

FINAL EIR
CHULA VISTA BAYFRONT
REDEVELOPMENT PROJECT
Adopted by
Chula Vista Planning Commission
June 22, 1977

EIR-77-4

Prepared for:

Chula Vista Redevelopment Agency
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INTRODUCTION

This document addresses the environmental impacts of the initial phase of the Chula Vista Bayfront Redevelopment Plan to the most detailed level possible. It is designed to serve as an informational document for the initial series of decisions that must be made by various governmental agencies regarding planning and ultimate land use of the property. This EIR was prepared after a preliminary environmental constraint study identified areas of sensitivity which required special mitigation. The project sponsors considered the environmental sensitivities of the proposed action early in the project planning process and this is reflected in the type and form of mitigation proposed. Further, as required by Federal law, interested responsible agencies were contacted during the preliminary planning to elicit direction and balance in the project.

Persons reviewing this document should keep in mind the fact that the material provided herein is, under State law, informational in nature. It is intended to enable appropriate public agencies to evaluate environmental impacts associated with the project as proposed. The responsible public agencies remain obligated to balance possible adverse effects against other public objectives, including economic and social factors, in determining whether the project is approved.

This environmental impact report is not meant to be used as an engineering document. Likewise, it does not relieve the

Redevelopment Agency of their responsibilities to insure that engineering documents otherwise required for this project are prepared and submitted.

This report is being submitted to the Chula Vista Redevelopment Agency in accordance with their procedural guidelines for implementation of CEQA and the State of California, Guidelines for the Preparation and Evaluation of Environmental Impact Reports under the California Environmental Quality Act of 1970, with recent amendments, as well as procedures established by the National Environmental Policy Act, 1969.

1.0 FINDINGS

This project constitutes the first phase of development of the Chula Vista Bayfront Redevelopment Plan. The proposed project has six distinct actions which have been reviewed for potential impact: 1) the proposed extension and alignment of Tidelines Avenue, 2) the preliminary grading plan for the northern section, 3) development and alignment of utility corridors, 4) the proposed drainage plan for the northern section, 5) the alignments and extensions of F-G Streets and 6) enhancement of impacted and degraded marsh land and upland areas immediately contiguous to roadway improvements. These actions would create the following impacts:

Geotechnical

1. Areas of poorly planned fills and compressible organic mud deposits provide poor foundations for construction. Removal and replacement will be required to avoid subsidence of roadway and utilities.
2. Grading and fill will not balance and approximately 1 million cubic yards of imported fill will be required. Materials could be secured from a variety of local locations. These operations will alter the landform and increase short term erosion potential.

Drainage

1. Crossing of the Sweetwater Marsh with a partial land fill could restrict existing upland drainage if completion occurs prior to the U.S. Corps of Engineers flood control project. Thus, careful sizing and location of culverts is an important mitigation factor.
2. The drainage plans indicate that approximately 75 acres from the redevelopment project will drain to marsh/bay areas. (A reduction of 11 percent from existing conditions.)
3. The existing drainage pattern will be altered. Drainage into Vener Pond, Vener Marsh and the F-G Street Marsh will be prevented. Sediment catch basins will reduce delivery of unwanted sediment. The nature and degree of water quality impacts on the marsh is dependent on future land use mix. General review of anticipated uses however, reveals a contaminate spectrum (nutrients, fertilizers, oils and grease) which is expected to be adverse.

Air Quality

1. The extension of Tidelands Avenue would increase air emissions and would contribute .27 parts per

per million (ppm) in carbon monoxide to the selected receptor point most heavily affected. This would constitute a minor addition to ambient levels, but would allow them to remain within Federal Standards.

Noise

1. Contouring of noise levels reveals no adverse impacts if residential uses are oriented away from roadways.

Terrestrial Biology

1. Natural habitats along the Sweetwater Marsh (approximately 1.5-2.0 acres) possess three (possibly four) floral species considered to be rare and endangered, plus a large stand of mission live-forever and two relic floral species, the snowy
2. The snowy plover and the California Least Tern are known to use the sandy fill areas around the Sweetwater Marsh for nesting activities. Because of nesting activities, these impacts are considered highly significant.

Wetlands Biology

1. Loss of seven acres of the F-G Street Marsh.
2. Burial of four acres of the landward portion of the Sweetwater Marsh.

3. Burial of one to two acres of marsh and littoral vegetation near the northwest end of Gunpowder Point.
4. Loss of non-mobile species during fill operations.
5. Restriction of water movement in the landward (dry) portion of the Sweetwater-Paradise Marsh.
6. Dismemberment of the tidal stream in the F-G Street Marsh.
7. Potential damage to marsh vegetation and temporary disturbance of birds and other organisms during construction.
8. There are several beneficial impacts which will mitigate these adverse impacts:
 - Conversion of some 10-15 acres of bare salt flat to marsh.
 - Conversion of upland area to marsh adjacent to the F/G St. marsh.
 - Reduction of sediment delivery to the marsh.
 - Establishment of buffer zones to protect marsh areas and an ongoing marsh management program.

Archaeological/Historical

1. Grading will adversely impact an archaeological site (WS-76-6) of limited scientific value. Intensive surface collection and analysis has been completed
2. on the site.

The old munitions factory is not considered architecturally unique nor significant enough to warrant preservation.

Land Use

1. Development of the site for a variety of uses would sustain a series of impacts, some of which are secondary. These would include:
 - Increased public access.
 - Improved aesthetics.
 - Alterations of social and economic characteristics of the land.
 - Increased demands on municipal services.
 - Increased energy consumption.
 - Increased traffic volumes.

Many of these are considered beneficial, such as increased public access, and the balance of the impacts can be mitigated through careful phasing and inter-agency planning.

3. Burial of one to two acres of marsh and littoral vegetation near the northwest end of Gunpowder Point.
4. Loss of non-mobile species during fill operations.
5. Restriction of water movement in the landward (dry) portion of the Sweetwater-Paradise Marsh.
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2.0 PROJECT DESCRIPTION

2.1 Project Location

The project to be considered herein, is the first stage of development of the Chula Vista Bayfront Redevelopment Plan. This plan was developed for an area encompassing 1,426 acres known as the Chula Vista Bayfront (Figures 2-1, 2-2, and 2-3). Of this total, approximately 651 acres are in upland areas with the remaining acreage comprised of 566 acres in submerged lands (of which 231 acres are mudflats) and 209 acres of tidelands. This latter area is under the jurisdiction of the San Diego Unified Port District. The total redevelopment area is bounded on the west by the historic mean high tide line (MHTL) on the east by SD&AE railroad right-of-way, on the north by the Historic MHTL of San Diego Bay, and on the south by the SDT&E facility. A legal boundary description can be found in Appendix 1.

The specific project under consideration would occur within the northern section of the redevelopment area (approximately 288.4 acres). The northern sector has the same east, west, and north boundaries as described above, but is bounded on the south by G Street (See Figure 2-2). To facilitate understanding, the northern sector has been broken into four subareas. These subareas are important in terms of the drainage and grading plans and are depicted in Figure 2-4.

The project has several distinct physical areas which are important to mention in that they will be used as points

