

ITEM	2
MANAGER'S REPORT #	16
COUNCIL MEETING	95/04/03

1995 March 21

TO: CITY MANAGER

FROM: DIRECTOR PLANNING & BUILDING

OUR FILE: 15.601

SUBJECT: HABITAT ENHANCEMENT PROGRAM,
BURNABY FRASER FORESHORE PARK

PURPOSE: To provide Council with information in support of a recommendation to finalize arrangements with the Department of Fisheries and Oceans to proceed with the second phase of a joint habitat enhancement program on City lands adjacent to the Fraser River.

RECOMMENDATION:

1. THAT Council authorize the expenditure of \$75,000 for the second phase of the Burnaby Fraser Foreshore Park Habitat Enhancement Program based on an equal contribution by the Department of Fisheries and Oceans as outlined in this report.

REPORT

1.0 BACKGROUND

The City has acquired a 40 acre parcel as a destination park area as a component of the development of the Burnaby Fraser Foreshore Park system (Figure 1 *attached*). The destination park is a mixture of disturbed and native landscape. Approximately one-third of the western portion of the site was preloaded some 30 years ago with a 2 metre depth of sand fill. The rest of the area is a mixture of native cottonwood woodland and lowland marsh. The proximity of the site to the North Arm of the Fraser River and its natural wetland and forest make it an important wildlife refuge.

This area is a prime candidate for habitat restoration as the estuary plays an important role in the life history and survival of many fish and wildlife species. Estuaries provide important rearing habitat for juvenile salmon. Salmon spend several weeks feeding and rearing in the tidal sloughs and channels before they migrate to the ocean. This estuarine feeding and rearing phase is essential to the survival of juvenile salmon. Other fish species use the estuary backwaters for nursing and rearing of juvenile stages. These fish habitat areas are also important for the production of fish food organisms which are washed into the estuary waters during outgoing tidal cycles and are made available to migrating and resident fish. Unfortunately, very little of this backwater type of fish habitat remains in the Estuary, especially in areas such as the North Arm of the Fraser River where dyking has eliminated the intertidal sloughs and off-channel areas.

2.0 HABITAT ENHANCEMENT PROGRAM

In light of the above the City has, in partnership with the Department of Fisheries and Oceans (DFO), embarked on a Habitat Enhancement Program to restore estuarine processes to this section of the estuary. Council was advised that the Program was expected to proceed over the next 2 to 3 years, with details of phasing and funding to be presented to the Parks and Recreation Commission and Council as they become available.

On 1995 March 15 the Commission received the **attached** Report No. 5, Item 3 from the Director Recreation and Cultural Services and adopted the following recommendations:

1. *THAT modifications to the Conceptual Master Plan for Terminus Park be approved.*
2. *THAT the Department of Fisheries and Oceans' Phase II development be approved.*
3. *THAT initial development of the grass meadow be approved.*

3.0 DEVELOPMENT PHASING AND FINANCING

Council, at the 1995 July 25 meeting, requested staff to submit a report on the overall projected cost of the habitat enhancement component of the park development. This information is as follows:

3.1 First Phase, West Marsh and Tidal Wetland

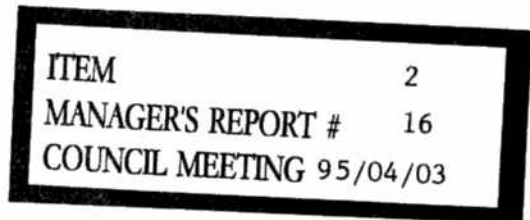
Council, on 1994 July 25, authorized an expenditure of \$50,000 for the first phase based on an equal contribution by DFO. In actual fact additional funds became available and DFO was able to provide \$120,000 for the initial phase.

3.2 Second Phase, East Marsh and Tidal Wetland

As can be seen on Figure 3 of the Commission Report, the east marsh and tidal wetland components are to be phased. Provision has been made in the Provisional 1995 to 1999 Capital Program for an expenditure of \$75,000 in 1995 for the Phase II Works. Matching funds are to be provided by DFO.

3.3 Third Phase, East Marsh and Tidal Wetland

A further allocation of \$75,000 has been made for 1996 to complete the works. Again a matching contribution by DFO is anticipated.



