

¹¹ Ibid.

¹² Project Review Panel. 1992. "Independent Project Review Panel Report to the Board of Directors Vancouver Port Corporation on the Proposed Container Terminal at Roberts Bank."

hearings were scheduled so that the concerns raised by the public would be taken into consideration when the Panel reviewed the proposal. Many of the concerns raised by the public focused on information from the 1979 FEARO report and RBERC's involvement in overseeing the recommendations being implemented. The Tsawwassen First Nation (TFN) raised concerns regarding public involvement in relation to past development and expansion at Roberts Bank, and about the ability of the TFN community to access marine resources such as shellfish, crab, salmon and seagrass.

After considerable discussion with the public and deliberations by the Panel, the Panel concluded that the Deltaport container terminal development at Roberts Bank was acceptable if the mitigation recommendations put forth were implemented¹³. The recommendations given by the Panel are summarized in Appendix A, Table 4. With respect to key issues raised by the public, the Panel concluded that additional studies on the flora and fauna were not warranted on the basis of the current Pod 4 project proposal. The Panel was aware of numerous studies conducted in the area by government agencies and by private consultants. The Panel noted that the key government agencies responsible for the area did not express any concerns to the Panel about the potential environmental impact of the project during municipal, provincial and federal government consultations. Due to the lack of expressed government concern, the Panel concluded that these agencies considered the potential impacts of the proposal to be insufficient to warrant a representation to the Panel¹⁴.

1994-1996 Deltaport Construction and Follow-Up

Construction of the Deltaport facility on Pod 4 occurred between 1994 and 1996 (with marine works from 1994 to 1995). Deltaport was officially opened on June 8, 1997.

RBERC was active throughout the Deltaport development and in 1996 published its final report and recommended that the appropriate authorities conduct any further research and monitoring on Deltaport. Between the establishment of RBERC in 1980 and its dissolution in 1996, RBERC concluded that all 1979 FEARO Panel recommendations (general and expansion) were

¹³ Project Review Panel. 1992. op. cit.

¹⁴ Ibid.

substantially addressed as detailed in the 1996 RBERC final report,¹⁵ with the exception of one issue. Bird mortality due to collisions with overhead wires remained to be fully resolved to the satisfaction of the Canadian Wildlife Service and the Corporation of Delta.

2.9 1995-1997 – PROPOSAL FOR AN AGRICULTURAL HANDLING FACILITY ON POD 3

In 1995, due to growing demands for grain around the world, the VPC sought proposals for the development of an agricultural products handling facility on Pod 3 at Roberts Bank. The VPC determined that the proposed terminal facility at Roberts Bank would have a cost advantage over existing facilities at Prince Rupert and would avoid problems with increasing congestion on the Burrard Inlet waterfront in Vancouver.

Late in 1995, the VPC selected Cargill/Saskatchewan Wheat Pool Limited (CSWP) to develop the facility, subject to VPC Environmental Appraisal Procedures similar to the Deltaport development on Pod 4, as it was determined that the project was not subject to the provincial Major Project Review Process.¹⁶ An independent project review panel was established by the VPC in June of 1996 to assess the potential environmental and socio-economic effects of the proposed development. The establishment of this Panel was similar to the Panel for the Deltaport Pod 4 proposal.

In 1996, Golder Associates Ltd. produced an Environmental Appraisal Document (EAD) to support the Panel review process. In October 1996, the Panel held two public meetings, one in Delta and one on the TFN Indian Reserve. During the review process, the Panel identified 26 recommendations (Appendix A, Table 5) to avoid, minimize or mitigate the potential negative effects of the project and to enhance the positive benefits of the project to the local community. The Panel concluded that they could not give project approval for the proposed agricultural products handling facility without an EA and cumulative effects assessment of the project.

The VPC retained Jacques Whitford Environmental Ltd. (Jacques Whitford) in 1997 to implement an action plan to act on the Panel recommendations. Jacques Whitford met with key

¹⁵ Roberts Bank Environmental Review Committee. 1996. "Final Report of the Roberts Bank Environmental Review Committee, 1996."

¹⁶ Project Environmental Review Panel. 1996. "Proposed Agricultural Products Handling Facility."

stakeholders and the TFN, and coordinated a two-day workshop intended to outline stakeholder concerns. The workshop resulted in six specific cumulative environmental effects issues and studies that were referred directly to CSWP and VPC to be included in planning the proposed development. The six cumulative environmental effect studies included: marine studies (nutrient loading, distribution of eelgrass, loss of salt marsh, and quantity and quality of marsh habitat); traditional use of marine invertebrates; emissions inventory; air quality monitoring; impacts of the facility on birds; and, noise and vibration analyses. Broader issues of cumulative environmental effects on Roberts Bank were referred to the Fraser River Environmental Management Program (FREMP).

Following the 1997 workshop, CSWP abandoned the proposed development as Cargill took ownership of a Burrard Inlet grain terminal and much of the impetus for proceeding with the candidate studies was lost.

2.10 1999-2001 – DELTAPORT EXPANSION ONTO POD 3 AND CUMULATIVE EFFECTS STUDY

The *Canada Marine Act* was enacted in March 1999, superseding the *Canada Ports Corporation Act*. Through provisions in the new act, the VPC became the Vancouver Port Authority (VPA). The *Canada Marine Act* also established the *Canada Port Authority Environmental Assessment (CPA EA) Regulations*. These regulations stated that the VPA was now subject to the *Canadian Environmental Assessment Act (CEAA)*.

In 1999, the VPA re-assessed the initiative to develop Pod 3 (this time as a container facility) and retained Jacques Whitford to re-initiate the cumulative effects process to proceed with five out of the six candidate studies suggested in 1997. The study on the impacts of the facility on birds was proceeding under the joint effort of the Canadian Wildlife Service, BC Hydro and VPA, and was therefore not addressed. This study is still being pursued in 2004. The two principal reasons to proceed with the remaining five candidate studies were as follows: VPA's commitment to finish the agreed upon studies that were proposed for the previous Pod 3 CSWP development proposal (even though the CSWP project was no longer being considered); and the information obtained in the studies would augment existing information regarding cumulative environmental effects of any future projects at Roberts Bank or at the port facility. In re-initiating these studies, VPA

intended to fulfill its commitments with respect to cumulative environmental effects at Roberts Bank. The VPA contacted the TFN and potentially interested stakeholders and invited them to participate in a process to develop terms of reference for the five candidate studies.

In 2001, Jacques Whitford issued their document on the study of cumulative environmental effects at Roberts Bank. The report presented the following conclusions:

- The construction of the causeways and resultant presence of eelgrass in the intercauseway area had an overall positive cumulative environmental effect on Roberts Bank as measured by biodiversity and the enhancement of fish habitat and abundance;
- The construction of the causeways and resultant presence of eelgrass in the intercauseway area had an adverse cumulative environmental effect on the presence of species of traditional importance to the local first nation communities and their potential harvest in the immediate vicinity of the present TFN reserve. The causeway had, however, created some 4.6 km of new shoreline which allowed access to some species of traditional importance whose abundance had been affected in the intercauseway area;
- The adverse cumulative environmental effects on traditionally important species could not be reversed by technically and economically feasible mitigation;
- A good benchmark of marine species of traditional importance on the Roberts Bank area had been established for future assessment of any new or proposed projects on Roberts Bank;
- Based on ambient air quality data measured at several stations in and around Roberts Bank, emissions from sources near Roberts Bank were not sufficient to cause pollutant concentrations to exceed regulatory guidelines and objectives of the GVRD at Roberts Bank. Sources at Roberts Bank were not major contributors and did not cause adverse environmental effects on air quality. Based on a characterization of the sources of emissions, on an analysis of the historical and existing air quality, and on modelling predictions for 2007, the potential for

significant future cumulative environmental effects of emissions at Roberts Bank was deemed negligible;

- Noise measurements from August, 2000, were similar to data presented in previous studies, with no substantial increase in noise over historical results observed; and,
- A good benchmark of ambient air quality and noise had also been established for future assessment of any new or proposed projects on Roberts Bank.