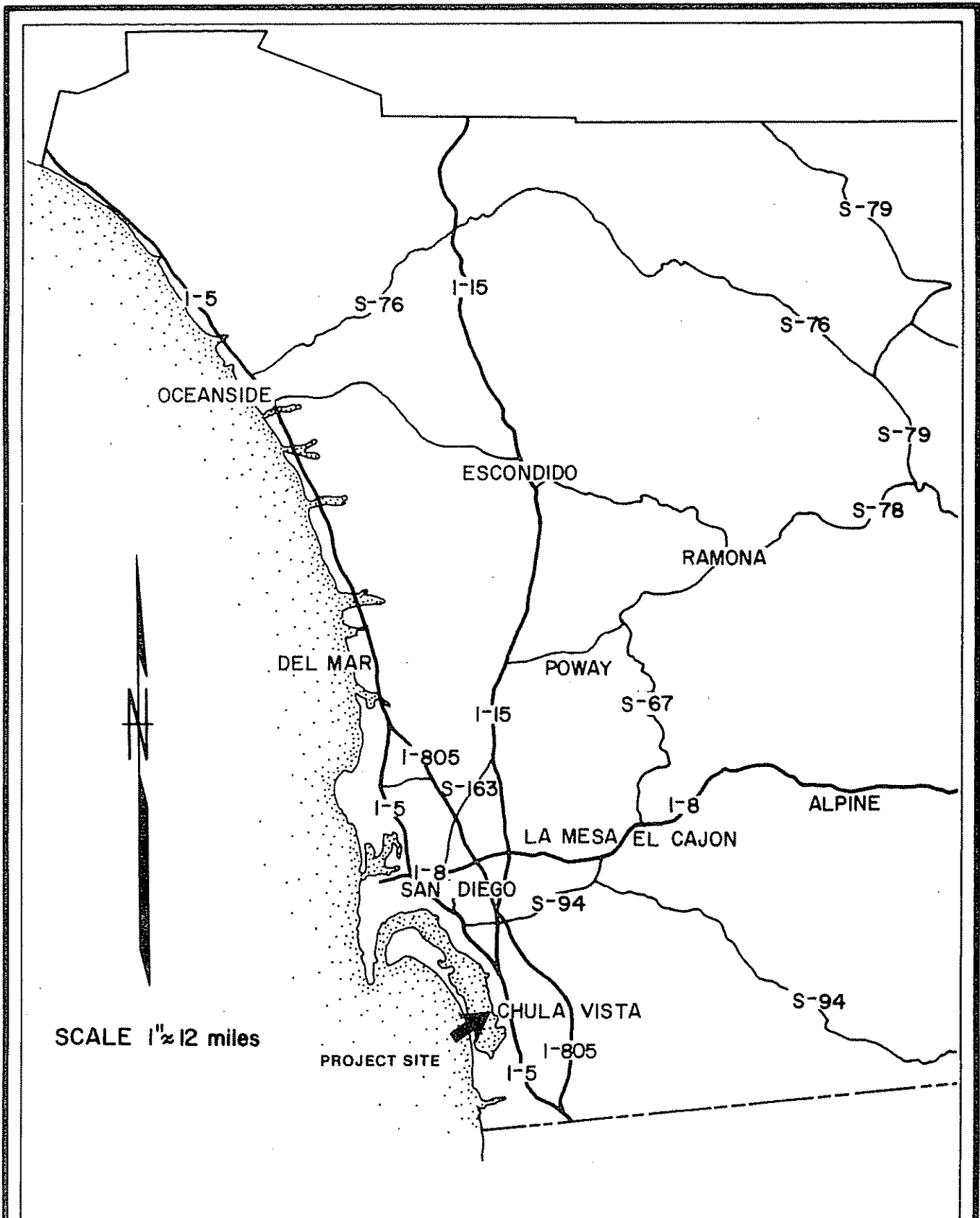


FIGURE
2-1

REGIONAL MAP

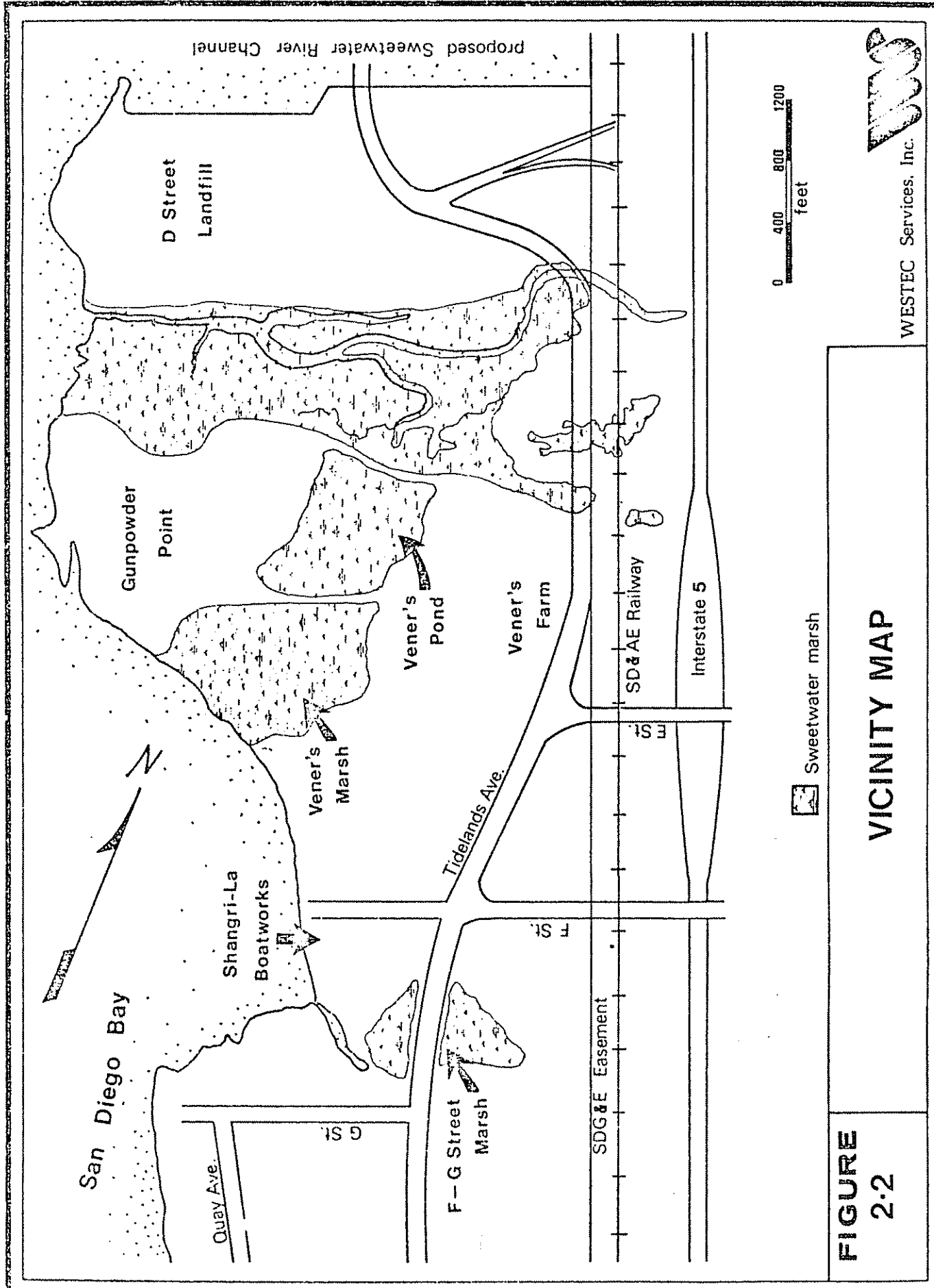


FIGURE 2.2

VICINITY MAP



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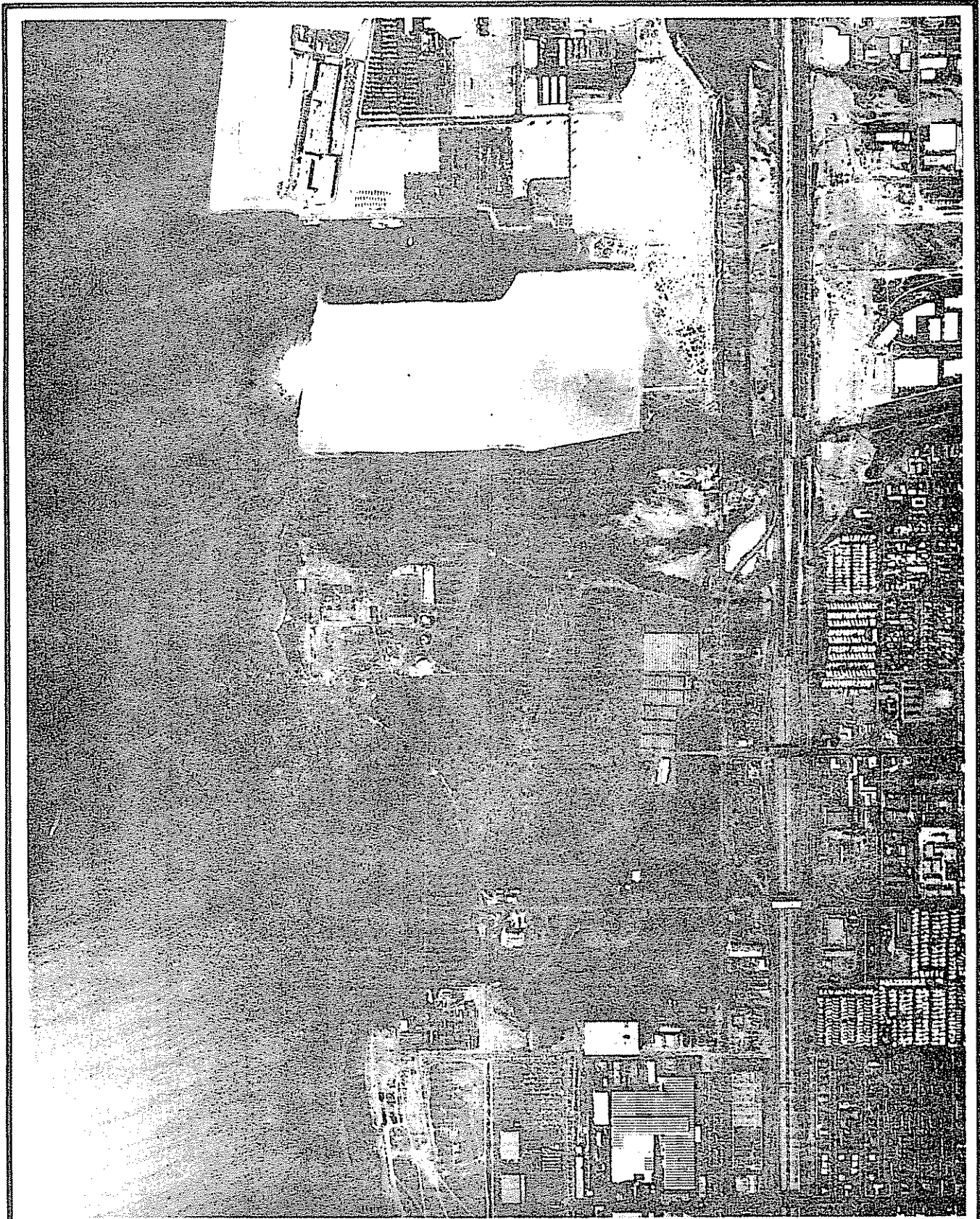


FIGURE
2-3

AERIAL VIEW



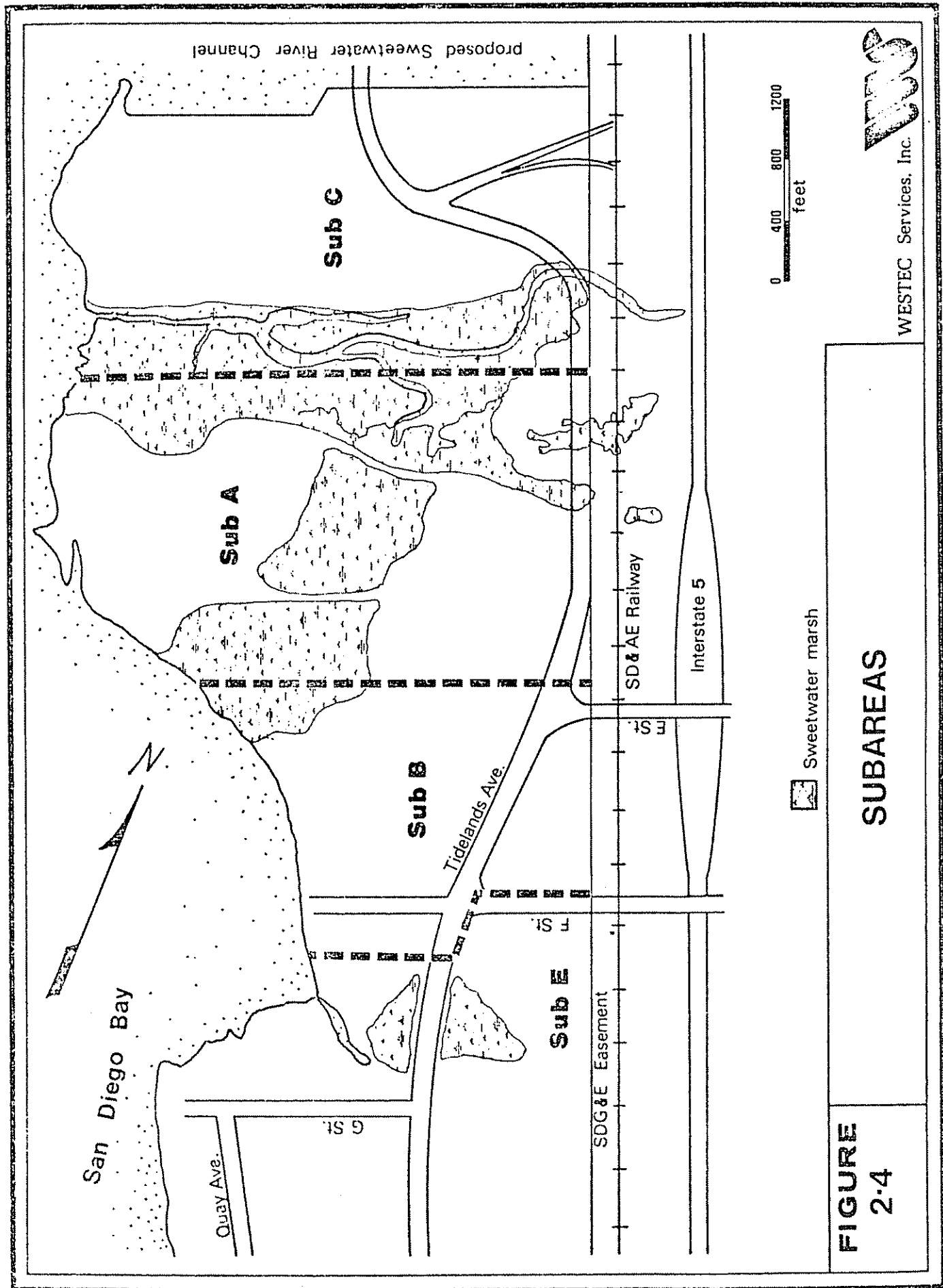
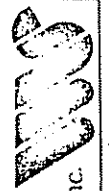


FIGURE 2.4

SUBAREAS



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of reference throughout the report. They are visually represented in Figure 2-2 and listed below:

- F-G Street Marsh
- Sweetwater Marsh
- Vener Pond
- Vener Marsh (E St. Marsh)
- Vener Farm
- Gunpowder Point
- D Street Landfill
- Shangri-La/Boat Works

2.2 Project Characteristics

This EIR/EIS will address the following: 1) the proposed extension and alignment of Tidelands Avenue, 2) the preliminary grading plan for the northern section, 3) development and alignment of utility corridors, 4) the proposed drainage plan for the northern section, 5) the alignments and extensions of E and F Streets and 6) enhancement of impacted and degraded marsh land and upland areas immediately contiguous to roadway improvements. It is anticipated that the actual construction of portions of the Tidelands Avenue and the E Street extension would be undertaken by the Chula Vista Redevelopment Agency (CVRA) within the next year. The remainder of the improvements would be constructed in phases as the total redevelopment of the area occurs.

2.2.1 Tidelands Avenue

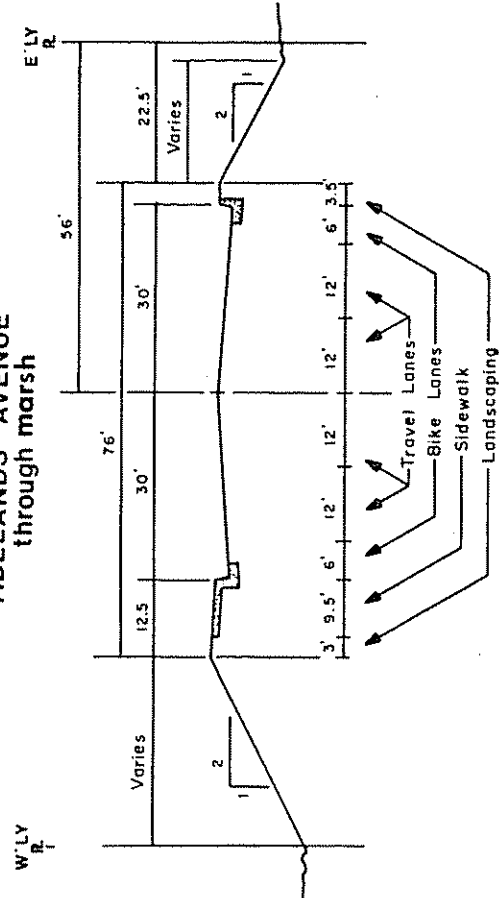
Tidelands Avenue will be extended 1.57 miles from G Street across the uplands area, through both the F-G Street Marsh and the Sweetwater Marsh, ending at the mean high tide line.

This will provide circulation and public access to the northern section of the redevelopment area and will physically connect the D Street landfill area to the rest of the development area. The road will involve 76 ft. of improvements as it passes through the marsh. This width will include four travel lanes (of 12 ft. each), two six ft. bikelanes, and a 9.5 ft. sidewalk. (see Fig. 2-5). Outside of the marsh the road will have a 112 ft. width including four 13 ft. travel lanes, two 6 ft. bike lanes, two 6 ft. sidewalk, a 16 ft. median and other landscaping. (see Fig. 2-5.) As currently proposed, Tidelands Ave. will cross the F-G St. Marsh on landfill and will be aligned as far easterly in the marsh as possible. Landfill would also be used in crossing the Sweetwater Marsh, although metal culverts will be installed at existing water bodies. The San Diego Unified Port District has plans to construct a bridge over the proposed Sweetwater Flood Control Channel in coordination with Caltrans. For a more detailed discussion please see the developer's report in Appendix 2.

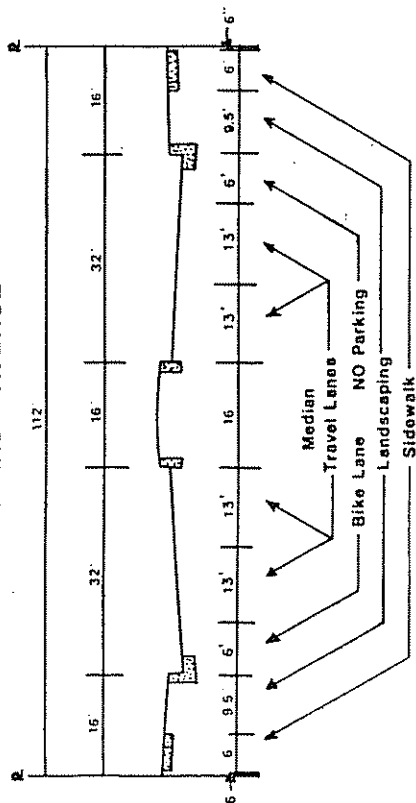
2.2.2 E and F Streets

These streets will be extended westerly from their existing alignment to connect with Tidelands Avenue. This extension and widening of E Street, in particular, will provide the major east-west access to the redevelopment area and will serve to provide

TIDELANDS AVENUE through marsh



TIDELANDS AVENUE



"E" STREET

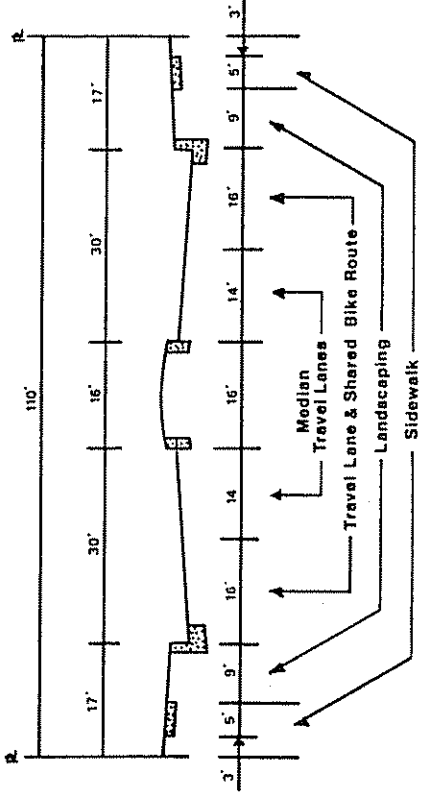
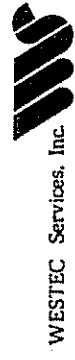


FIGURE 2-5

SCHEMATIC STREET SECTIONS



primary ingress/egress with Interstate 5. Examination of Figure 2-5 shows that the design of Tidelands Avenue differs from E Street. Tidelands will have dedicated bikelanes, pedestrian walks and wider roadway widths. Crosssections for F Street have not been developed, but are expected to be similar to E Street.

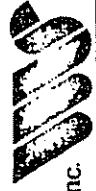
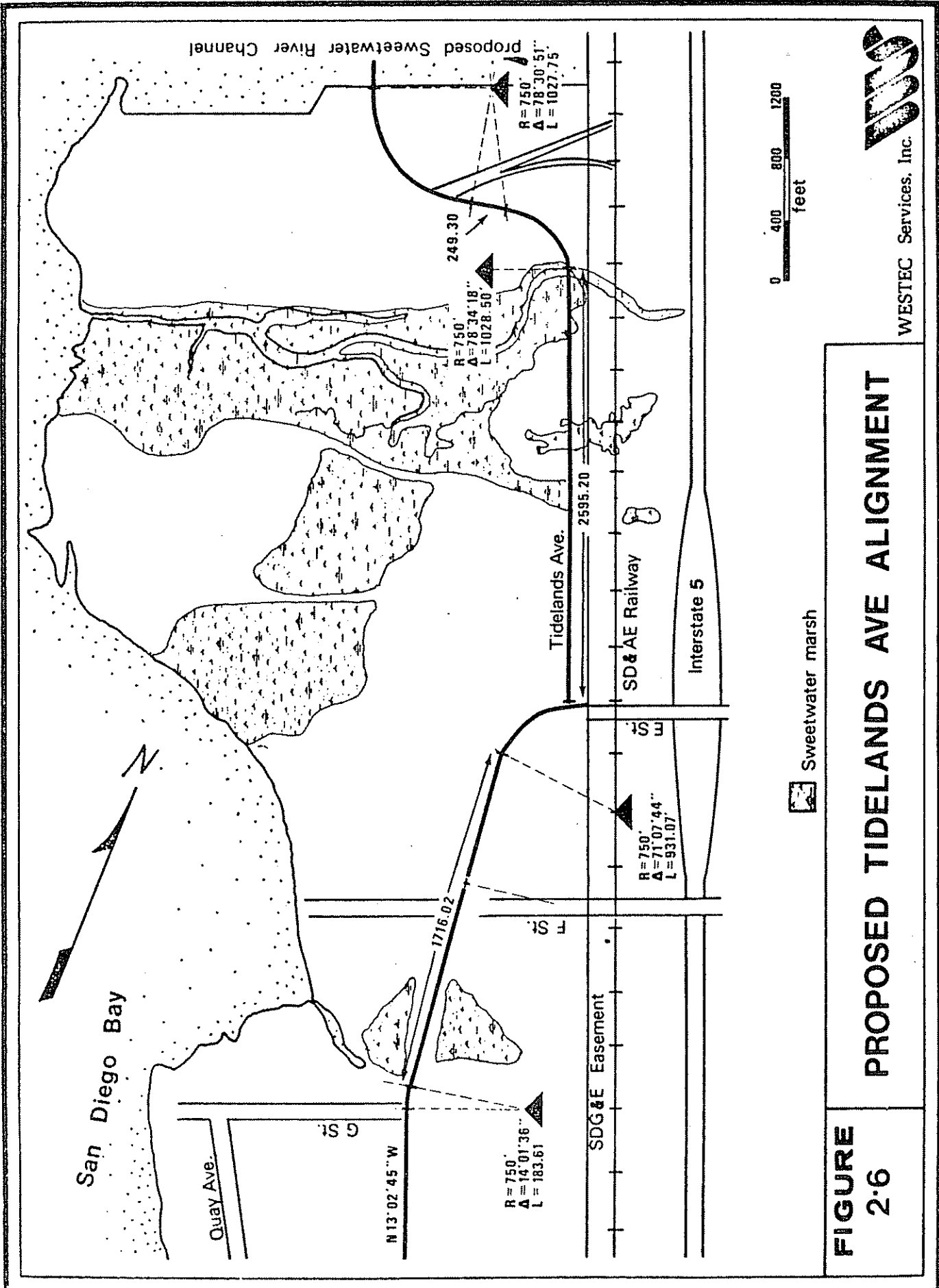
2.2.3 Grading Plan

The preliminary grading plan, as shown in Figure 2-7, would raise the site elevations. The site would generally trend from a high elevation (20 feet) at the eastern edge of the project to a low elevation (5 feet) along the bay shore. The grading plan would require importing of approximately a million cubic yards of material. It has not been determined where the fill material would come from as several options are available, including:

- Dredge materials from related projects
- Excavated materials from the Corps of Engineers' flood control project
- Other approved construction borrow areas within the City of Chula Vista.