Details of the works to be undertaken in each phase are contained in the attached report. As noted therein, there are additional benefits to the City in using existing sand fill in other areas. A geotechnical report has confirmed that the sand is a valuable resource because of its texture and consistency, and it is the Parks and Recreation Department's intention to use this sand for the construction and maintenance of playfields.

The opportunity to continue the partnership between the City and DFO under the auspices of the Green Plan, Fraser River Action Plan is of benefit to both agencies.

4.0 FUTURE PARK DEVELOPMENT, FINANCING

With the completion of the Fisheries Enhancement Program in 1996, attention will then be directed to the development of park amenities. The Commission has been advised that its future budgets should consider the development of those future amenities as priority items.

In the past the North Fraser Harbour Commission has participated with the City and DFO in habitat development. The Commission has been invited to participate in the current and future programs to the degree to which it can. Harbour Commission staff have expressed interest in this regard and should funding be made available, it will then be possible to include some of the Phase 3 works in the 1995 construction program.

Preliminary discussions with BC Environment staff have indicated a willingness to consider applying Provincial Habitat Conservation Funds to future phases of the overall development/enhancement program. It is envisaged that any such contributions would commence in 1996 and be applied to facility construction (raised boardwalks, trails, observation towers, etc.).

5.0 CONCLUSIONS

The success of the initial phase of the Habitat Enhancement Program for the Burnaby Fraser Foreshore Park is due, in large part, to the fact that the estuary environment enhances the natural appearance and utilization of the park site. The implementation of future phases will increase the aesthetic and habitat values of tidal wetland areas, creating a diversity of natural landscapes which maximize fish and wildlife values.

Planning & Building Department
Re: Habitat Enhancement Program,
Burnaby Fraser Foreshore Park
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This project is also highly compatible with the goals and principles of the City's Environmentally Sensitive Areas Strategy adopted by Council on February 13, 1995.



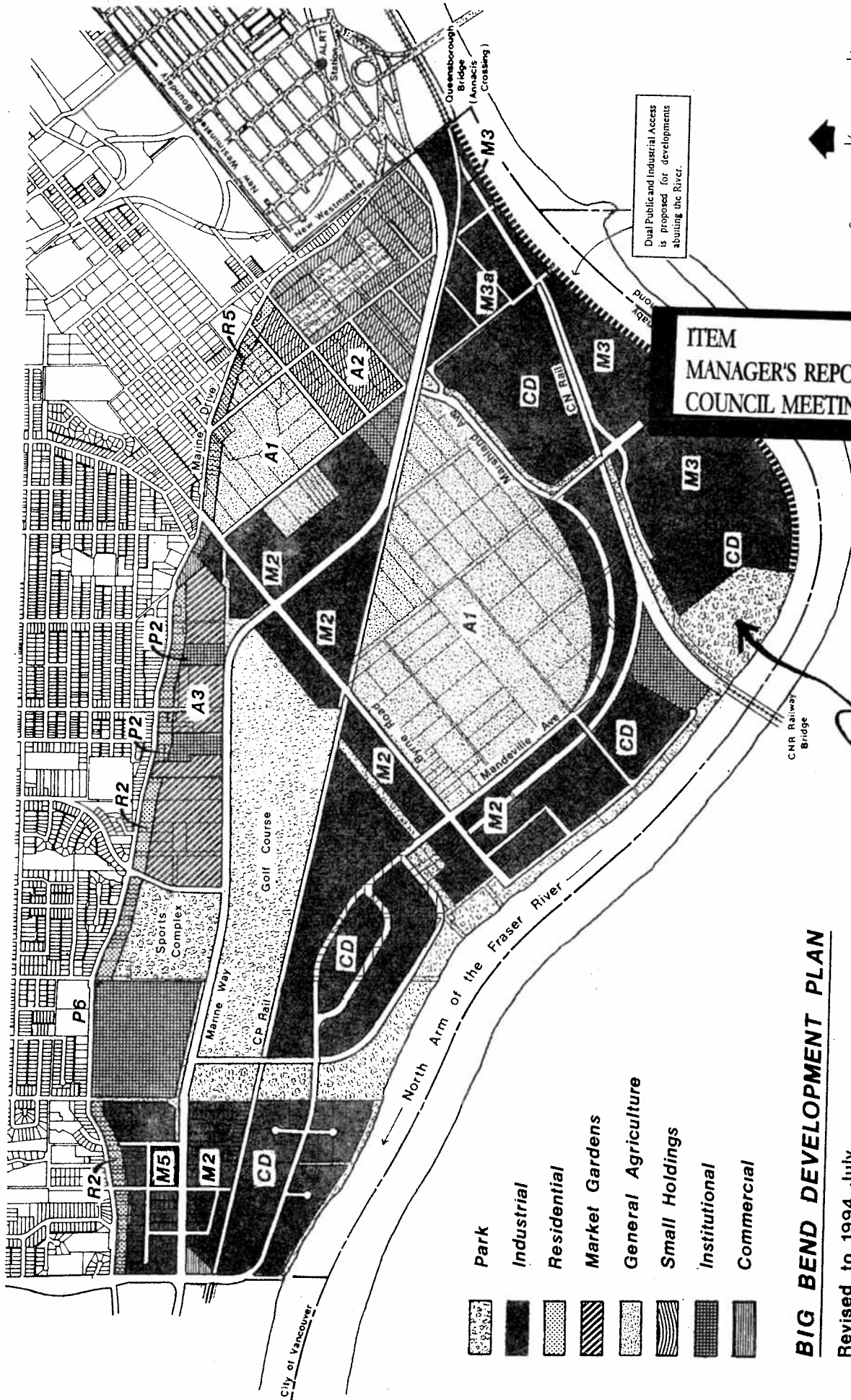
D.G. Stenson, Director
PLANNING & BUILDING