In addition to the cumulative effects study, Jacques Whitford also conducted a CEAA Screening of Pod 3 pursuant to the CPA EA Regulations. The Fraser River Estuary Management Program Environmental Review Committee reviewed the CEAA Screening and minor works and recommended that the project proceed.

The Deltaport Expansion Container Facility on Pod 3 began construction in 2000 and opened in late 2000.

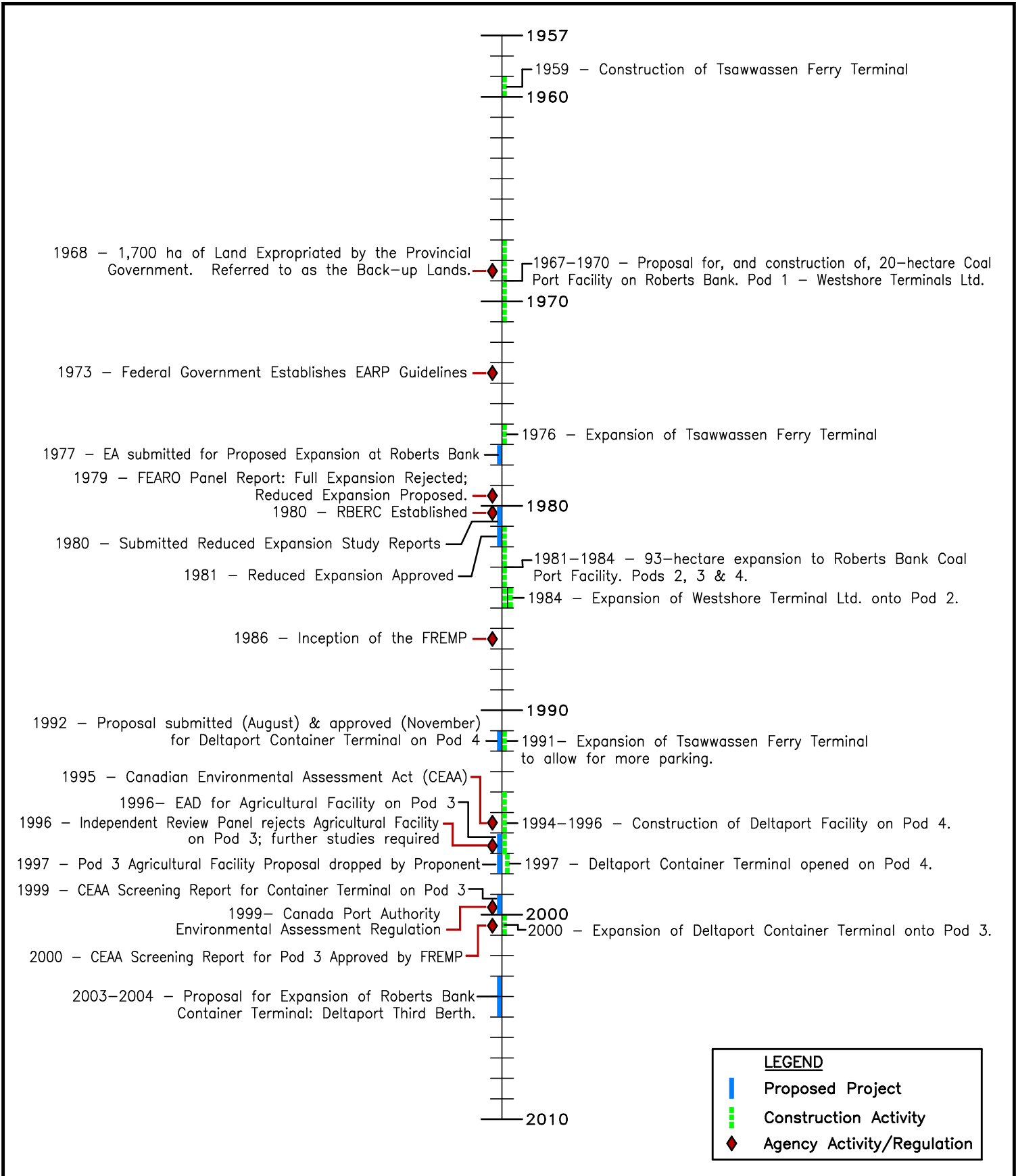
3.0 CURRENT DEVELOPMENTS

3.1 2003 – PROPOSAL FOR EXPANSION OF CONTAINER TERMINALS AT ROBERTS BANK

The VPA is proposing to expand Deltaport at Roberts Bank. The VPA plans to construct an additional berth and storage yard at its existing two-berth container terminal. The proposed third berth, known as the Deltaport Third Berth Project (the Project), will provide the VPA, and the existing terminal operator, TSI, with the increased container capacity required to address the increasing container trade demand within North America. The Project will allow the VPA to remain competitive, maintain and potentially grow its market share within the Pacific container shipping market.

The proposed expansion at Deltaport is in response to industry projections that indicate that container traffic will double in the next ten years, and triple in the next twenty years, at all major container ports on the west coast of North America. This is in large part due to the opening markets within Asia, particularly China, as well as the interest and acceptance of moving more goods as containerized cargo. Therefore, in order to keep pace with the expanding world economies, and the increasing capacity needs of its customers, the Port of Vancouver's container terminal facilities must also expand. To meet this challenge, the VPA is planning the construction and operation of the proposed Deltaport Third Berth Project at Roberts Bank. It is planned that the Project will be constructed by 2008 and will be operating at full capacity by 2012.

The Project will be followed by a second proposed development project at Roberts Bank - a three-berth container terminal known as "Terminal 2". Both projects are planned as part of the Port's overall container expansion strategy and are both subject to EA. The present EA has been developed for the proposed development of the Deltaport Third Berth Project only. An EA of the Terminal 2 project will similarly be conducted by the VPA once the plans are more clearly defined. As such, the EA for Terminal 2 will follow at some point in the future.