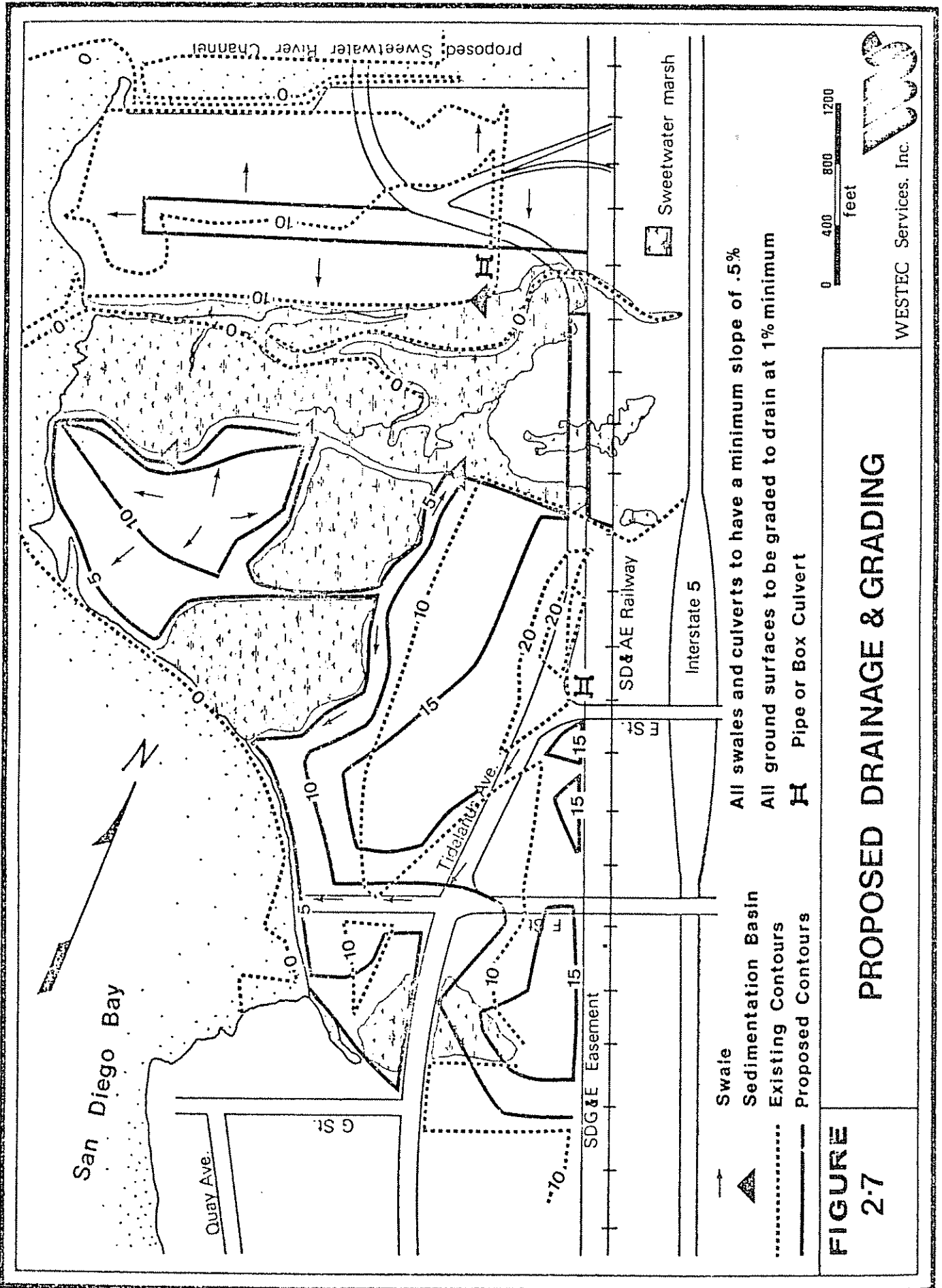
2.2.4 Drainage Plan

The drainage plan seen in Figure 2-7 indicates that the site will be graded so that it will drain either



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FIGURE 2.6 PROPOSED TIDELANDS AVE ALIGNMENT



into the Sweetwater Marsh or into the Bay. Generally, Gunpowder Point (the western part of Subarea A) will discharge into the Sweetwater Marsh along its northern boundary. Swales will direct the balance of the Point's drainage towards the Bay. In addition, the eastern part of Subarea A will also drain along its northern boundary into the Sweetwater Marsh. Subarea B, through the use of swales will drain towards and into the Bay. The surface drainage from areas upstream of the F-G Street Marsh would be gathered in a swale and diverted around the north side of the marsh and into the Bay. In addition, the Rohr storm drain that formerly discharged into the F-G Street Marsh will be diverted directly to the Bay. The northern half of the D Street fill area (Subarea C) will drain to the Sweetwater Flood Control Channel, with the southern half draining into the main body of the Sweetwater Marsh. In total, approximately 188-228 acres of the northern section will drain to the Bay and 60-90 acres into the marshes. There will be no drainage into Vener Pond or Vener Marsh. The details of the grading and drainage plan will be designed in cooperation with various State & Federal agencies, so there may be some changes in this description.

2.2.5 Utility Corridors

The installation of utilities would be for water, sewage, gas/electric, telephone and television services. The demand for these utilities has been projected using maximum allowable land use configurations (to be discussed later in this section). The installation of gas, water and sewer utilities would require trenching and laying of pipe to serve the estimated projected

demands shown in Appendix 2. The telephone and electric installation will consist of conduit which can later be filled by utility companies with appropriate equipment to provide adequate supply (see Figures 2-6 thru 2-10).

2.2.6 Marsh Enhancement/Protection

The project as proposed would infringe on existing marsh areas and would increase public accessibility. Thus, in an effort to improve as well as protect all marsh areas, there would be an enhancement program designed to cleanup and restore degraded areas within the marsh and provide compensatory marshlands (see Fig 2-11). This program will be closely coordinated by the Dept. of Fish & Game and the CVRA; the concept is based on previous discussions with Dept. of Fish & Game staff. This enhancement will consist of regrading so the land fill functions as a salt water marsh and the planting of marsh related materials. Further, the buffer areas of the Corps of Engineers Sweetwater River flood control channel would be established to prevent human encroachment on what is a very fragile resource. The proposed buffer areas vary in width from 50 to 100 feet and can be seen on Figure 2-11. The buffers will become permanent, landscaped areas with initiation of development projects.

2.3 Project Objectives

This phase of the redevelopment program would seek to achieve some of the objectives stated in the CVRA plan of June 1974. The objectives relevant to this action would be to:

- Provide convenient pedestrian, bicycle, and vehicular access to the Bayfront from areas east of I-5.

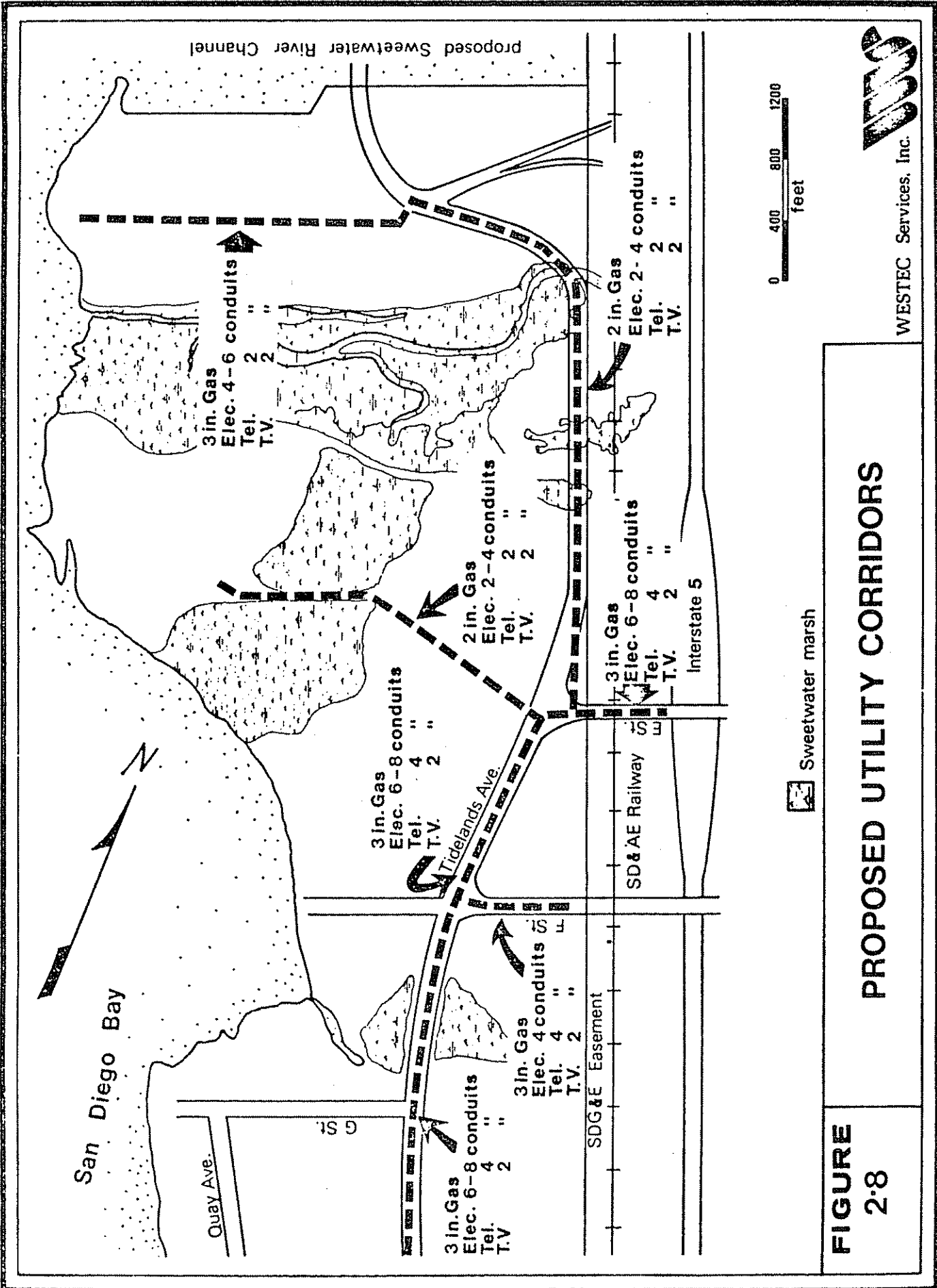
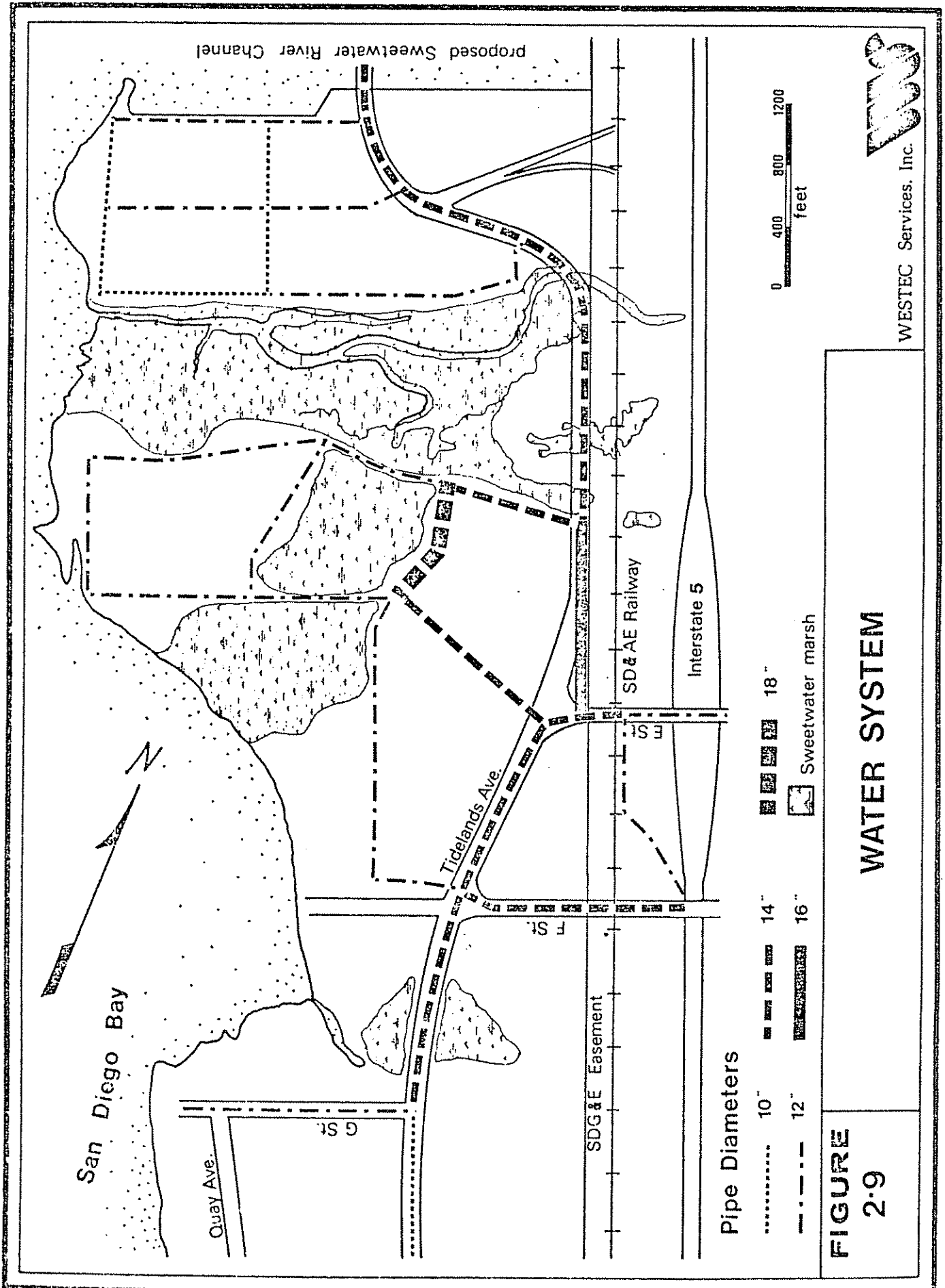
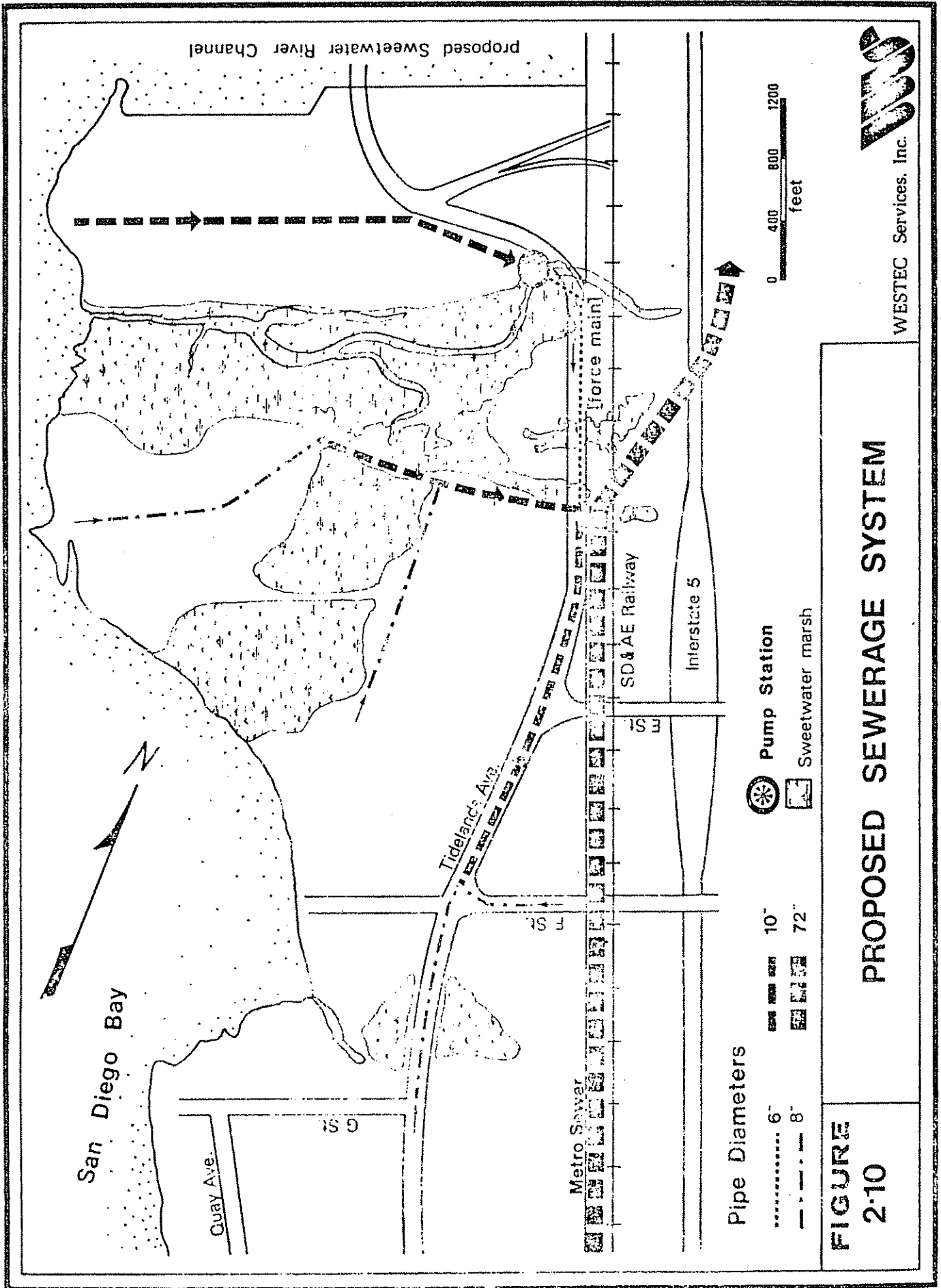