PB/jp

Attachments (2)

cc: Director Recreation & Cultural Services

b(Council7):\nhabitat.rpt



BIG BEND DEVELOPMENT PLAN

Revised to 1994 July

*SITE OF JOINT HABITAT
ENHANCEMENT PROJECT*

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Dual Public and Industrial Access
 is proposed for developments
 abutting the River.



FIGURE 1
 95 MAR 21

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ITEM	3
DIRECTOR'S REPORT NO.	5
COMMISSION MEETING	95/03/15

RE: HABITAT ENHANCEMENT PROGRAM AT TERMINUS PARK

RECOMMENDATIONS:

1. THAT modifications to the Conceptual Master Plan for Terminus Park be approved
2. THAT the Department of Fisheries and Oceans' (DFO) Phase II development be approved
3. THAT initial development of the grass meadow be approved

REPORT

BACKGROUND

In a report to Council on 1993 September 20, Terminus Park was identified as a prime area for environmental protection and enhancement within the Fraser River Estuary. At its meeting of 1994 July 25, City Council approved a recommendation to spend \$50,000 for construction of Phase 1 of the Terminus Park Salmonid Enhancement Project. The project proposed the restoration of estuarine processes to lowland portions of the Terminus Park site through the excavation of intertidal channels. The intertidal areas would provide places for the nursing and rearing phases of juvenile salmon, as well as provide wetland habitat for waterfowl and amphibians. The work was jointly funded between the City of Burnaby and DFO, which contributed \$120,000 to date, under the auspices of the Green Plan, Fraser River Action Plan. At its meeting of 1994 June 01, the Commission approved the Terminus Park Conceptual Master Plan, and endorsed the construction of the first phase of the project.

The purpose of this report is to review the results of Phase 1 of the Salmonid Enhancement Project, and to seek approval for Phase 2 construction and minor design modifications.

PHASE 1 DEVELOPMENT OF DFO PROPOSAL

Phase 1 began in late August of last year, and involved the construction of a marsh and tidal wetland between the sand fill and the west property line (Attachment #1). Approximately 10,000 cubic meters of material was excavated, and the new channel was planted with native marsh plants. The excavated materials were relocated on site in two large mounds which buffer the future parking area, as well as provide vistas into the park. The mounds will continue to be graded and shaped in Phase 2, in order to establish a natural appearance.

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**HABITAT ENHANCEMENT PROGRAM AT
TERMINUS PARK**

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The constructed estuary is highly successful, and entirely natural in its character. The final segment of Phase I will be completed in the next few weeks, as the channel edges are planted with riparian vegetation. The replacement of non-productive weeds with riparian vegetation will effectively restore this landscape to its original highly productive value. The marsh also improves the recreational value of the site by providing increased opportunities for wildlife observations.