HEMMERA

HISTORY OF DEVELOPMENT AT ROBERTS BANK

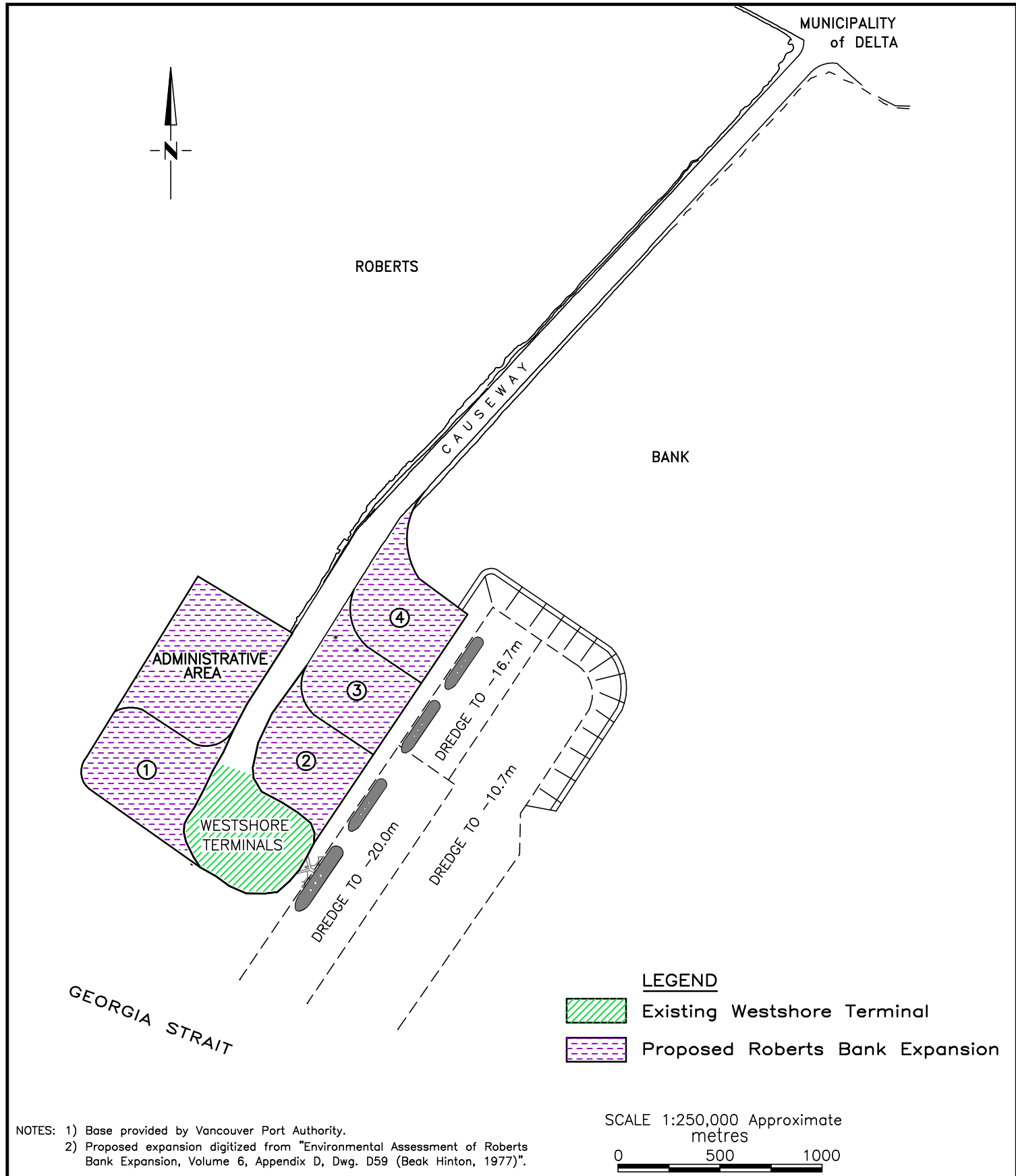
DEVELOPMENT AT ROBERTS BANK

CLIENT: VANCOUVER PORT AUTHORITY

PROJECT No. 499-002.01


December 2004

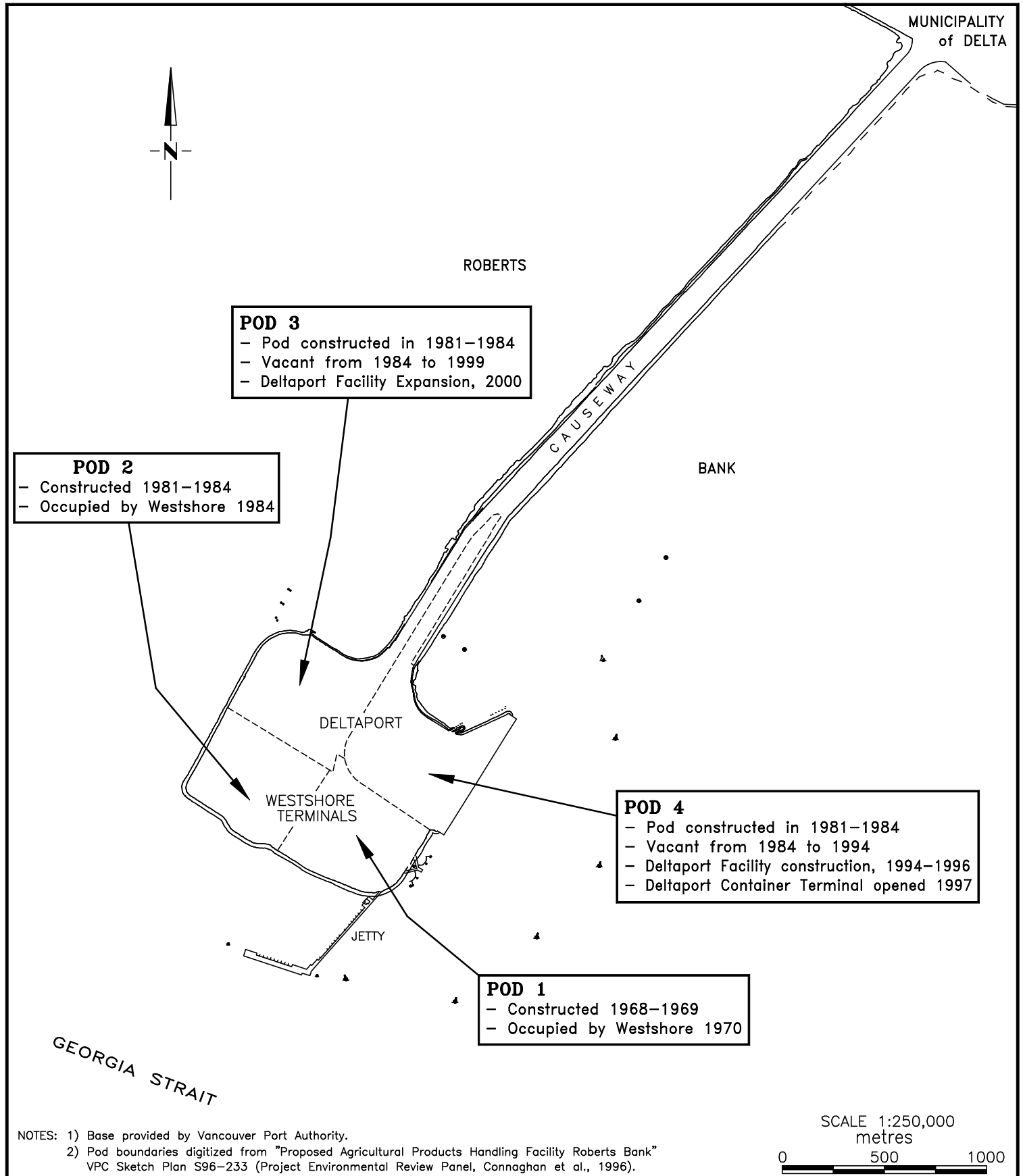
FIGURE 1




NOTES: 1) Base provided by Vancouver Port Authority.
 2) Proposed expansion digitized from "Environmental Assessment of Roberts Bank Expansion, Volume 6, Appendix D, Dwg. D59 (Beak Hinton, 1977)".