FIGURE 28 PROPOSED UTILITY CORRIDORS



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FIGURE 2-10

PROPOSED SEWERAGE SYSTEM

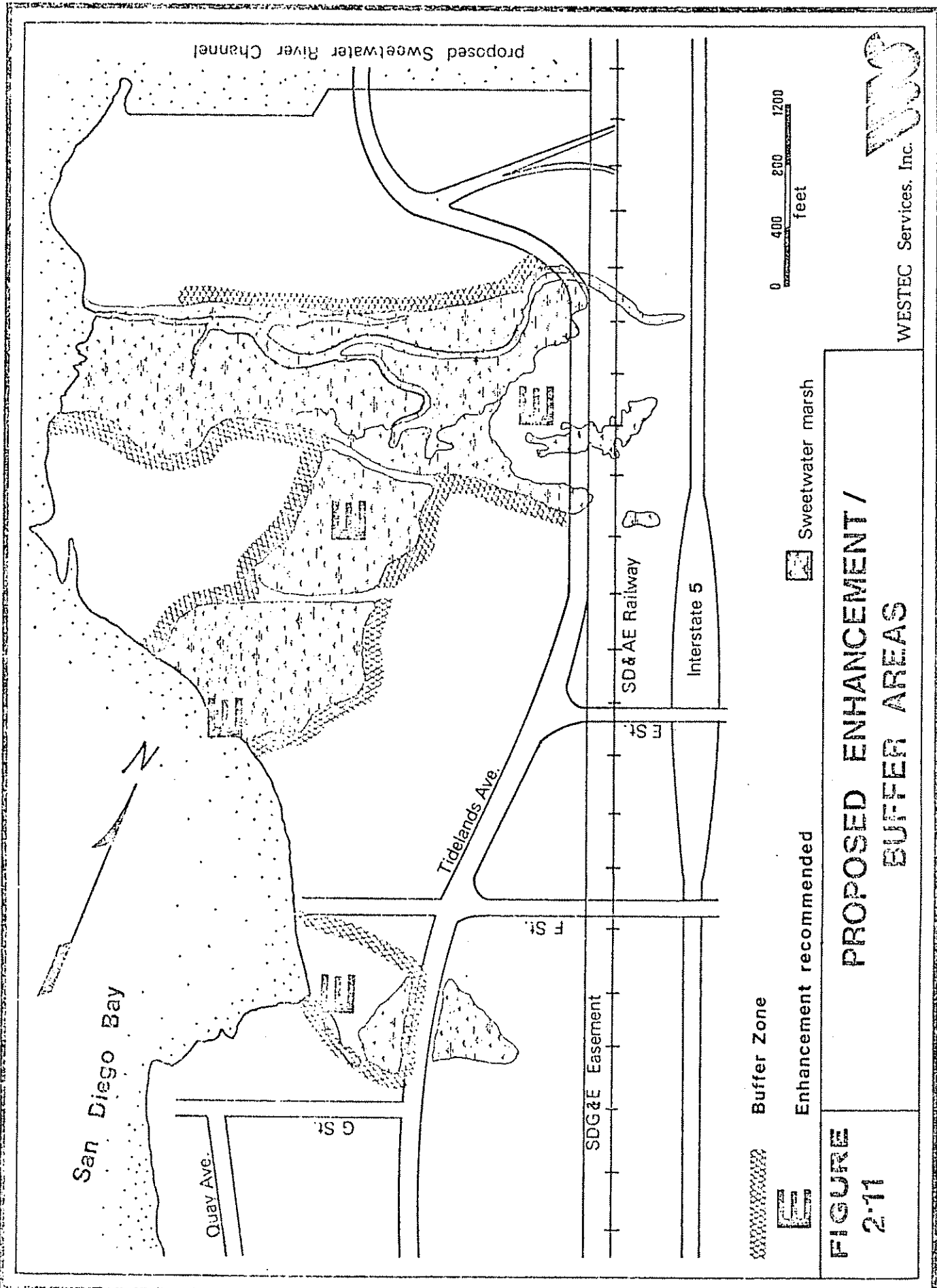


FIGURE 2-11 PROPOSED ENHANCEMENT / BUFFER AREAS



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- Route and design roadways in a manner which minimizes adverse effects on valuable marshlands, protects land with high recreational value and avoids fragmentation of developable lands.
- Reduce dependence upon the private automobile by providing complementary public transit service.
- Provide enjoyable scenic experiences for motorists.
- Provide sufficient separation between pedestrian, bicycle and automobile uses to ensure traffic safety, and reduce noise, functional disruption and visual intrusion.
- Develop a system whereby there is an easy transfer from one transportation mode to another.

In addition to the above objectives, which relate primarily to the transportation facilities of this project, there are several additional general policies which are affected by the grading, drainage, and utility plans of this project. These include:

- Preservation of existing marshlands and the wildlife which inhabits them.
- Changing the existing industrial image of the Bay-front.
- Improvement of the visual quality of the shoreline by providing public and private uses which have proper landscaping and maintenance of shoreline areas.

- Removal or mitigation through landscaping of structures or conditions which have a blighting influence.
- Tie the Bayfront, adjoining areas of Chula Vista, and the freeway and arterial approaches to the Bayfront.

2.4 Costs/Funding

2.4.1 Funding

The funding for the project would be provided by various methods. The CVRA indicates that the following sources are currently under consideration and use:

- Tax allocation bond sales
- Direct tax increments
- Federal aid - urban
- Various funding sources associated with the Corps of Engineers Flood Control project
- Gas tax highway improvement funds
- Local funding through an assessment district, C.I.P. or general City funds.

2.4.2 Costs

The costs of the project will vary with the finalized phasing as well as with determination of land uses. However, Table 2-1 reflects the estimated costs associated with the project and a breakdown of those costs into the various improvement activities.

TABLE 2-1
PROJECT COSTS

<u>Improvement Activities</u>	<u>Estimated Cost</u>
Grading	\$ 2,590,000
Storm Drain	402,000
Sanitary Sewer	450,000
Water	1,033,000
Streets (Bridges)	2,931,000
Utilities	1,480,000
Landscaping	<u>3,399,000</u>
	\$12,285,000

2.5 Future Land Use Relationships

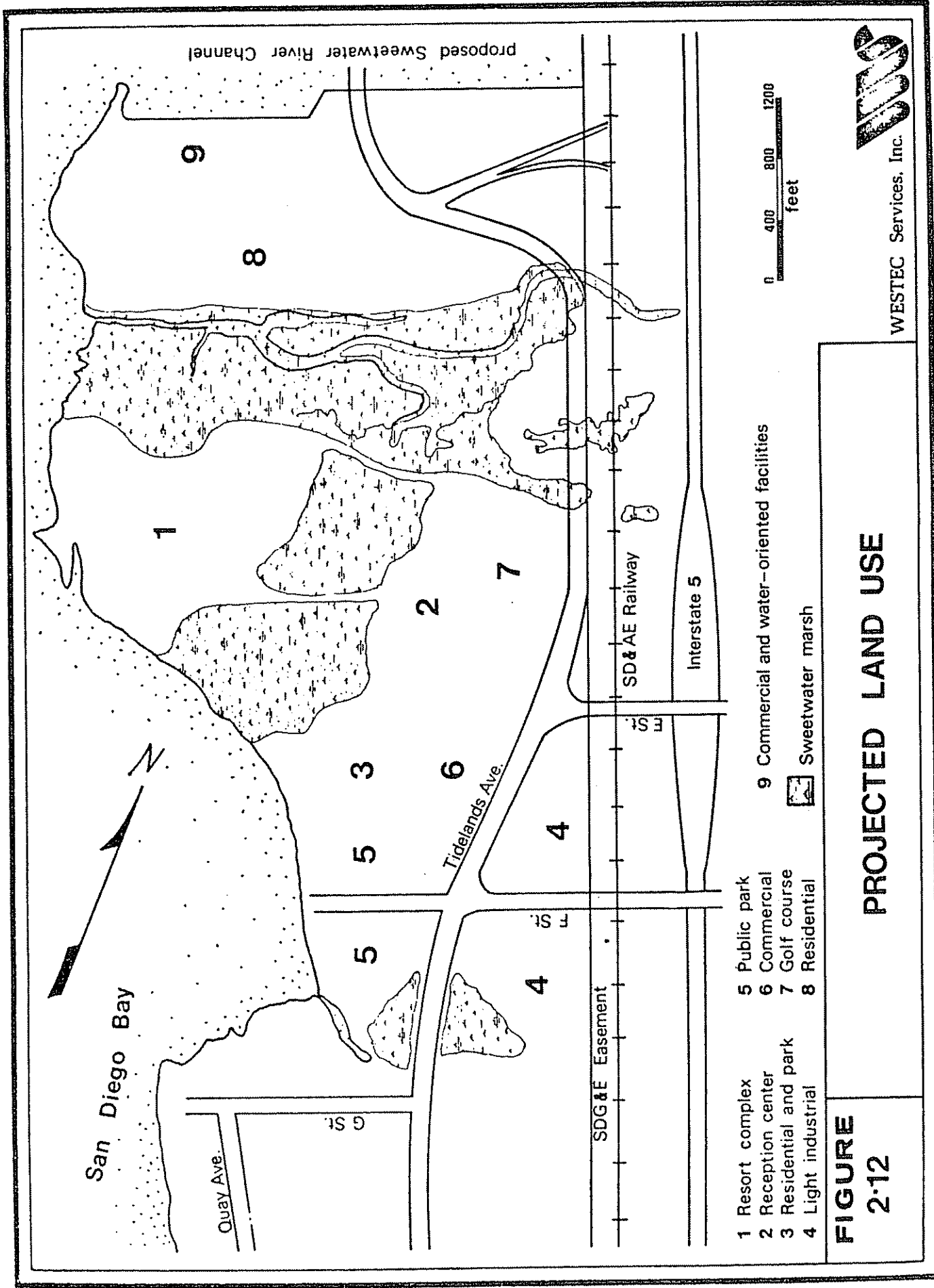
To clarify project parameters, it is important within the heading of "Project Description" to discuss what is not (in a direct sense) part of this project. There are a variety of land uses proposed for the northern section of the Chula Vista Bayfront area (see Figure 2-12). The project described herein has utilized those land uses as a maximum base to determine road alignments and size, utility demand, traffic generation, project costs and impacts. This EIR

addresses the impact of those land uses as they indirectly affect the project or encourage growth. These land uses will receive individual impact analyses as specific development plans are completed. Further, the overall development plan and proposed uses were analyzed in a Master EIR (MEIR) prepared by the City of Chula Vista in 1973. This report will refer to that master document where specific land use impacts need be considered to better understand the project at hand. The following is a list, by subarea, which shows the land uses considered and the estimated level of development parameters.