CONCEPTUAL MASTER PLAN

The objective of the master plan was to ensure that the existing natural landscapes and ecology be protected and enhanced. To this end, the park program provides opportunities for the enjoyment of passive recreation - walking, cycling, picnicking, fishing, nature interpretation, and fish and wildlife viewing. The approved master plan indicates four recreation suitability zones, each with its own development and program guidelines, as follows:

Zone A - Modification & Zone B - Partial Retention

Zones A and B are highly disturbed areas which lost their native character when a sand preload was placed on the site approximately thirty years ago. In the master plan these areas are identified as most appropriate for car access and parking, park washrooms, picnicking, lawn activities, and open meadow. The existing vegetative cover is dominated by alder and broom. The broom is particularly undesirable, as it inhibits the growth of more productive native species. In the construction of the meadow, islands of significant trees will be retained and the woodland edges enhanced with native trees and shrubs. The meadow itself will be planted with tallgrasses and managed for maximum mammal productivity (mice, voles, etc.) and therefore maximum value to foraging raptors (hawks and owls).

Zone C - Partial Retention: Riverside & Zone D - Preservation

Zones C and D are the areas least able to accommodate development, and are intended to be retained and enhanced as natural environments. Trails and boardwalks and a central bird-watching tower will be featured here, and will provide viewing and interpretation opportunities.

CONCEPTUAL MASTER PLAN: MINOR REVISIONS

The approved conceptual master plan is shown on Attachment #1; the proposed revisions are shown on Attachment #2. The first of two modifications proposed as refinements deals with the central pond featured on the original master plan.

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TERMINUS PARK**

A wildlife biologist from the Ministry of Environment participated in a series of meetings between City staff and DFO last fall. Recommendations were made that the central pond be replaced with a series of channels and riparian vegetation similar to Phase 1. These channels and terraces would provide a greater quantity and diversity of water surface, and thereby increase the amount and diversity of habitat otherwise provided by a central pond. The revised design will also increase opportunity for Salmonid enhancement.

The second modification concerns the proposed east-west channel cutting through the sand fill. The channel was intended to connect the east wetland to the west side, and thereby provide a flushing opportunity for the channels. However, now that the west channel is constructed and functioning, it is apparent that it is being fully flushed by tidal action. As there is no longer any physical need for the connecting channel, and because it would have a negative impact on circulation, safety and aesthetics, it is recommended that it not be constructed.

The above changes have been incorporated into a revised masterplan. These revisions will increase the amount of estuary habitat, and thereby increase wildlife values and further restore the site to its natural condition.

PHASE 2 DEVELOPMENT OF DFO PROPOSAL

The Planning and Building Department has \$75,000 allocated within their 1995 budget for development of the east marsh area. Matching funds will be provided by Department of Fisheries and Oceans under the auspices of the Green Plan, Fraser River Action Plan. Phase 2 will involve the construction of approximately 600 linear meters of channel, which will require the removal of approximately 12,000 cubic meters of soil (Attachment #3). The third and final phase of the work is expected to occur in 1996.

In order for the project to be economically feasible, the excavated material must be kept on site. This can be accomplished by replacing approximately 20,000 square meters of sand fill with the excavated soils. The existing broom and alder trees which currently cover the sand fill will be removed in order to excavate the sand. Once the sand is removed, the excavated native soil will be placed and contoured in a manner appropriate to the design and character of a grass meadow. This work will continue into 1996. Grasses will be seeded after fine grading of the meadow is completed in 1996.

A geotechnical report has confirmed that the sand is a valuable resource because of its texture and consistency, and that it would be an excellent material for the construction and maintenance of playfields.

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This represents a large undertaking which will modify significantly the old sand preload pile. Some disruption of public use will occur during this redevelopment, but the long term benefits will be a restored landscape.

PROPOSED CONSTRUCTION SCHEDULE

The construction of the channels is scheduled to begin in mid-July, after the last nesting period. However, prior to the excavation of the channels, initial clearing and forming of the central meadow will be required this spring.

SUMMARY

The tremendous success of the first phase of the Salmonid Enhancement project is due to the fact that the estuary environment enhances the natural appearance and functioning of the park site. The implementation of Phase 2 will further increase the aesthetic and habitat values of tidal sloughs. At the same time, the removal of sand fill and its replacement with native soils and a meadow will further our objective of creating a diversity of natural landscapes, and therefore maximize fish and wildlife values.