SCALE 1:250,000 Approximate metres
 0 500 1000

 HEMMERA	HISTORY OF DEVELOPMENT AT ROBERTS BANK		
	1977 PROPOSED ROBERTS BANK ORIGINAL EXPANSION		
CLIENT: VANCOUVER PORT AUTHORITY	PROJECT No. 499-002.01	December 2004	FIGURE 2



NOTES: 1) Base provided by Vancouver Port Authority.
 2) Pod boundaries digitized from "Proposed Agricultural Products Handling Facility Roberts Bank" VPC Sketch Plan S96-233 (Project Environmental Review Panel, Connaghan et al., 1996).

 HEMMERA	HISTORY OF DEVELOPMENT AT ROBERTS BANK		
	ROBERTS BANK PORT FACILITIES (1969-2000)		
CLIENT: VANCOUVER PORT AUTHORITY	PROJECT No. 499-002.01	December 2004	FIGURE 3

Appendix A
History of Development at Roberts Bank

Table 1

1979 FEARO Panel Issues and Concerns of the 1977 Proposed Expansion of Roberts Bank Coal Facility

Topic	Concern
Project justification and alternative sites	The Panel considered the need for a new facility for sulphur and potash to supplement the existing facilities was not convincingly demonstrated nor did they consider that a case was made for the desirability of a grain-handling terminal or a bulk liquids terminal.
Fraser River estuary system	While the Panel noted sufficient qualitative data to allow for the recognition of the overall importance of the Fraser estuary ecosystem, it expressed concerns that there was not sufficient quantitative data to allow for a comprehensive assessment of the impacts of specific development projects.
Estuarine ecology	<p>The Panel recognized that protection of the valuable Fraser River salmon fishery was to be considered the principal element in evaluating the ecological impact of the proposed port expansion. They also recognized the importance of ocean currents and wave action on the deltaic environment and therefore recommended that before any changes were planned in the area, a hydraulic model should first be tested to determine the effect to current and wave action due to any development.</p> <p>The Panel was also concerned that there was not sufficient estuarine habitat required to support juvenile salmonids to allow such habitat to be used for development purposes. The Panel therefore concluded that any further losses of salmonid rearing grounds should be kept to an absolute minimum. They also concluded that certain mitigation measures, such as eelgrass transplants and the provision of new habitat had not been proven in practice on a large scale therefore it could not be accepted as compensation for existing fisheries habitat, until there was sufficient evidence that they would work.</p> <p>In terms of the birds occupying the Roberts Bank area, it was the Panel's opinion that the season during which bird observations were made for the EIS was not appropriate to discern either key migratory bird use of the Roberts Bank area or to establish any valid indication of population size in relation to habitat use.</p>
Estuarine pollution and water quality area	The Panel concluded that the shipment of bulk liquids, the bunkering of ships and the discharge of ship ballast water all represented unacceptable risks to the Roberts Bank ecosystem because, in the event of a spill, they all could be transported by currents over the whole delta. The Panel further noted that, in spite of the most stringent controls, spills inevitably occur at terminals handling such liquids.
Noise impacts	The Panel concluded that the noise concerns associated with the proposed expansion would cause undesirable impacts on some residents and questioned the effectiveness of the methods suggested by BHC. The mitigation measures included altering idle patterns or placing noise shields around the engines.

Topic	Concern
Social /community /economic impacts	<p>With respect to potential socio-community impacts, the Panel identified a few major issues that the EIS failed to address. The first issue was that there was no analytical framework given in the EIS to assist the decision makers in following the logic of the analysis. The Panel concluded that BHC selected the data it had thought relevant, predicted impacts on the basis of these data and made value judgements about the significance of these impact.</p> <p>The second issue touched on the communication between BHC and the Tsawwassen First Nations (TFN). The communications between the two parties during the preparation of the EIS was negligible and consequently, an adequate understanding of the TFN's interests and problems was never obtained.</p> <p>The third issue was that if full expansion was to proceed, the reduction in habitat would eventually result in some loss to the commercial, recreational and native fishery, and this would affect all of the communities surrounding Roberts Bank. The EIS recommended that provision of compensatory habitat as a mitigation measure but there were serious questions about its feasibility.</p>
Responsibility for implementing mitigation measures	<p>A major deficiency in the EIS was the absence of assurances that the proponent would implement the proposed recommended mitigation measures. As a result the Panel recommended that BHC provide a description of who would be responsible for implementing all required mitigation measures and how they would be implemented.</p>

Table 2

**Summary of General Recommendations from 1979 FEARO Panel Environmental Assessment
Report along with the Resolutions Undertaken by RBERC**

	General Recommendation	Resolution Undertaken by RBERC
1	Prevent further shoreward erosion of the existing berthing channel.	An erosion control structure around the shoreward perimeter of the shipping channel and turning basin was constructed. The design, approved by the RBERC, consisted of a broad shallow trench that was filled with gravel and topped with protective rocks and extended around the entire perimeter of the dredged basin. It was constructed over the winter of 1981/1982 and RBERC requested that studies be conducted to determine the effectiveness of the erosion control structure. It was determined that erosion had slowed noticeably and within two years the largest dendritic channel had been re-vegetated with eelgrass. ¹
2	Do not ship bulk liquids from Roberts Bank Port.	The VPC agreed that no bulk liquids should be shipped from the Roberts Bank Port and that they do not permit the bunkering of ships at Roberts Bank port.
3	Do not permit bunkering of ships at Roberts Bank Port.	
4	Prohibit discharge of dirty ballast water from ships at Roberts Bank except to a holding or treatment facility.	The issue on dirty ballast water was resolved by the VPC's prohibition on the discharge of ballast water within its boundaries. Ships are inspected upon entering the port to ensure that they contain no oily ballast and the external valves are sealed to prevent accidental discharge. In regards to the translocation of exotic organisms via ballast water, this was outside of the RBERC's term of reference though they requested that Transport Canada ensure that the issue was addressed through the International Maritime Organization of the United Nations.
5	Develop an environmental emergency contingency plan specific to Roberts Bank.	Westshore terminals (coal facility operators) had an emergency response plan drafted. It was also determined by the VPC that any future users of the Port would be required to have an environmental management plan, including an emergency response plan, in place before commencing operations.
6	Further investigate and quantify impacts of air and water pollution due to coal dust.	Further studies on air and water pollution due to coal dust were done by DFO on selected biota at Roberts Bank. The studies concluded that the impacts were negligible. ^{2,3,4} As well, RBERC sponsored an investigation of the impact of port expansion on Dungeness crab in the study area and requested that crab tissue be analyzed for heavy metals. It was found that arsenic and zinc exceeded recommended levels but this result was consistent with all studies that had been completed to date on the Fraser foreshore. ⁵ The RBERC accepted the conclusion from the railway committee that with ongoing dust control, the impact of coal dust on water quality, soil and vegetation would be slight or negligible.