1. Subarea A

a. Gunpowder Point:

Hotel - 500 to 750 rooms
Restaurant/Commercial - 20,000 square feet
Park - 7 to 15 acres



- 1 Resort complex
- 2 Reception center
- 3 Residential and park
- 4 Light industrial
- 5 Public park
- 6 Commercial
- 7 Golf course
- 8 Residential
- 9 Commercial and water-oriented facilities



FIGURE 2-12

PROJECTED LAND USE



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b. Area east of Vener Pond

Motel - 150 to 300 rooms
Restaurant/Commercial - 7,500 to 15,000
square feet
Parking - 900 to 1,200 cars
Park - 3 to 7 acres
Golf course or recreation - 10 acres

2. Subarea B

Residential units - 250 to 350
Park (golf) - 30 acres

3. Subarea C

Motel - 100 to 150 rooms
Residential units - 350 to 500
Commercial - 20,000 to 50,000 square feet
Park - 20 acres

Alternate use - 300 space campground
10,000 to 15,000 square feet commercial

4. Subarea E

Light industrial - 32.5 acres
Golf course/Park - 4.5 acres

2.5.1 Marsh Environments

It has been assumed for the purpose of this report that the proposed Corps of Engineers' Sweetwater River Flood Channelization/Highway 54 project will become a reality. This assumption is made because an integral part of that project is the purchase of the following for the purpose of preservation:

- The Sweetwater Marsh
- Vener Pond
- Vener Marsh (noted as the E St. marsh by the L.A. Dist. Corps of Engineers)
- 50 foot buffer surrounding the above areas
- Paradise Creek Marsh

However, if the Corps' project does not come to fruition, it has been stated that other methods of Federal, State and local purchase will be pursued (Desrochers, 1976).

The City of Chula Vista is committed to the preservation of the Sweetwater Marsh Complex. If another agency does not purchase the marsh and development regulation does not result in the dedication of the marshland, then the City of Chula Vista will acquire the marsh. (Desrochers, 1977)

3.0 DESCRIPTION OF ENVIRONMENTAL SETTING

3.1 Earth Characteristics

3.1.1 Geology

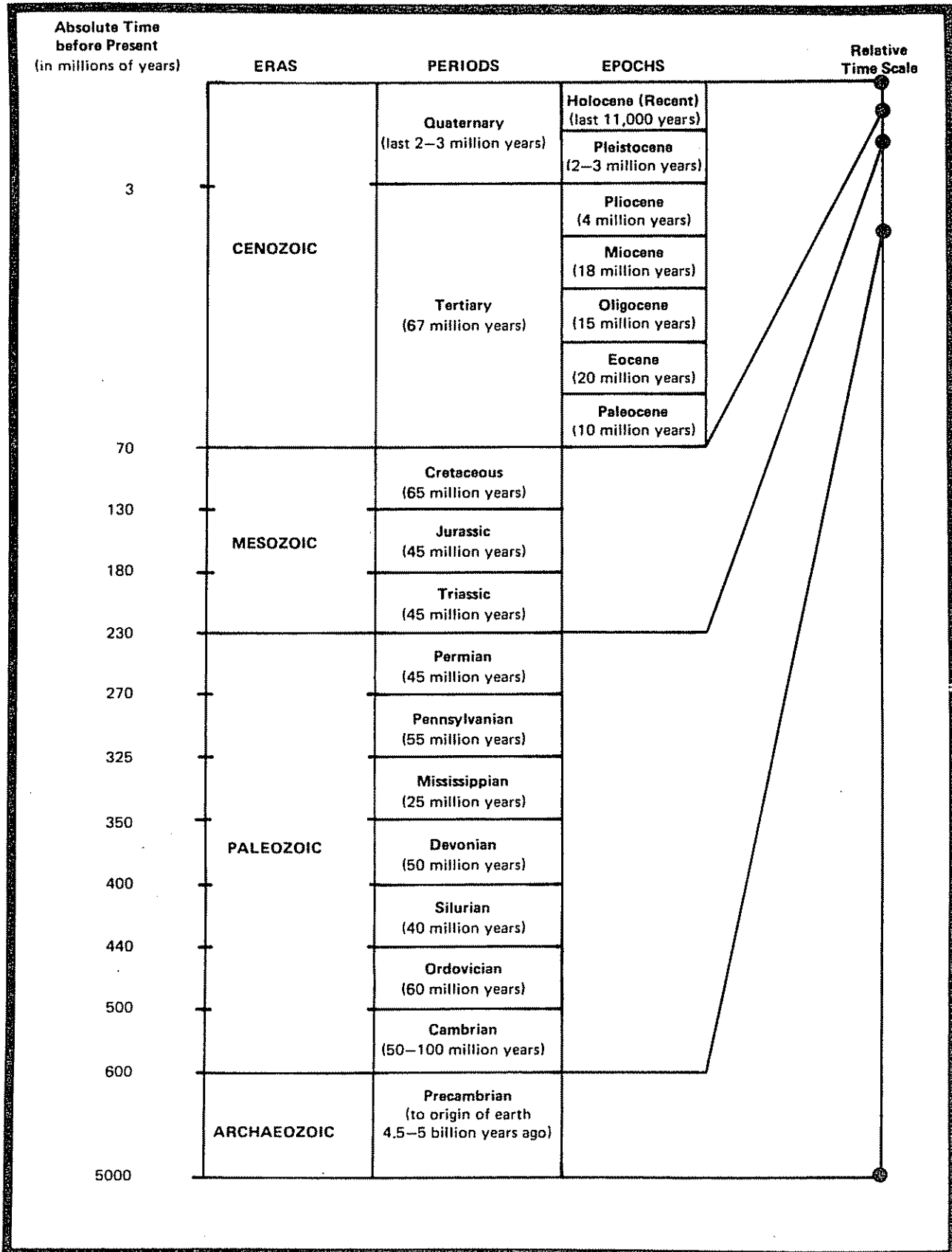
The information discussed in this subsection concerning geologic factors pertinent to the Chula Vista Bayfront site is derived principally from a report prepared by Southern California Testing Laboratory, Inc. (SCTL, 1976). Information from sources other than the SCTL (1976) report are so cited.

3.1.1.1 Stratigraphy

The Chula Vista Bayfront site is situated on the Southern California coastal plain province, which is underlain predominantly by sedimentary rocks of Tertiary age (see Table 3-1, Geologic Time Scale). These overlie Cretaceous sedimentary rocks and older crystalline bedrock. The coastal plain can further be divided into topographic expressions: benches or terraces which were formed by uplift, deformation, and wave action. The terrace on which the site rests was the last extensive unit to be deposited except for the recent floodplain alluvial deposits around the fringes of San Diego Bay. The unit, the Bay Point Formation, Late Pleistocene in age, is composed predominantly of marine and non-marine fine to medium-grained sands. The Bay itself is underlain by

Table 3-1

GEOLOGIC TIME SCALE



basin fill deposits comprising a sequence of alternating layers of sand and silt covered by varying amounts of organic bay muds.

3.1.1.2 Structure

Within the limits of the study area, one of the major controls in the development of the land form has been the continual erosional and depositional cycle. In addition, structural deformation due to faulting has probably had some effect, but not as extensively as at other localities in San Diego.

A review of available literature indicates that the City of Chula Vista is traversed by five faults; the east-west trending Otay Valley fault, the north trending La Nacion fault system, including the Sweetwater fault, the north-northwest trending Rose Canyon San Diego Bay fault, and the east-west trending Telegraph Canyon fault. These faults and their relationship to the project site are presented in Figure 3-1. In the following sections, each of these faults and others related to the tectonic framework of San Diego County will be reviewed.

3.1.1.3 Seismicity and Faulting

A comprehensive discussion of seismicity and faulting in the study area, utilizing both historical and statistical data, is provided in the SCTL (1976) report. The following summarizes that discussion.

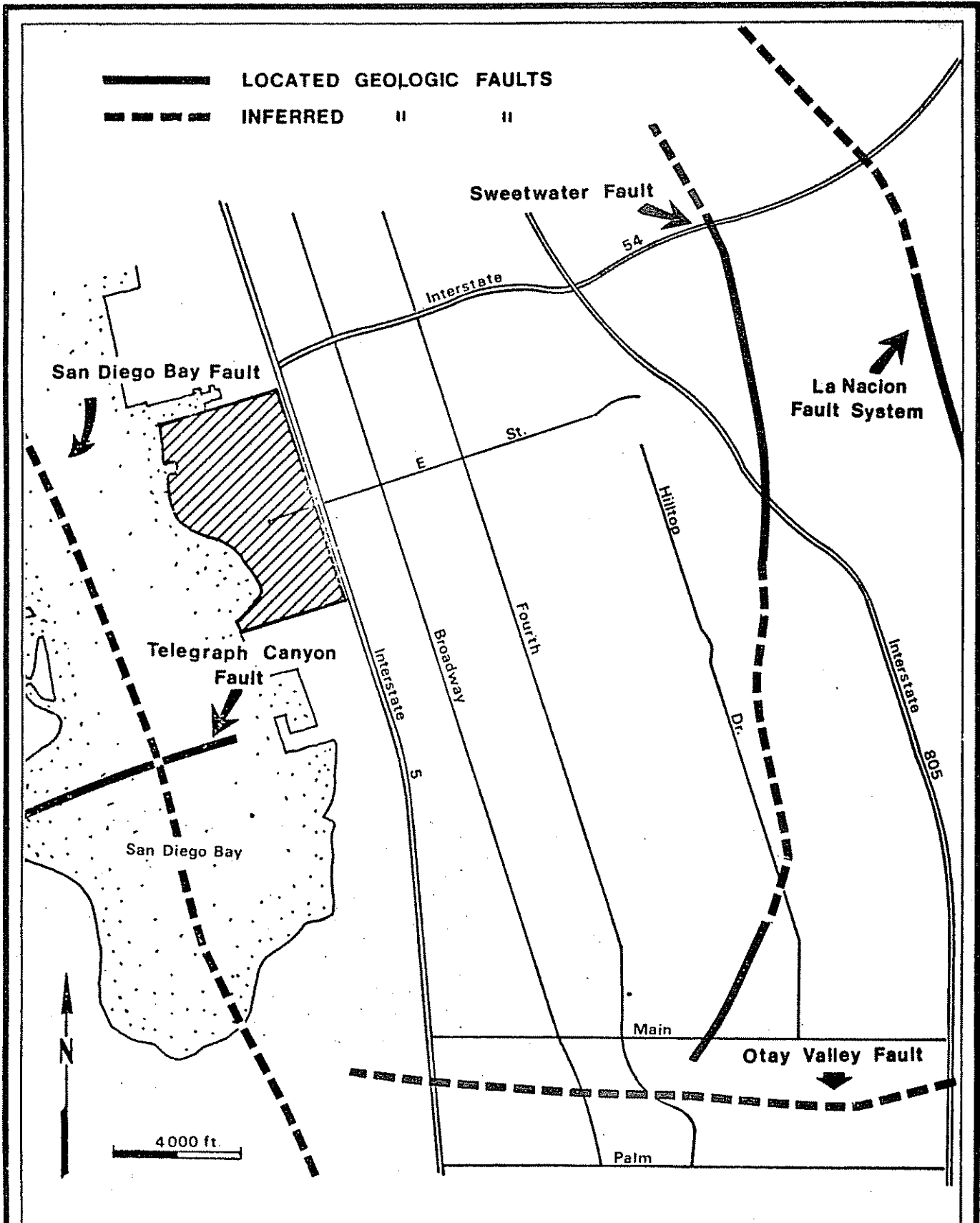


FIGURE
3-1

LOCAL FAULT SYSTEM

To assess the seismic setting at the project site it is necessary to examine both local and regional faulting. Regional faulting will play a very significant role due to the demonstrated historic seismic activity. Local fault zones, on the other hand, exhibit low activity and provide ongoing controversy as to whether they should be considered active, potentially active, or inactive.

a. Regional Faults

● Elsinore Fault Zone

The Elsinore fault zone is a northwest trending tectonic feature lying about 45 miles northeast of the study area. This zone has historically demonstrated moderate seismic activity with several recorded shocks of Richter magnitude of 4.0 to 4.9 and a few of magnitude 5.0 to 5.5. The largest recorded earthquake on the Elsinore fault zone had a magnitude of 6.0. The City of San Diego Seismic Safety Element (Woodward-Gizienski & Associates, 1974) estimates the maximum probable earthquake for the Elsinore fault zone is between magnitude 6.9 and 7.3, with a repeat interval of 100 years.

● San Jacinto Fault Zone

The San Jacinto fault zone, lying 66 miles to the northeast, is the most active large fault in San Diego County. Seventeen earthquakes of magnitude 6.0 to 7.0 have occurred along the 180 mile long fault zone

since 1890. Like the Elsinore fault zone, the maximum probable earthquake on the San Jacinto is between magnitude 6.9 and 7.3 with a repeat interval of 100 years (Woodward-Gizienski & Associates, 1974).

- San Andreas Fault Zone

The San Andreas fault zone, although outside San Diego County lying approximately 95 miles from the Bayfront site, should also be considered. This zone extends some 650 miles from Point Arena in northern California to Baja California. Numerous large magnitude shocks are associated with the San Andreas. The maximum probable earthquake is on the order of magnitude 8.0 to 8.5, with a recurrence interval of 40 to 100 years (Lamar et al., 1973).

- Offshore Faults

The most extensive fault in the offshore region is the San Clemente fault, which lies about 40 miles southwest of the Bayfront site. It is theoretically capable of generating an earthquake of magnitude 7.7. Because of the limited historic activity of the San Clemente fault, it is not believed as hazardous to the San Diego area as the Elsinore fault (Woodward-Gizienski & Associates, 1974).

b. Local Faults

- Rose Canyon/San Diego Bay
Fault Zone

The Rose Canyon/San Diego Bay fault zone passes about 7,000 feet west of the center of the study area. It extends onshore from the area of La Jolla Shores south through San Diego Bay. North of La Jolla, the Rose Canyon/San Diego Bay fault zone may extend in the offshore region to the Newport-Inglewood fault. Southward extensions to the San Miguel fault in Baja California have also been suggested. Considerable disagreement exists as to the level of seismic risk attributable to the Rose Canyon/San Diego Bay fault zone. A maximum probable earthquake of between magnitude 5.5 and 6.5, however, is considered reasonable (SCTL, 1976).

- La Nacion/Sweetwater Fault Zone

The center of the La Nacion/Sweetwater fault zone is located about 3.5 miles east of the Bayfront site. This is a northwest trending structural feature with a suggested length of about 15 miles. Recent investigations indicate the fault should be considered potentially active (Hart, 1974; Dowlen et al., 1975). The maximum probable event for this fault is of magnitude 5.0.

- Otay Valley Fault

The Otay Valley fault was postulated as a "...normal fault of small displacement possibly hidden beneath the alluvium of Otay Valley" (Cleveland, 1960). Cleveland postulated this idea due to the extensive outcrops of the Sweitzer Formation on the south side of the valley, and the near absence of the formation north of the valley. Very little has been published to date regarding the presence of this fault. At present, it is impossible to state emphatically that the Otay Valley fault does not exist. Perhaps it is best to sum it up with a more recent comment, "...evidence for the fault appears to be inconclusive" (Threet, 1973).

- Telegraph Canyon Fault

The Telegraph Canyon fault, as mentioned in the Seismic Safety Element for the City of Chula Vista, was first proposed in a report by the Lockheed Company in 1967. Sub-bottom acoustic profiling was used to reveal the geologic structure and stratigraphic relationships in the south San Diego Bay. The report states that displacement was found in the "bedrock surface" in three of the northwest-southeast transects. The suspected fault was not found in the remaining transects to the east and their conclusion was "...its continuation to the east beyond the subject

site is unknown, but it is assumed to continue beyond the Silver Strand into the Pacific Ocean" (Lockheed, 1967). Recently, Moore and Kennedy (1975) further investigated the suspected fault and failed to confirm its existence. They did, however, locate a fault trending roughly perpendicular to the "Telegraph Canyon fault," and concluded that this fault formed a part of the Rose Canyon/San Diego Bay fault zone.