With Commission approval of the construction Phase II, the Director of Planning and Building will be taking a report forward to Council for funding approval. Following completion of the jointly funded Fisheries work in 1996, Commission budgets should consider the development of future park amenities, such as trails and boardwalks, as a priority.







H.M.

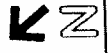
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Attachments (3)

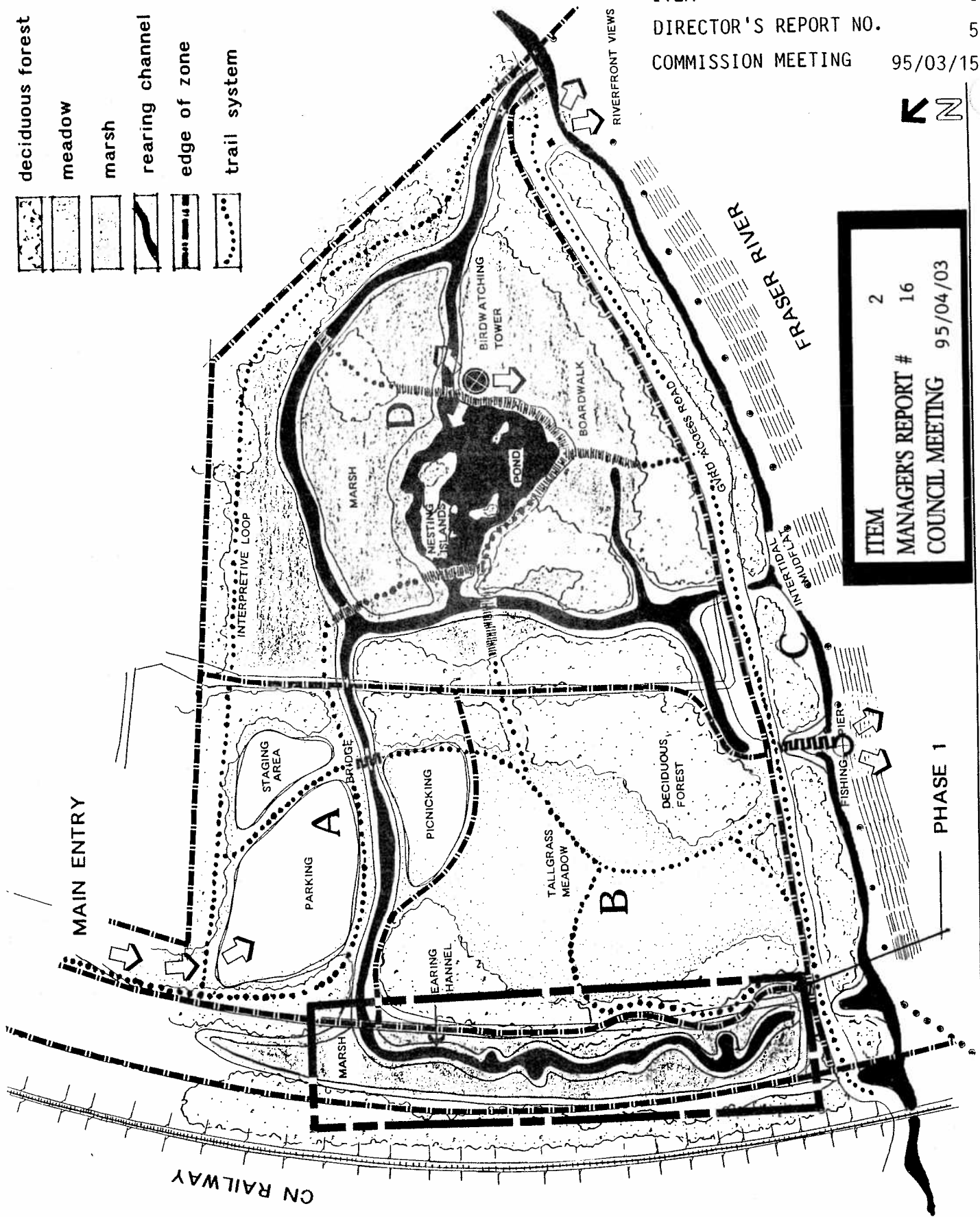
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- cc: Director Planning & Building
- Director Engineering