¹ Duggan, D.M. and J.L. Luternauer. 1985. Development- Induced tidal flat erosion, Fraser River Delta, British Columbia

² Pearce, B.C., and J. McBride. 1977. A preliminary study on the occurrence of coal dust in Roberts Bank sediments and the effects of coal dust on selected fauna.

³ Hillaby, B.A. 1981. The effects of coal dust on ventilation and oxygen consumption in the Dungeness crab. Cancer magister.

⁴ Gough, G. 1981. Environmental impact review: Roberts Bank Port.

⁵ Archibald, D. and R. Bocking. 1983. Annual report summarizing 1981-1982 activities on Roberts Bank - Crab Habitat Loss and Dredge Monitoring Program.

	General Recommendation	Resolution Undertaken by RBERC
7	Take measures to reduce the potential for bird mortality from overhead wires and stanchions.	RBERC and BC Hydro commissioned a bird mortality study, which was completed in 1995. ⁶ The study determined that numerous collisions occurred and recommended mitigation measures including: burying power lines; marking the uppermost conductor with markers such as streamers; changing the configuration of the three wires from triangular to horizontal; adding a fourth higher non conducting wires to which markers could be attached and; growing trees parallel to the power lines.
8	To allay misgivings that agricultural lands adjacent to Roberts Bank are being held to support future port related development, consideration should be given by the appropriate provincial authorities to turning over control of these lands, now administered by the British Columbia Harbours Board, to an agency with a clear agricultural mandate.	RBERC recommended that consideration should be given by the appropriate provincial authority to turn over control of the lands to an agency with a clear agricultural mandate. In the late 90's the Ministry of Environment, Lands and Parks (MELP) took control of the lands and all of the agricultural lands near Roberts Bank were put within the Agricultural Land Reserve (ALR). As part of this commitment of land to the ALR, the government established the Fraser Delta Provincial Farmlands Advisory Committee. The Committee consisted of government and non-government stakeholders interested in agricultural and environmental management issues in the area. The committee advised BC MELP on the management of these lands.
9	<p>Appropriate government agencies undertake additional studies on the following:</p> <ul style="list-style-type: none"> a. Utilization by salmonids, herring and crabs of the intercauseway and other adjacent zones of Roberts Bank, including food chains and habitats on which these species depend. b. Possible interruptive effects of the existing Roberts Bank and ferry terminal causeways on the orientation of juvenile salmonids in their utilization of Roberts Bank and the intercauseway area. c. Migratory bird populations and habitat utilization by area, both between the causeways and on Roberts Bank in general. 	<p>Program commitments and fiscal restraints prevented the government agencies from responding fully to the Panel's recommendation of additional studies on salmonid, herring, and crab use of the intercauseway area and adjacent zones as well as migratory bird population and habitat utilization studies. The RBERC did commission some studies, these included the DFO's investigation of juvenile fish habitat use adjacent to the port and a four year investigation of the population structure, food preferences and habitat requirement of Dungeness crab.^{7,8,9,10,11}</p> <p>Other RBERC initiatives, aside from implementing the recommendations of the panel, included the commissioning of several studies to further explore the Port expansions impact on marine and estuarine habitats at Roberts Bank. RBERC also commissioned three studies between 1982 and 1985 to study the eelgrass ecosystem and developed a habitat compensation program to ensure that no net loss of productivity would result from the Port expansion.^{12,13,14}</p>

⁶ Burger, Alan E. and Alice E. V. Cassidy. 1995. Impacts of Overhead Transmission Wires on Birds at the Roberts Bank Superport in 1994-1995.

⁷ Levings, C.D. et al. 1983. Results of preliminary mark-recapture experiments with juvenile salmonids on Sturgeon and Roberts Bank, Fraser River Estuary.

⁸ Levings, C.D. 1985. Juvenile salmonids use of habitats altered by a coal port in the Fraser River Estuary, British Columbia.

⁹ MacDonald, A. 1984. Utilization of Nearshore Habitats by Juvenile Salmon and Herring - Southern Roberts Bank, BC.

¹⁰ Waddell, B. 1984. Roberts Bank Crab Habitat Loss Program: 1983 annual report. (Revised 1986)

¹¹ Waddell, B. 1985. Roberts Bank Crab Habitat Loss Program study: Final report (1981-1984). (Revised 1986)

¹² Aim Ecological Consultants. 1985. A Report on Eelgrass and Marsh Community Changes in the Vicinity of Roberts Bank Port

¹³ Harrison, P.G. 1984. The biology of sea grasses in the intercauseway area of Roberts Bank, B.C.

¹⁴ Tomlins, Geoffrey F. 1982. Satellite remote sensing for monitoring construction impacts at Roberts Bank Port: Phase II Study. Project Number 1-12-352

**Table 3 Summary of Reduced Expansion Recommendations from 1979 FEARO Panel
Environmental Assessment Report along with the Resolutions Undertaken by RBERC**

	Reduced Expansion Recommendation	Resolution Undertaken by RBERC
1	Any proposed expansion is tested on a hydraulic model, where currents and wave action can be measured in order to determine a suitable design to avoid excessive erosion of eelgrass beds and other benthic habitat.	Various configurations of terminal and dredged basin layouts were tested on a 1:600 horizontal scale hydraulic model and the modelled area extended from the Steveston Jetty to Point Roberts. Results showed that the enlarged ship channel and turning basin recommended in the coast guard report for reasons of navigational safety would result in insignificant changes to maximum flow velocities over the intercauseway eel grass beds. It was further demonstrated that the addition of two terminals to the west of the causeway would not affect eelgrass beds adjacent to the terminal.
2	A schedule of construction operations involving any work in, or disruption to, the intertidal and sub-tidal areas of Roberts Bank is developed to minimize impacts on fish and crabs.	A schedule of construction was developed to restrict dredging activities at Roberts Bank to avoid sensitive periods for fish and crabs. RBERC also requested that various monitoring programs be implemented by the NHB for the period of construction. These studies included, a study on the significance of suction dredges on the biota in the area, on crab movement, and on the occurrence of juvenile herring and salmonids in the port area.
3	Coal dust suppression from both loaded and empty rail cars is further investigated and additional application of binders or other dust control techniques along the rail route be considered.	The Roberts Bank expansion railway committee self-formed to study coal dust suppression and noise mitigation; it included representatives from five railway companies, two from the harbours boards, and one from Westshore Terminals. This committee undertook coal dust studies and noise level studies at the request of RBERC. ¹⁵
4	For any new coal terminal, an automated coal dust suppression system is installed, similar to that presently in use at the existing terminal, with improved measures to deal with the effects of periodic occurrences of high winds.	With regards to the possible installation of an automated coal dust suppression system, Westshore Terminals Ltd. undertook an extensive research program into dust control of coal storage piles and developed guidelines and performance specifications for the new spray system to be employed at their expanded operation at Roberts Bank. RBERC reviewed the plans for the proposed system to ensure that this Panel recommendation was fulfilled. In an effort to estimate any incremental effects of additional coal handling facilities on air quality in the area, the Port of Vancouver conducted a baseline study of pre-expansion dust fall conditions within the residential area of Tsawwassen and at the Tsawwassen ferry terminal. ¹⁶ The waste management program required regular monitoring of dust fall at the terminal, and it was found that the total dust fall was found to be well within air quality objectives.
5	Effective noise mitigation for locomotives idling at the terminal be identified and implemented. This could involve shutting down engines during unloading operations.	The Roberts Bank expansion railway committee self-formed to study coal dust suppression and noise mitigation; it included representatives from five railway companies, two from the harbours boards, and one from Westshore Terminals. This committee undertook coal dust studies and noise level studies at the request of RBERC.
6	Site illumination is designed to minimize impacts on birds.	RBERC commissioned the firm of Environmental Management Associates to quantitatively assess the potential impacts of site illumination to birds. The field studies revealed that the impact of light (i.e. less darkness) at the existing port facility did not contribute significantly to bird mortalities. On the basis of these studies no further action was taken on this Panel recommendation.