3.1.2 Soils

The following description of soil conditions at the project site is derived primarily from a study prepared by Earth Sciences Associates (1971).

The character of the original soils on the Bay-front site has been altered considerably by filling during the past several decades (see summary in Smith, 1975). As a result, soils now found exposed on the surface are marsh deposits, tidal flat sediments or bay muds, hydraulic fill, and formational soils. Areas of uncontrolled fill or trash are also found.

The formational soils consist predominantly of alternating layers of natural, loose to medium dense, silty and clayey sand. In these soils are random, buried pockets or lenses of firm clay or older bay mud. These soils also exist at depth beneath the marsh deposits, the hydraulic fill and possibly beneath the tidal flat sediments.

The marsh deposits and bay muds on the tidal flats are organic silty clays and clayey silts with an almost

liquid consistency. The thickness of these deposits is up to about 40 feet with more typical thicknesses of 5 to 10 feet. The thickness of the mud tends to be highly erratic near the shoreline.

Filling in the project area has been accomplished by methods ranging from the dumping of various unwanted and often unsuitable materials trucked from nearby areas, to the placement of carefully planned and engineered fills involving diking and hydraulic dredging. Many of the older fills consist of earth, rubbish and other waste materials which have been dumped on bay mud or marsh deposits. More modern hydraulic fills were created by diking off the proposed fill area, removing natural soft mud deposits, and pumping in relatively clean sediment from the bay.

3.1.3 Groundwater

The elevation of the groundwater table beneath the Bayfront site ranges from approximately sea level in the westerly extent to +2 to 4 feet in the east (SCTL, 1976). In general, the configuration of the water table approximates that of the ground surface. The depth to groundwater, thus, is on the order of 0 to 25 feet, depending on the ground elevation. Due to extensive agricultural irrigation in the area, localized shallow zones of saturation, representing perched groundwater above the regional water table, are expected to exist.

3.1.4 Drainage Pattern

Surface waters exist on the project site primarily in a number of salt water marshes, as shown on Figure 2-3. Much of this marshland is subject to tidal flooding twice daily by ocean water from the Bay. The remaining marsh areas are flooded only occasionally during extreme high tides or periods of heavy rainfall. The Sweetwater River channel, largely at mean sea level through the study area, is also subject to tidal inundation. Unchecked fresh water flows from approximately 37 square miles west of the Sweetwater Dam occur in the channel perennially due to agricultural and domestic use of water in the drainage basin. In addition, substantial fresh water flows into all marsh and pond areas from approximately 85 acres¹ during and following periods of rainfall and agricultural irrigation (Wilsey & Ham, 1976).

According to the U.S. Army Corps of Engineers (1975), large floods are believed or known to have occurred in the Sweetwater Basin in 1825, 1862, 1916, 1927, and 1937. Medium and small floods occurred in 1889, 1891, 1906, 1921, 1938, 1941, and 1943. The largest known flow on the Sweetwater River occurred on January 27, 1916 when, at the Sweetwater Dam, a peak flow into the reservoir of 45,500 cubic feet per

¹According to Wilsey & Ham, 85 acres which drain directly to the marsh areas represent 0.06 percent of the total drain basin flow and 0.36 percent of the drainage area westerly of the Sweetwater Dam.

second (cfs) was recorded for one hour. No floods have been reported since 1943, and there have not been any outflows from the reservoir since a 410 cfs flow over the spillway during the April 1943 flood.

The Standard Project Flood for the Sweetwater River downstream of Sweetwater Dam has a design discharge of 60,000 cfs and an estimated average frequency of occurrence of once every 500 years (U.S. Army Corps of Engineers, 1975). According to Corps of Engineers frequency curves, the 100-year and 50-year floods would reach maximum rates of flow of about 35,000 and 21,000 cfs, respectively. A delineation of the 100-year floodplain on the Bayfront site is provided as Figure 3-2 (County of San Diego, Mapping Section, Map No. 202.01).

3.1.5 Mineral Resources

Mineral resources in the project area consist of construction materials (sand and gravel) and salt. None of these commodities, however, exist in significant quantities or have been mined from the subject property (City of Chula Vista, 1973; Weber, 1963).

3.1.6 Land Form

The Bayfront revelopment site is situated on the floodplain of the Sweetwater River along the westerly edge of the Southern California coastal plain. Elevations on the site

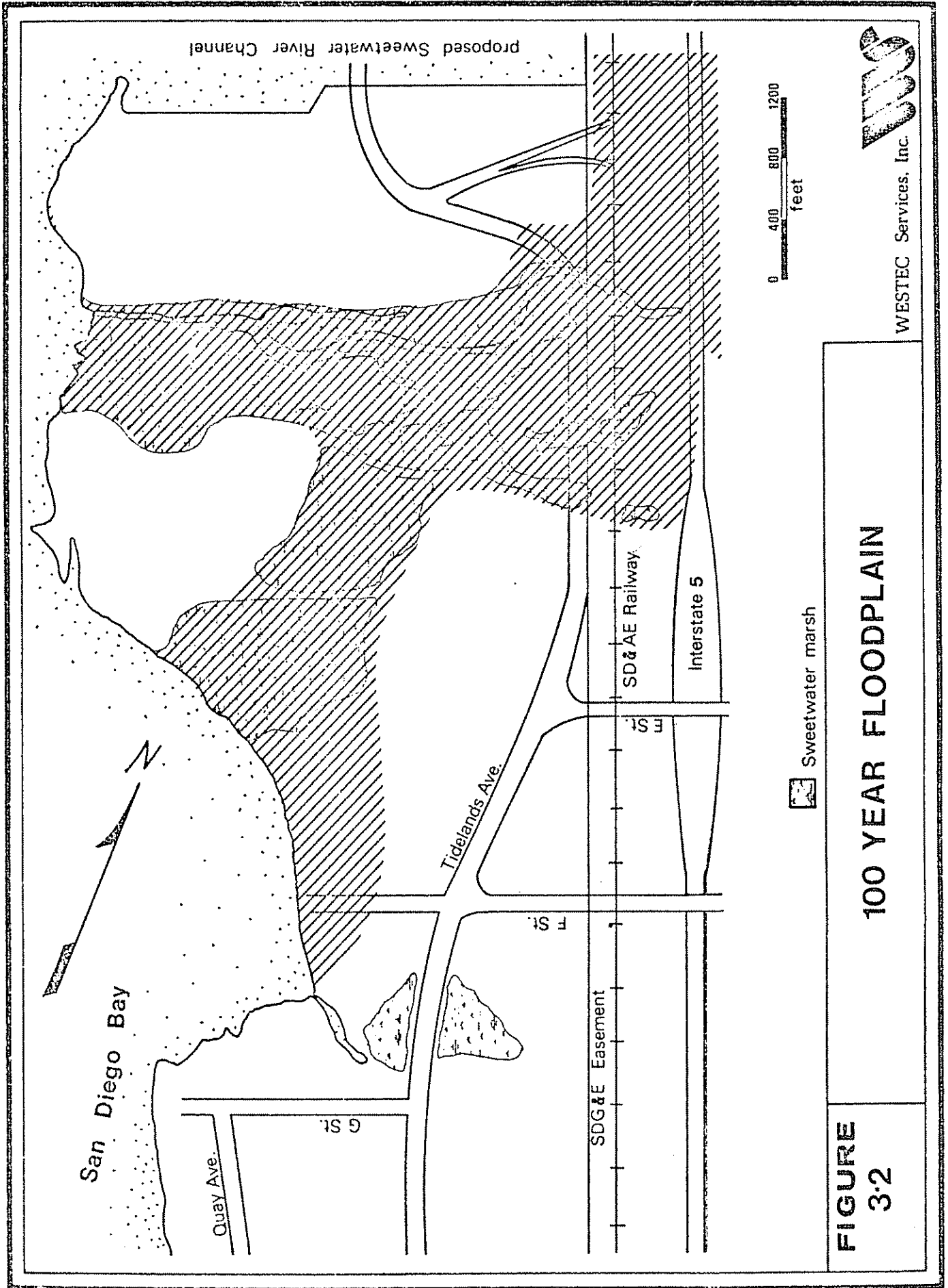


FIGURE
3:2

100 YEAR FLOODPLAIN

WESTEC Services, Inc.



range from 2 to 5 feet below lower low water to about 30 feet above mean sea level (MSL) adjacent to Interstate 5 (see Figure 3-2a, Topographic Map).

The land form is dominated by the marsh of the Sweetwater River which trends in an east-west direction through the northern one-third of the study area. North of the Sweetwater marsh is the D Street fill, an extensive flat area with elevations of 2 to 12 feet above MSL. South of the marsh, the land consists of a series of northeast-southwest trending, low relief ridges and swales. The westernmost ridge forms Gunpowder Point at an elevation of about 10 feet MSL, while a central ridge forms the bulk of the Vener Farm land at a maximum elevation of 23 feet MSL. The east-southeast portion of the site is actually the western extent of a broad terrace, upon which much of the City of Chula Vista is situated.

Between the higher ridges are two wide swales, with elevations as low as 2 feet MSL. These swales apparently represent ancient abandoned courses of the Sweetwater River. Much of the site's marshland is located in the swales.

3.2 Climate

The project falls within the generalized Mediterranean climatic regime, known for its wet, mild winters and dry, hot summers. There is a 15°F yearly temperature range with average January temperatures around 55°F and August readings at an average of 70°F. The majority of the rainfall in the area

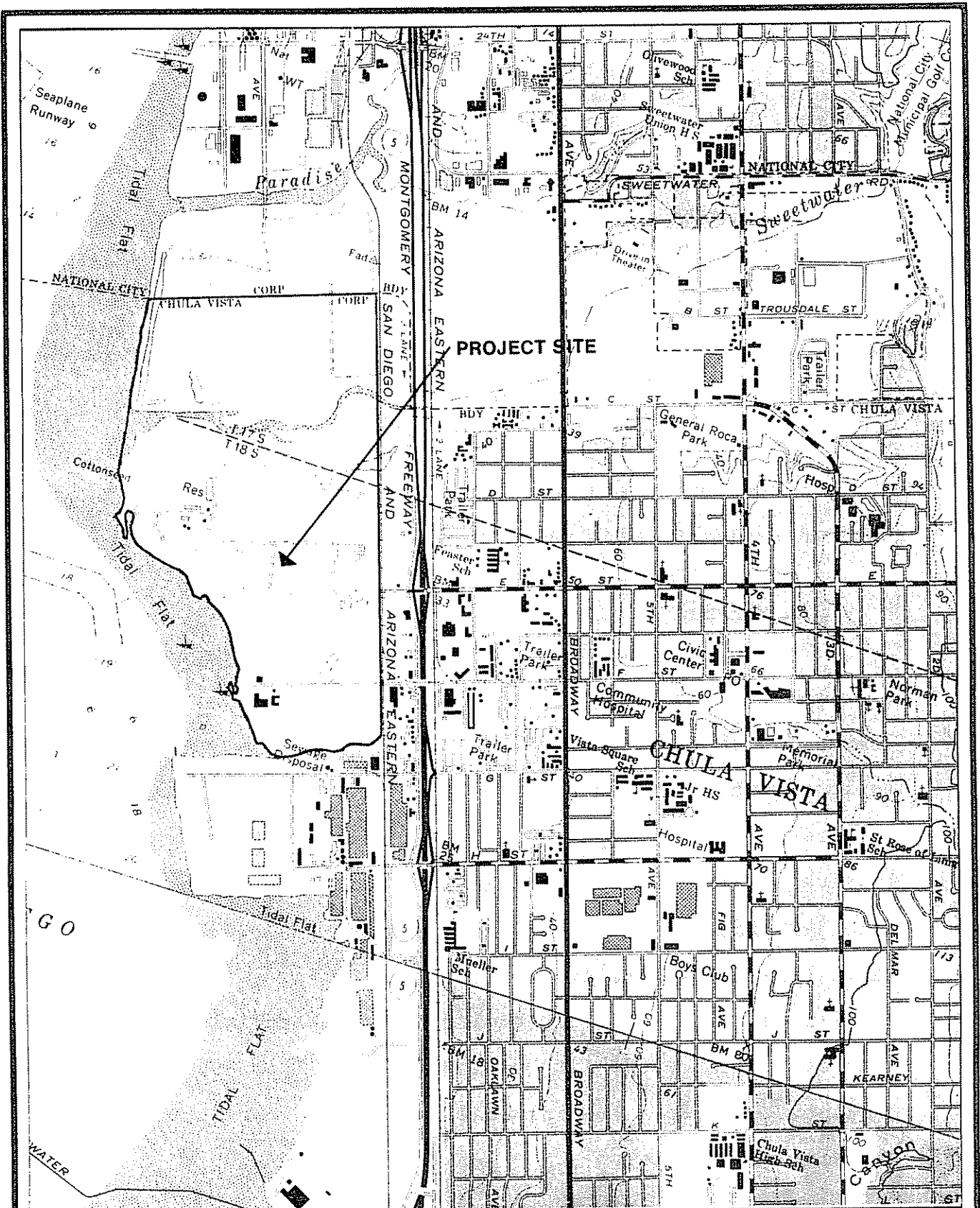


FIGURE
3-2a

TOPOGRAPHIC MAP

occurs in January to March, with average monthly readings of about 1.9 inches. Yearly total rainfall averages about 9.76 inches. The area is subjected to prevailing winds from the west with average velocity of 7 miles per hour. The winds are diurnal in nature and represent a typical land-sea breeze pattern. The site also experiences typical radiation fog during certain months, (primarily May and June). Due to the site's close proximity to the ocean, the inversion problems which plague other parts of San Diego County are modified substantially. Overall, it is a moderate climate with few extremes, typical of marine areas.

3.3 Air Quality

The project site lies within the San Diego regional air basin and the San Diego County Air Pollution Control District (SDAPCD) which as of June 1976, maintains eight monitoring stations throughout the basin. Data from the Chula Vista monitoring station on East J Street is felt to be most indicative of air quality conditions at the project site.

Table 3-2 presents pertinent data relating pollutant levels likely to exist at the project site.

In addition, a brief summary of recent activities and plans of the San Diego Air Quality Planning Team (SDAQPT) are relevant. More detailed information is contained in the following publications:

Table 3-2
EXISTING AIR QUALITY

<u>Pollutant (Standard)</u>	<u>Number of Days Federal Standards Exceeded</u>		
	<u>1973</u>	<u>1974</u>	<u>1975</u>
Oxidant (> 0.08 ppm, 1 hour average)	79	56	46
CO (> 9 ppm, 8 hour average)*	5	4	0
SO ₂ (> 0.14 ppm, 24 hour average)*	0	0	0
Non-Methane HC (> 0.24 ppm, 3 hour average)**	312	298	146
NO ₂ (≥ 0.25 ppm, 1 hour average)***	0	1	0

* Chula Vista data not available; San Diego Downtown data were used.

** San Diego Downtown data used for 1973-74; Chula Vista data available for 1975.

*** State of California Standard, no Federal Standards available.

1. Regional Air Quality Strategy - Background and Work Program - July 1975.
2. San Diego Air Basin - Revised 1972 Emissions Inventory - August 1975.
3. Tactics Under Consideration for the Regional Air Quality Strategy - August 1975.
4. Air Quality Planning Team Newsletters.
5. Regional Air Quality Strategies for the San Diego Air Basin - April 1976.

To quote from an early newsletter regarding the Team's makeup and objectives:

"...The team is a cooperative effort of the Air Pollution Control District, the California Department of Transportation, the City and County of San Diego and the Comprehensive Planning Organization.