- LEGEND**
-  deciduous forest
 -  meadow
 -  marsh
 -  rearing channel
 -  edge of zone
 -  trail system



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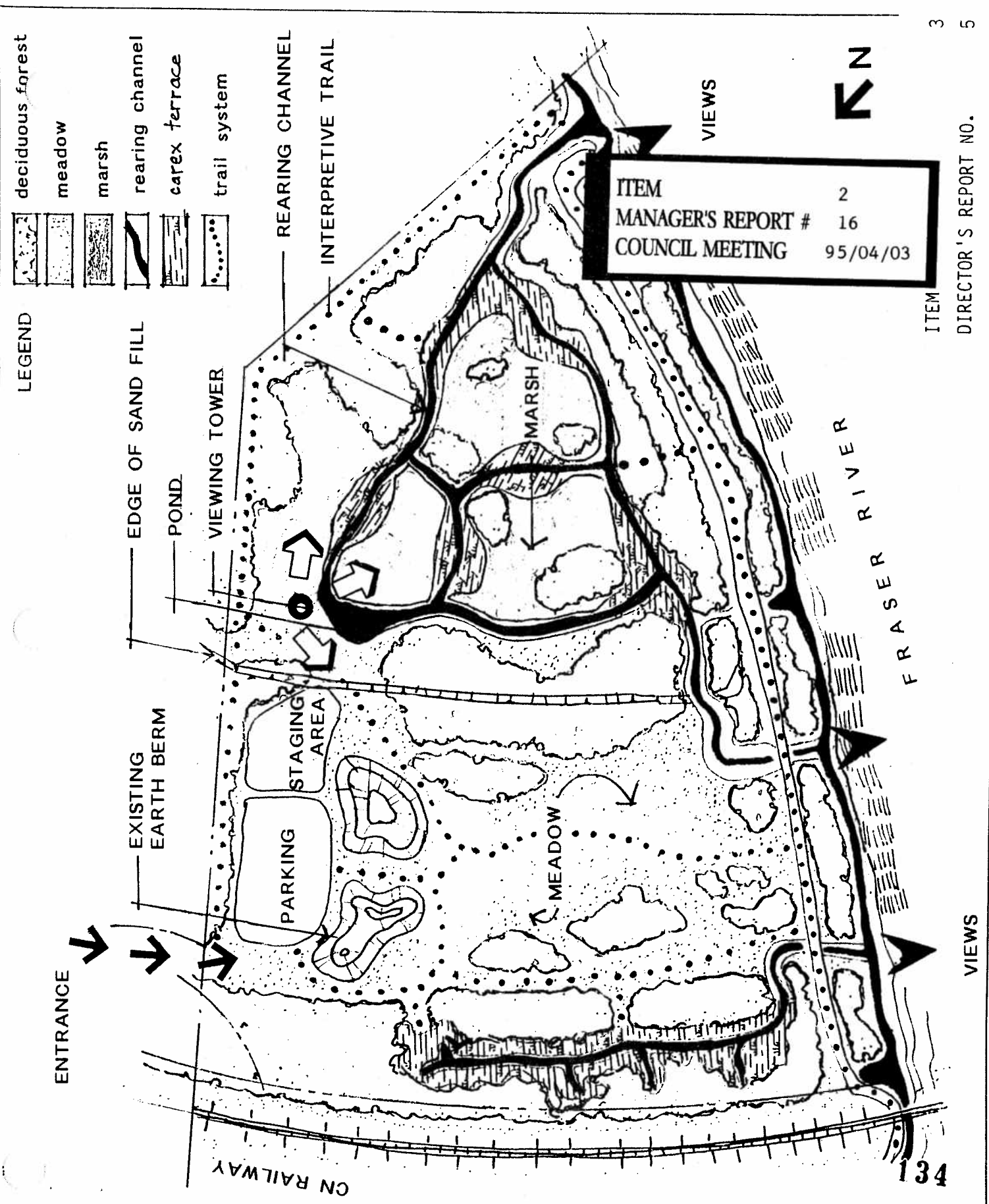
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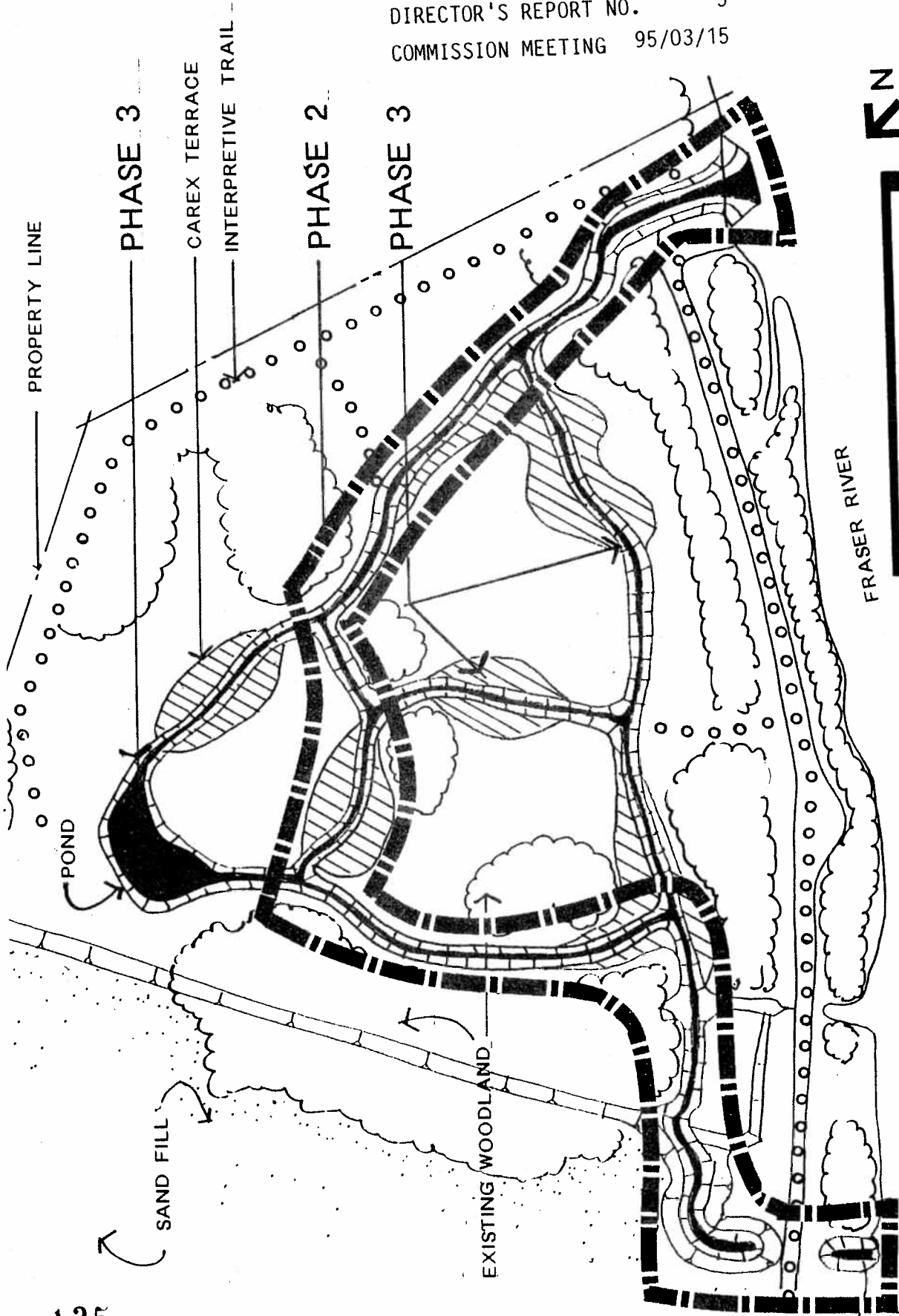
Burnaby
 Parks & Recreation
 Department

Terminus Park Conceptual Master Plan

Drawn By: K. Clark
 Date: May 1994
 Drawing #O.P. 23-6-5s
 Scale N.T.S



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Burnaby
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Terminus Park
 Phase 2: East Marsh

Drawn By: K. Clark
 Date: March 1995
 Drawing #O.P. 23-6-8s
 Scale N.T.S