¹⁵ Cope, D., D.Poon, E. Wituschek, et al. 1986. Report on the emission and control of fugitive coal dust from coal trains.

¹⁶ B.C. Research. 1973. Coal dust study - Roberts Bank.

	Reduced Expansion Recommendation	Resolution Undertaken by RBERC
7	Tangible costs of mitigation measures and special services occasioned by the project are included in the project cost-benefit analysis.	RBERC commissioned the firm of Environmental Management Associates to assess the tangible costs of mitigation measures and special services occasioned by the project. The VPC initiated an internal review of costs and benefits, which included the \$1.5 million for the RBERC's work and since the VPC is a federal crown corporation, which operates on a complete cost recovery basis for capital projects, the expansion was approved. On the basis of these studies no further action was taken on this panel recommendation.
8	The proponent to serve as a point of contact for the public and technical agencies with regard to environmental matters, during the design and construction phases of the project, identifies a single agent.	The Port fulfilled its obligation for the monitoring of and the implementation of recommendations given by the Panel, with the formation of RBERC. RBERC have acted as a mechanism for dealing with the myriad of concerns and issues associated with the Roberts Bank Port expansion, RBERC has also served as the principal contact for individuals, companies and government agencies with regard to environmental matters and has provided an appropriate arena where representatives from all levels of government can raise, discuss and resolve environmental and related concerns associated with the Port expansion.
9	The federal Department of the Environment take the initiative to organize the monitoring of the implementation of the recommendations of this Panel, and the requirements of the various levels of government.	
10	<p>The Panel believes there would be little further value in the proponent preparing and submitting a new EIS for a reduced expansion. However, further work is required with respect to an acceptable environmental design for a reduced development. Related to this, there is a need for the proponent to prepare and make public reports on the following matters:</p> <ol style="list-style-type: none"> a. The design of the reduced port expansion including the configuration of all dredge and fill areas and ship berthing locations. This design should reflect the physical limitations outlined above. b. An assessment of the social/community impacts of a reduced development and an evaluation of the mitigation measures which will be required to minimize the resultant negative impacts. c. A description of who would be responsible for implementing all required mitigation measures and how they would be implemented. This is to include those measures outside the proponent's direct jurisdiction. d. A description of how the Panel's recommendations will be incorporated into the design and implementation of the project. 	<p>Concerning the Port expansion directly, the final design of the new terminals, the expanded causeway and the ship berthing locations took into account the environmental concerns identified by the Panel, as well as the ship safety requirements of the Canadian coast guard.</p> <p>RBERC also commissioned a study on the socio-economic impacts of the port expansion on the municipality of Delta, and in 1981 Swan Wooster Engineering Co. produced a report for the railway committee, which described the major social and environmental impacts of increased rail traffic at Roberts Bank.^{17,18}</p>

¹⁷ Swan Wooster Engineering Co. 1982. An impact assessment of the expansion of Roberts Bank on Delta. (Draft)

¹⁸ Swan Wooster Engineering. 1981. An assessment of the Effects of Traffic Growth on the Railway System Serving Roberts Bank Stage II. 2 Volumes. Roberts Bank Expansion Railway Committee

**Table 4 Recommendations Given by the Independent Project Review Panel on the
1992 Proposed Container Terminal at Roberts Bank on Pod 4**

	Recommendation	Reason/ Resolution
1	<p>Economic Benefits to Local Community</p> <ol style="list-style-type: none"> a. Begin discussion with the Tsawwassen First Nation oriented to establishing an ongoing cooperative arrangement to ensure that Band members can benefit from employment or other opportunities associated with the container terminal or other development at the Roberts Bank Terminal b. Establish ties with the local business community to maximize the opportunities for local economic benefits that are consistent with broad community goals. 	<p>The Panel concluded that the proposed container terminal at Roberts Bank would be economically beneficial on a national and regional scale on the basis of the information that was provided during the hearings. Also the Panel wished to ensure that there were economic returns to the local community as well.</p> <ul style="list-style-type: none"> • Preparation of a cost/benefit analysis to compare the cost of providing municipal services to Roberts Bank with the combined taxes which would be received when the terminal was operational. • Formation of the Deltaport Road Committee, they considered economic, social, environmental and agricultural impacts in their review. • Establishment of an ongoing liaison with the Tsawwassen First Nation to assist with the development of employment training and business opportunities at Roberts Bank. • Coordination of a trade show for business opportunities at Roberts Bank by VPC, and Delta Chamber of Commerce with participation from the Tsawwassen, Ladner and Scott Road Business Associations.
2	<p>Local Traffic</p> <ol style="list-style-type: none"> a. Prior to making a decision to construct Deltaport Way, review the benefits and costs (economic, environmental and social) of other options for securing road access or eliminating the need for truck access (i.e. by moving all containers by rail) <ol style="list-style-type: none"> i) In so doing, consider options to the Deltaport Way extension in light of concerns over the use of agricultural land, disruption to agricultural activities, safety, loss of habitat, construction costs, and the longer term inputs on the overall transportation system in Delta. ii) In so doing, also seek additional input from local farmers, the Municipality of Delta, the Ministry of Transportation and Highways, the Ministry of Environment, Lands and Parks, and the Agricultural Land Commission. <p>If road upgrading or construction does take place, consider with local farmers a variety of means for providing mutually satisfactory crossings, minimizing disruption and compensating for disruptions occurred. Suggestions heard by the Panel include using the top soil for agricultural purposes, replotting land into practical farm units, improving drainage patterns, expansion of irrigation, relocation of power lines, installation of fences and laser levelling of fields.</p>	<p>The traffic issue was one of the major concerns, due to concerns about the loss of 8.8 hectares of farmland, and while several road access alternatives were mentioned, the Panel was not aware of what options to Deltaport Way might be viable. Consequently the Panel concluded that it would be appropriate for the Port to revisit the option of moving all containers by rail.</p> <ul style="list-style-type: none"> • At the request of the Delta Council, the VPC agreed to provide mitigation in the way of an Arthur Drive overpass at the rail crossing and Deltaport Way intersection. • Peat Marwick Stevenson & Kellogg investigated the economic, social and environmental feasibility of an off dock inter-modal terminal, located east of highway 17 in order to avoid increased truck traffic. • The Deltaport Road Committee would determine if the Deltaport Way extension is the best route for improved road access to Roberts Bank.