"The Team's goal is to achieve the air quality standards set by the Federal Environmental Protection Agency (EPA). Working toward this goal, the Team's primary objective is to develop a Regional Air Quality Strategy (RAQS). The RAQS will be a program that will achieve and maintain national ambient air quality standards in the San Diego Air Basin through local, state and federal legislation or through EPA and the California Air Resources Board (ARB). The RAQS will include both short term and long term actions. The strategy developed should complement environmental, social and economic factors of the San Diego region."

The following points, taken from the Team's most recent document are of significance:

- While the strategies address other pollutants, its prime thrust is toward analysis and control of photochemical smog, measured as oxidant (ozone).
- When considering smog, control of reactive hydrocarbons (RHC) was seen as essential.
- The two major sources of RHC in 1972 were motor vehicles (57 percent) and process losses (38 percent). (A detailed breakdown of all 1972 emissions is contained in Item No. 2 above).
- In order to meet Federal regulations, 1972 RHC emissions must be reduced by approximately 100-115 tons per day (T/D).
- Pollution transport southward from the South Coast Air Basin (Los Angeles, Orange, etc.) into the San Diego Air Basin accounts for all of the very high pollution days in San Diego (roughly 1 percent of the total).
- Recommended strategies are based on a presumed San Diego generated high of 0.20 parts per million (ppm) plus further research into pollution transport from other areas. (Alternate strategies based on a 0.28 ppm high from the South Coast Air Basin have also been developed however.)
- CPO's "Current Trends" population forecasts were used to predict future RHC emissions and thus develop appropriate control strategies.

- Carbon monoxide emissions are projected to drop significantly from 1972 through 2000 due to motor vehicle control standards, and are not expected to be a major regional air pollution problem through the year 2000, except for localized hot spots.
- Oxides of nitrogen are expected to drop in the future due to controls in motor vehicles and electrical power plants, and are not forecast to be a major regional air pollution problem through 2000.
- Particulate standards are currently being exceeded in the San Diego Air Basin and are predicted to rise slightly through time. A lack of available data precludes the development of any comprehensive control strategy for particulates, thus this pollutant is expected to be a continuing regional problem into the foreseeable future.
- Sulfur oxide emissions are projected to increase between now and 1980 due to a shift from natural gas to fuel oil for the generation of steam electric power. While standards are not currently being exceeded, they may well be violated during this period. Beyond 1980 they may drop if atomic power and coal fueled generators outside the San Diego Air Basin are utilized.

- A series of regional air quality tactics have been recommended by the Team which will allow Federal oxidant standards to be met, assuming CPO's "Current Trends" population forecasts are essentially valid. As the Federal levels are achieved, the intent of the State Implementation Plan (SIP) will be met.
- Strategies to control sulfur oxides have also been developed, but because they 1) involve voluntary action, e.g. conserve electricity; 2) fall under State or Federal jurisdictions; or 3) are an integral part of the entire energy question, their successful implementation is questionable at this time.
- Regarding particulates, a comprehensive study program has been recommended in order to gather the data necessary to implement an effective control strategy.

3.4 Water Quality

3.4.1 Surface Water

Because of the twice daily flooding by waters from San Diego Bay, water quality in those portions of the Sweetwater Marsh complex reached by these tides appears to

be generally good. In the more landward, higher elevation portions of the marsh, reached only by the highest tides, what little surface water is present tends to be highly saline as evidenced in part by the presence of virtually barren saltflats.

Occasional fresh water flow in the Sweetwater River channel results from perennial agricultural and domestic use of fresh water in the drainage basin. This water is contaminated by agricultural and urban pollutants.

At present, fresh water flow into the marsh from adjacent uplands (and in particular from the Vener Farm area) is primarily winter rainfall runoff or agricultural irrigation water. In either case, because of the intensive agricultural use of much of the upland area, these waters probably have a high nutrient and pesticide content.

3.4.2 San Diego Bay

San Diego Bay is well known as an outstanding example of the success of a rigorous water pollution control program. Prior to 1963 when the San Diego Metropolitan System for area-wide sewage disposal went into operation, water quality conditions in the Bay were generally adverse (see SDRWPCB, 1952; Newman, 1958; Parrish and Mackenthun, 1968; and the compilations by Gautier, 1972 and Browning et al., 1973).

According to the Corps of Engineers (USACE, 1974),

"The physical and chemical characteristics of the bay waters are known from studies carried out by the Regional Water Quality Control Board-San Diego Region (RWQCB-SDR), the Federal Water Pollution Control Administration (FWPCA) and investigators from local academic institutions. In 1960, the RWQCB-SDR established 30 permanent water sampling stations throughout the bay.... At frequent intervals...the dissolved oxygen content of the surface and bottom waters has been determined at these stations.... In recent years, surface water temperatures, turbidity values..., coliform bacteria, nitrate-nitrogen, total kjeldahl nitrogen, and total phosphate-phosphorous have also been determined with some regularity. Intermittently, other parameters such as biochemical oxygen demand (BOD) and phytoplankton concentrations have been examined, and bottom samples have occasionally been collected for chemical and biological analysis...."

As summarized by Gautier (1972),

"...the dissolved oxygen concentration was less than 4 mg/l--an accepted minimum for marine life is 5 mg/l out of a possible 8 or 9 mg/l; coliform counts were in excess of 10 per ml--past the danger point for life sustenance; turbidity was such that visibility was less than four feet; plankton blooms proliferated and sludge deposits stifled bottom marine life. Since 1963,...dissolved oxygen has risen to an average in excess of 5 mg/l; coliform counts are down to a safe level except in areas within 100 feet of naval ships at North Island; turbidity has improved with an average visibility factor of eight feet, which is in excess of the minimum required for most activities; plankton blooms are vitually non-existent since the nutrient-rich sewage dischargers have been diverted; and sludge is gradually being dissipated through tidal action and fresh silting."

In short, water quality has improved to acceptable levels for most human activities and most indigenous forms of marine life have returned to the Bay (Browning et al., 1973; SDUPD, 1974).

3.4.3 Groundwater

Groundwater in the lower reaches of the Sweetwater Valley has a high percentage of sodium and calcium chloride, with a total dissolved solids content ranging to as high as 50,000 parts per million (Corps of Engineers, 1973; 1975). This poor quality water is due to contamination by 1) effluent discharge from an upstream wastewater treatment plant, 2) connate water migrating to the valley from the surrounding mesas, and, most importantly, 3) sea water intrusion from San Diego Bay. The Corps of Engineers (1973) reports that sea water intrusion has been observed in bore holes as far inland as National Avenue.

Groundwater in the area is rated as inferior for domestic or agricultural uses.

3.5 Noise

3.5.1 Mobile Source

A noise survey of the site was made on February 2, 1976, between the hours of 10:00 a.m. and 2:00 p.m. A General Radio 1565 Sound Level Meter (SLM) which meets the requirements

listed in American National Standards Institute (ANSI) Standard S1.4-1971, "Sound Level Meters" was used. The SLM was calibrated with a General Radio Type 1562-A Sound Level Calibrator and fitted with a windscreen. Measurements were taken approximately 4 feet above the ground to avoid ground reflection influences. The A-weighting network and the slow response were used on the SLM. The A-weighting network discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear in terms of loudness at moderate sound levels. The A-scale sound level measures the relative noisiness or loudness of many common sounds and as such is regularly used for community noise measurements and noise from surface vehicles. A-weighted measurements can be time averaged to yield average sound pressure levels which have been widely correlated with degrees of community impact and annoyance. Readings were made at six locations throughout the property (see Figure 3-3) in accordance with the procedures described in the Federal Highway Administration's Fundamentals and Abatement of Highway Traffic Noise (Bolt, Beranek and Newman, 1973). From these readings the L_{10} sound level and an approximate average range were determined. The results of the survey are shown in Table 3-3. L_{10} is the sound level descriptor adopted by the Federal Highway Administration (FHWA)

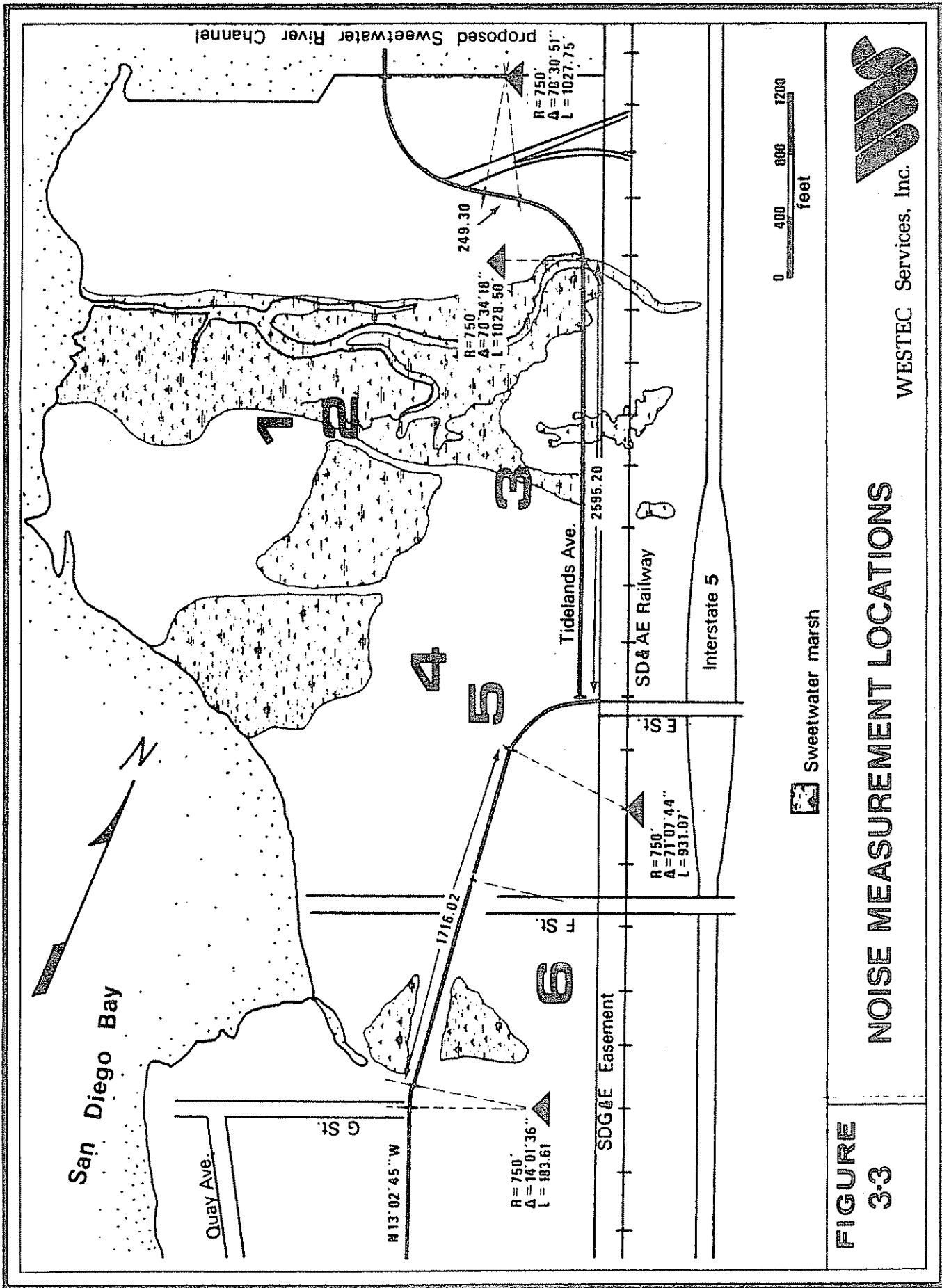


FIGURE 3-3

NOISE MEASUREMENT LOCATIONS

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for highway design. It is the sound level that is exceeded 10 percent of the time.

Table 3-3

AMBIENT NOISE MEASUREMENTS

Location	Average Range	L ₁₀	L ₉₀	Predominant Noise Source
1	46-50	49 ₋₁ ⁺¹	47 ₋₁ ⁺¹	-
2	48-50	49 ₋₁ ⁺³	49 ₋₃ ⁺¹	-
3	52-54	53 ₋₁ ⁺³	53 ₋₁ ⁺¹	I-5 Freeway
4	42-49	49 ₋₃ ⁺¹	43 ₋₁ ⁺¹	-
5	46-52	51 ₋₁ ⁺¹	47 ₋₁ ⁺³	-
6	46-52	51 ₋₁ ⁺³	47 ₋₁ ⁺¹	-

Aside from occasional noise intrusions from aircraft overflights (including helicopters) and trains, the predominant noise source throughout the project area is traffic noise, specifically from Interstate 5 (I-5). The D Street fill is currently vacant and is utilized as a recreational area by dune buggies and motorcycles.

3.5.2 Stationary Source

Industrial noise sources in the vicinity of the project area include the Rohr Corporation and the San Diego

Gas & Electric South Bay Power Plant. The Rohr Corporation adjoins the project area on the south and the SDG&E facility is situated about 1 1/4 miles to the south. The closest ambient measurement to these facilities, location 6, showed no significant noise increase from the other sampling locations (45-55 dBA). An additional stationary noise source to be considered is the high voltage transmission lines which cross the eastern aspect of the project site.

3.6 Biology

3.6.1 Terrestrial Biology

3.6.1.1 Terrestrial Vegetation

Terrestrial flora and fauna have been greatly disturbed throughout the redevelopment area due to man's alteration of the native landscape. This alteration has taken the form of brush removal, plowing and farming activity, road construction, construction of buildings and other structures, and landfill operations. The majority of the redevelopment area excluding marshland is currently utilized for the farming of row crops (tomatoes). Around the edge of the plowed zones, bordering roadways and on newly deposited fill, ruderal floral species have established themselves. These ruderals are comprised of common weedy, adventitious species such as

Australian saltbush, Russian thistle, annual grasses (bromes) and sweet clover.

The only remaining natural terrestrial flora within the redevelopment area occurs in a narrow strip bordering the southern edge of the Sweetwater Marsh. This narrow strip of undisturbed vegetation actually consists of two distinctly different vegetative groups which are separated by the juncture of Vener Pond and the main body of the Sweetwater Marsh. The most westward segment is occupied by a number of succulent and maritime brush species. These include dudleya (Dudleya edulis), prickly pear cactus (Opuntia, sp.), San Diego barrel cactus (Ferocactus viridescens), San Diego cholla (Opuntia parryi var. serpentina), sea-blite (Suaeda californica), alkali health (Frankenia grandifolia), and yerba reuma (Frankenia palmeri). Mudie (1970) records the presence of sea dahlia (Coreopsis maritima) at this point also.

The eastward segment is occupied by plant species characteristic of undisturbed upland areas. Such an area is relatively uncommon in the immediate vicinity due to extensive urbanization. This narrow band of vegetation, lying between a plowed field on the south and the upper reaches of the Sweetwater Marsh (primarily saltflats) on the north, is thickly covered by a number of shrubs including some arboreal-type specimens. Shrub types include jojoba (goatnut), bladder-pod, lemonadeberry, laurel sumac, and elderberry.

3.6.1.2 Terrestrial Fauna

Due to the lack of terrestrial floral cover excepting the two areas mentioned above, the abundance and diversity of faunal species is expected to be quite low as compared to other more natural upland areas. A number of species of field mice would be expected to be found on the property as well as common lizards (San Diego alligator lizard, side-blotched lizard, and western fence lizard). These three reptilian species were observed during a survey of the adjacent Paradise Creek Marsh area and should also be found in the re-development area (Williams and Rieger, 1973). The same survey revealed the presence of the ubiquitous house mouse, also to be expected on the subject property. Terrestrial faunal elements actually observed on site included a fair number of blacktail jackrabbits and a few California ground squirrels. Additional terrestrial predators may include skunks, longtail weasels, gopher snakes, and domestic cats and dogs. Dog tracks were numerous throughout the study area including along the beach and in marsh areas.