	Recommendation	Reason/ Resolution
3	<p>Environmental Mitigation</p> <ol style="list-style-type: none"> a. Implement all plans specified in the Environmental Appraisal Document (EAD) for mitigating marine and upland impacts. These include the creation of fish habitat in the terminal itself and an artificial reef, and the creation of wildlife habitat in the upland area. b. Minimize noise impacts from idling trains by maximizing the capacity for holding trains on the causeway. c. Minimize air quality impacts by introducing programs to reduce vehicle emissions from employee traffic and any truck traffic in accordance with emission reduction goals for the Greater Vancouver Regional District. This might include some form of public transit for employees. 	<p>In regards to environmental impacts the Panel was satisfied that the mitigation plans proposed in the EAD would effectively mitigate impacts to the marine and upland environment. Although additional effort would be required to minimize air quality and noise impacts. Agreed to coordinate marine construction with DFO and would comply with their instructions to minimize the marine impact during construction.</p> <ul style="list-style-type: none"> • Independent environmental monitoring program would be implemented for the container terminal as well as any future developments at Roberts Bank. • The Harbour Masters Office of VPC had policy in place to inspect the ballast water of all ships arriving at Roberts to ensure that only clean water is discharged. • Agreed to undertake further investigation of the potential noise from container trains operating at Roberts Bank. • VPC's environmental staff and BC Hydro, together, developed a marking system that would increase the visibility of the overhead power lines on the causeway and thereby reduce potential bird collisions. BC Hydro installed markings on certain wires close to the shoreline where the problem was most prevalent and monitored the area for a year. • At the Panel's request the RBERC, chaired by Environment Canada, was reconvened to complete its mandate from the 1982 Robert's Bank expansion.
4	<p>Port Planning</p> <ol style="list-style-type: none"> a. Consider establishing a community liaison committee to routinely inform the community of Delta about the VPC's plans and ideas respecting the development of the Roberts Bank Terminal. 	<p>The Panel concluded that it was imperative for the Port and the community to achieve some form of mutual coexistence based on shared objectives and mutual trust. Ports, in developing their competitive advantage, also had a responsibility to the environment and the community in which they operated.</p> <ul style="list-style-type: none"> • Coordination of a community liaison committee, which would provide ongoing liaison between VPC and the community of Delta on port planning and development issues at Roberts Bank. • Updating the Emergency Contingency Plan.

	Recommendation	Reason/ Resolution
5	<p>Transportation and Land Use Planning</p> <p>a. All parties associated with management of transportation and land use in the Roberts Bank area make known to the public their long term plans. The relevant parties include the Municipality of Delta, the Ministry of Environment, Lands and Parks, the Ministry of Transportation and Highways, BC Ferry Corporation, BC Rail, Westshore Terminals and the Vancouver Port Corporation</p> <p>i) The VPC utilize its influence to ensure the development of a long-term plan to address land use in the so-called ‘back-up’ lands and transportation in Delta. The goal of the exercise would be to address cumulative impacts of land use activities, designate long term sustainable land uses for the ‘back-up’ lands and develop acceptable solutions to the present and projected traffic network problems.</p> <p>ii) Participants in the exercise should include, but need not be limited to the following: The Municipality of Delta, the Tsawwassen First Nation, the Greater Vancouver Regional District, the Ministry of Environment, Lands and Parks, the Ministry of Transportation and Highways, the Ministry of Agriculture, Fisheries and Food, and the Vancouver Port Corporation.</p> <p>iii) The VPC participate in a public consultation program designed to incorporate public expertise and values into the planning exercises. Consideration should be given to providing participant funding to assist the public in its involvement.</p>	<p>The panel noted that it was not the VPC’s responsibility to produce a comprehensive transportation plan to assess all the impacts, but they suggested that it was the VPC’s responsibility, in conjunction with other major traffic generators that future development was consistent with the communities long term goals and sustainable development criteria. The Panel also concluded that the restoration of trust between the development agencies and the community of Delta was of vital importance for the long term economic and social viability of the region and that an open and consultative planning process may begin to re-establish this trust.</p> <ul style="list-style-type: none"> • Assistance from the Delta Council was requested to implement a land use review and committed matching funds up to \$25,000 for the planning study when the terms of reference were established. The VPC also prepared to participate in other land use and transportation review such as the Boundary Bay land use study and the GVRD Transport 2021 study. • The Harbour Masters Office of the VPC discussed three proposed recommendations with the Canadian Coast Guard and it was suggested that further consideration be deferred until the Traffic Safety board had completed its investigation of the ferry/coal ship collision in 1992.

Table 5 Recommendations and Rationale from the Project Environmental Review Panel for the 1995 Proposed Agricultural Handling Facility on Pod 3

	Recommendations	Reasons/ Rationale
1	Assess potential impacts of additional nutrient loading in the intercauseway area and design a cooperative research and monitoring program to evaluate its long-term effects.	The technical specialist on biology and ecology commented that little was known about the accumulation of organic matter from dying eelgrass in the poorly flushed intercauseway area, and concern had been expressed that nutrient enrichment was occurring in the area.
2	Provide necessary details on engineering design and construction equipment, methods and scheduling to the Department of Fisheries and Oceans to identify any requirements for habitat compensation and to define "construction windows".	Although introduced habitats supported a variety of organisms they did not compensate for estuarine mudflats that had been lost to the development of port facilities. There also was not enough detailed engineering information to fully understand the potential impacts of the pilings for a marine pier and vessel berth and their construction on marine habitat close to the proposed facilities.
3	Preparation of an inventory of marine invertebrates and fish of traditional importance in the Robert Bank area.	The TFN noted the lack of information in the EAD on the presence, abundance and condition of fish and invertebrates of traditional importance. Also concerns on the Dungeness crab population and other invertebrates and fish were expressed due to construction activities therefore the panel recommended that an inventory of marine species of traditional importance be prepared.
4	Develop and implement a strategy to phase out overhead power lines on the Roberts Bank causeway by the year 2002.	The Panel recognized the international significance of the Roberts Bank area for migratory birds and the importance of protecting this resource. The bird mortality due to collisions with overhead wires along the causeway was felt to be an ongoing issue and therefore unacceptable.
5	<ul style="list-style-type: none"> a. Collect data to characterize the flight movements of birds and abundance by species over the pods during spring and fall migration; b. Develop specific design changes and operating procedures to minimize bird strikes with the proposed structures and; c. Develop a research and monitoring program for assessing the impacts of the proposed facility on birds. 	New structures, especially tall storage bins, conveyers and other elevated equipment at the proposed grain handling facility may have presented new obstacles to bird movements and therefore may have contributed to increased bird mortality. Data on bird movements over the terminal site were lacking but were required in order to address the problem.
6	Immediately undertake emissions inventory, and analysis of dust samples in the Roberts Bank area to establish baseline information on emission levels and their sources.	Although the proposed grain terminal would not have a major impact on air quality, the predicted emissions level could be more readily interpreted and understood in the context of a complete inventory of emissions from existing sources in the vicinity of Roberts Bank. Such an inventory would also provide baseline data for long-term air quality monitoring to track changes in ambient air quality. Regular collection and analysis of dust samples in the vicinity of Roberts Bank would document the origin and nature of the dust particles. Reinstatement of a GVRD air quality monitoring station in the Roberts Bank area would support long-term monitoring.
7	Re-establish air quality monitoring station(s), with the GVRD, in the vicinity of Roberts Bank in support of long-term air quality modelling and monitoring.	
8	Investigate the feasibility of using less polluting alternative fuels for operating equipment at Pod 3.	

	Recommendations	Reasons/ Rationale
9	<p>a. Undertake a noise and vibration impact assessment that accurately characterizes the predicted number and frequency of individual intermittent noise events and vibration associated with the proposed agricultural products handling facility and other terminal facilities and;</p> <p>b. Implement appropriate mitigative measures for noise and vibration.</p>	<p>For the proposed agricultural handling facility where noise from sources such as moving trains and train whistles would be intermittent and unpredictable, noise impacts would be more appropriately assessed by analyzing changes in the numbers and intensities of various intrusive noise events that startle people, disrupt sleep and interrupt conversation.</p>
10	<p>The contractors comply with the corporation of Delta's noise bylaw during project construction.</p>	<p>Pile driving would likely be the most significant source of construction noise. Mitigation could be achieved through selection of equipment and/or limits on the hours during which pile driving is allowed.</p>
11	<p>Initiation of a program to pursue employment opportunities for residents of TFN and Delta through direct employment, services to the facility and construction.</p>	<p>The VPC made a commitment during the public meetings to actively pursue employment opportunities for the TFN through direct employment. The panel believed that the commitment should be extended to Delta residents where possible.</p>
12	<p>VPC establish a business partnership with the TFN to identify and pursue appropriate business and economic development opportunities at Roberts Bank and in related support services.</p>	<p>The VPC indicated an active interest in working with the TFN to pursue employment and business opportunities.</p>
13	<p>Pursue ways and means of enhancing recreational amenities for residents of Delta and the TFN through measures that improve pedestrian, cyclist and boat access along the foreshore and causeway.</p>	<p>Some of the review participants suggested that the proposed development provided opportunities to improve pedestrian, cyclist and boater access along the foreshore. Others had pointed out the lack of recreational access along the causeway.</p>
14	<p>VPC confirm access to existing crab fishing areas near the ship berthing area and explore with B.C. Rail possibilities for providing access for launching fishing boats from the causeway.</p>	<p>Concerns were expressed that marine activity as related to the proposed development could interfere with fish harvesting activities especially close to the vessel berthing facility. The TFN had active fishing licences but were unable to launch boats from the Tsawwassen reserve.</p>
15	<p>CSWP meet with the Delta Farmers Institute to finalize arrangements and procedures for local farmers to deliver their grain directly to the proposed agricultural products handling facility.</p>	<p>Agriculture is an important part of Delta's economy. The panel encouraged the VPC to provide the Corporation of Delta with a progress report on planned improvements to agricultural land and a status report on arrangements for compensation for agricultural land used for construction of the port road. Farmers had indicated that some local crops such as potatoes were grown in rotation with various high quality grain crops, but due to limited market opportunities farmers would sell their grain as lower value animal feed. This problem could be remedied if the proposed facility provided access for local farmers to sell their grain into the world market.</p>
16	<p>VPC ensure that any proposal to handle products other than grains and oil seeds at Pod 3 be subjected to a formal public review.</p>	<p>The Panel was told that the municipality was seeking assurance that only dry agricultural products would be handled at the site with processing limited to cleaning and drying. Delta also had stated that no new products or processing activities should be incorporated into operations at Pod 3 without a separate EAD being prepared and reviewed.</p>

	Recommendations	Reasons/ Rationale
17	Consideration of aesthetics and visual impacts in the design of the proposed facility and landscaping of the site and seek comments from the Corporation of Delta and the TFN.	Concerns were raised about aesthetics, it was suggested that visual impacts and aesthetics should be considered in the design of the proposed facility. The corporation of Delta said that the municipality would have liked to be able to comment on the design.
18	VPC and the Corporation of Delta continue to work to resolve outstanding issues regarding policing, firefighting, firefighting equipment, training firefighters and provision of adequate water flows for emergency response at Roberts Bank in a timely manner.	Delta had indicated that although the Delta Police would be able to respond to minor incidents, a long-term solution to policing at the port was required and need to be addressed by the VPC. Firefighting was also an issue that had to be dealt with.
19	Complete a comprehensive emergency response plan at least 120 days before the commissioning of the facility and make it available for public review.	Measures that had been taken to reduce the risk included locating all fuel storage tanks above ground inside impermeable berms and preparing and filing a complete emergency response plan at least 120 days before commissioning of the proposed facility.
20	VPC implement measures immediately to reduce the risk of introducing exotic marine species in ship's ballast water by requiring mid-ocean ballast exchange for all vessels loading at Roberts Bank.	The VPC routinely checked the ballast water of all vessels for oil, however no measures were in place to prevent the accidental release of exotic species. Exchange of ballast water in mid-ocean was a possibility to reduce the risk of transporting an exotic species to a foreign port.
21	VPC apply strict enforcement measures to ensure that effective rat control is achieved through proper use of rat guards and other control measures.	Concerns had been expressed about pests that would be attracted to the proposed development in spite of rigorous pest control measures. Also there were concerns about the potential effects of pesticides on non-target organisms such as fish, shellfish, birds, and mammals.
22	Conduct regular monitoring for pesticide residues in non-target biota.	
23	<p>a. Obtain permits for waste disposal and discharge of liquid effluents from the appropriate municipal, regional and provincial government agencies, and;</p> <p>b. Develop effective spill response plans including spill prevention and mitigation measures for all toxics to be handled at the site.</p>	The Panel heard concerns that contaminants in storm water discharge would contribute to chronic pollution of the Fraser River estuary and eutrophication of the intercauseway area. Participants of the review expressed concern that not all toxic substances would be removed from storm water, and furthermore, that the potential environmental effects of such discharges could not be properly assessed without complete information on the types and quantities of toxic materials to be stored or used at the site.
24	<p>a. Prepare and implement a comprehensive environmental management plan for construction, operation and decommissioning that includes a mitigation and monitoring program for responding to specific environmental problems as they arise, and;</p> <p>b. Make the environmental management plan available to the public at least 120 days prior to commissioning of the facility.</p>	Adequate monitoring programs would be required to determine the effectiveness of various mitigative measures. The Panel believed that a comprehensive environmental performance and accountability during construction, operation, and decommissioning should be done. An environmental management plan should address specific environmental problems and related programs for mitigation and monitoring.

	Recommendations	Reasons/ Rationale
25	<p>VPC may proceed with the proposed agricultural products handling facility only if:</p> <ol style="list-style-type: none"> a. The proponents and the VPC address the deficiencies in the EAD by implementing the recommendations in this report, and; b. A process for addressing cumulative effects in the Roberts Bank area is in place. 	<p>Due to the large number of developments at Roberts Bank in the last 30 years, the Panel believed that it could not recommend unconditional acceptance of the proposed developments in the absence of comprehensive information on the degree to which the proposed project would add to cumulative effects in the Roberts Bank area.</p>
26	<p>VPC:</p> <ol style="list-style-type: none"> a. Act as convener in establishing a process for addressing cumulative effects in the Roberts Bank area, b. Invite the proponents, the terminal operators at Roberts Bank, the corporation of Delta, TFN, BC Ferries and MELP to be full partners in the process and, c. Pursue a partnership approach for addressing cumulative effects in the Roberts Bank area. 	