3.6.1.3 High Interest Species

Floral and faunal species are considered to be of high interest if they are:

- Rare or endangered

- Of depleted status (including Audubon Blue List species)

- Endemic

- a. Rare or Endangered

Three (possibly four) rare and endangered terrestrial floral species exist on the site as defined by the California Native Plant Society (CNPS) (California Native Plant Society, 1974). These species are listed below along with a four-number code. This code notation, which explains the status of the species as per the CNPS, is interpreted in the following table (Table 3-4).

The three species are:¹

- Ferocactus viridescens³
1-3-2-1
- Frankenia palmeri
P.E.--1
- Opuntia parryi var. serpentina
1-3-2-2
- Coreopsis maritima ssp. maritima²
3-2-2-2

¹Floral nomenclature follows that of Munz (1974).

²Previously reported from area (Mudie, 1970); however, not observed during recent limited reconnaissance period.

³This species is proposed for inclusion in the Federal endangered species list.

Table 3-4

RARITY - ENDANGERMENT CODES. SCHEME
OF CNPS TO SCORE STATUS OF RARE PLANTS.

Rarity (R)

1. Rare, of limited distribution, but distributed widely enough that potential for extinction or extirpation is apparently low at present.
2. Occurrence confined to several populations or one extended population.
3. Occurs in such small numbers that it is seldom reported; or occurs in one or very few highly restricted populations.

P.E. Possibly extinct or extirpated.

Endangerment (E)

1. Not endangered
2. Endangered in part
3. Totally endangered

Vigor (V)

1. Stable or increasing
2. Declining
3. Approaching extinction or extirpation

General Distribution (D)

1. Not rare outside California
2. Rare outside California
3. Endemic to California

All three (possibly four) of these species occur together in an existing band of native vegetation along the previously described southern edge of the Sweetwater Marsh and the northern edge of Gunpowder Point (see Figure 3-4). All four species are considered "northern limitaries" by Beaucahmp (1972). This means that although their range extends south of the border into Baja California, their northern range limit is San Diego County.

Ferocactus viridescens (Coast Barrel Cactus) is endangered primarily due to its existence being limited to lower elevations in coastal San Diego County and as such is gradually being replaced by urbanization. Frankenia palmeri (Yerba Reuma) does in fact still exist in the study area and is represented by a number of scrubby plants. Although this species is fairly common in Baja California, the Sweetwater Marsh is probably the last habitat of this species in the United States (Mudie and Bradshaw, 1971). Opuntia parryi var. serpentina (San Diego Cholla) is, like the above two species, found along the coast of Baja California but is declining and endangered in the United States due to its habitat lying essentially in areas with a high potential for development. Coreopsis maritima ssp. maritima is found only along coastal bluffs and dunes (200 foot elevation). It has become endangered due to coastal development and the alteration of estuarine areas.

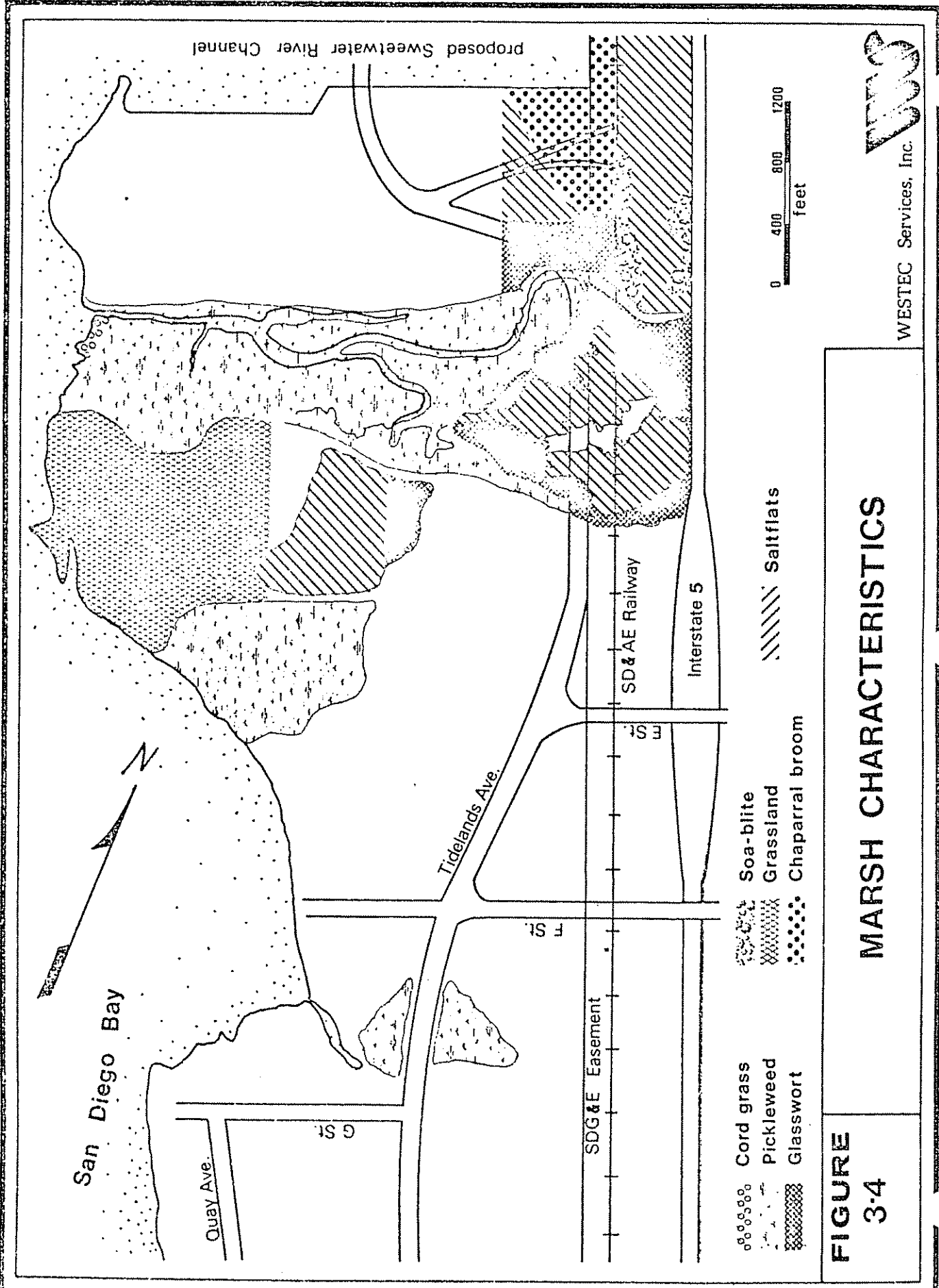


FIGURE 3-4

MARSH CHARACTERISTICS

WESTEC Services, Inc.



b. Depleted Status

A 'depleted' species is one that, although still occurring in adequate numbers for survival, has been heavily depleted and continues to decline at a rate which gives cause for concern (Burns, 1971; Bury, 1971). No terrestrial floral or faunal species of depleted status exist on-site.

The Audubon Blue List contains avifaunal species which are presently giving indications of non-cyclical population declines in all or parts of their range, but are not now of sufficient rarity to be considered endangered (Arbib, 1975). The only terrestrial avifaunal species listed on the 1976 Blue list which was observed on the site and which may be declining in the San Diego region is the American kestrel (sparrow hawk). Two marine avifaunal species which may utilize terrestrial habitat space on the project site for nesting purposes also appear on the Audubon Blue List. These species are the Least Tern and the Snowy Plover.

c. Endemic

No floral or faunal species endemic to San Diego County were observed on the subject property. Stebbins and Major (1965) recognize three classes of floral endemics (endemic here referring to the State of California): relict species (dating from ancient flora), patroendemics, and

apoendemics. The latter two classes are of interest due to the genetic mechanism(s) of their origin as species. The following endemic (to California) terrestrial floral species were found in the subject area.

Relict species:

Isomeris arborea Bladderpod

Simmondsia chinensis Goatnut, Jojoba

3.6.2 Wetlands Biology

Wetlands can be subdivided broadly into several habitat types according to the degree of tidal submergence and exposure. These habitats are: mudflats, which are exposed only at the lowest tides; low marsh, exposed at all low tides and inundated by most high tides; and high marsh, inundated by only the highest tides.

The Sweetwater Marsh and adjacent elements of marsh and wetlands are part of the Sweetwater-Paradise Marsh complex which stretches from the vicinity of 24th Street in National City south to E Street in Chula Vista (Figure 3-4). This marsh complex occupies about 254 acres of coastal land located almost entirely west of Interstate 5. The marsh complex includes the main Sweetwater Marsh, Paradise Creek Marsh, Vener Pond, E Street Marsh and associated tidal flat areas.

The Sweetwater-Paradise marsh complex is a coastal salt marsh that is rarely influenced by fresh waterflow. Studies

of the marsh areas within the region indicate that the Sweetwater-Paradise marsh complex to be the highest quality marsh area remaining within San Diego Bay itself. Approximate acreage of the various elements of the marsh complex which will be directly impacted by the project are presented in Table 4-9. There are various other elements of the marsh which maybe effected by the project. These include Veners Pond (.15 ac), Veners Marsh/E St. marsh (34 acres), Paradise Creek marsh (55 acres) and various mud flats (28 acres).

As pointed out in the Corps' Draft Environmental Statement for the Sweetwater Flood Control Project (USACE, 1975):

"The number of plants and animals supported by particular habitat is roughly proportional to its area, assuming the quality of the habitat is relatively uniform. The importance of the Sweetwater-Paradise region as a wildlife preserve may therefore be roughly estimated by expressing the size of each habitat in this area as a percentage of the total wetland habitat now remaining in San Diego Bay. If the Western Salt Company ponds (located at the southern end of San Diego Bay) are not included as a natural habitat, the mudflats at Sweetwater are approximately 37 percent of all mudflats remaining in San Diego Bay; the low marsh is approximately 40 percent of the total low marsh habitat remaining, and the high marsh about 95 percent of the total high marsh remaining".

In addition, as discussed in Hankla (1975), the Sweetwater-Paradise Marsh and associated wetlands supply considerable plant, animal, and bacterial food to San Diego Bay, and therefore, directly relate to the diversity and density of organisms using the Bay.

Further, according to Flittner and Miller (1971), the 1,400 acres of relatively undeveloped tidal and estuarine habitat that now remains in south San Diego Bay:

"...has become critically important to those avian, mammalian and piscine species that formerly enjoyed a series of smaller estuaries

and lagoons which were scattered at 20 to 50-mile intervals from Santa Barbara to the Mexico border. Virtually all of these habitats have given way to...[development]. and thus the south San Diego Bay offers the only significant vestige of natural environment that remains on more than 200 miles of Southern California coastline."

The regional ecological importance of the undeveloped area in South Bay is clear cut.

As pointed out by the Corps of Engineers (1975), the importance of preserving the biota in the Bay and its environs has been stressed by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, the California Regional Water Quality Control Board-San Diego Region, and the California Coastal Zone Conservation Commission-San Diego Coast Regional Commission. Organizations such as the San Diego chapters of the Audubon Society and the Sierra Club, Citizens Coordinate for Century 3, Ocean Fish Protective Association, San Diego Field Ornithologists, and numerous other non-governmental groups are also actively concerned with the preservation of natural resources within the Bay.

In addition, Hankla (1975) has emphasized that:

"The Sweetwater Marsh is important as a natural laboratory and study area. This area represents the largest and best natural wetland habitat remaining in San Diego Bay. Therefore, its potential use as an outdoor classroom by the area's universities, colleges, and other educational or research-oriented institutions cannot be equaled elsewhere in the bay."

Because of the biological importance of San Diego Bay and its environs, and the important biological objectives of

the proposed project (i.e., preservation and enhancement of salt marsh habitat), excerpts from pertinent reports on the biology of this portion of south San Diego Bay are quoted here in some detail.

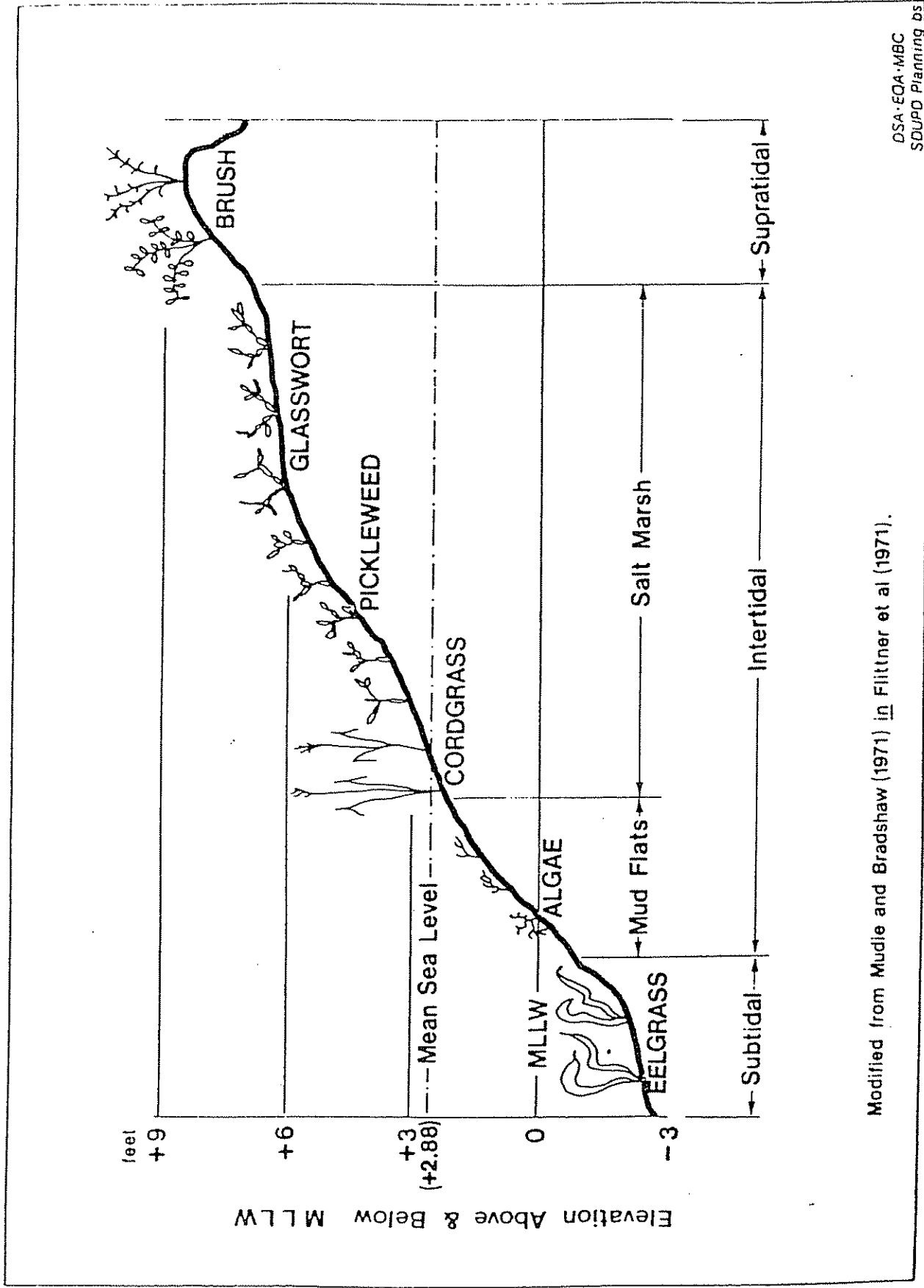
Because of the extent of previous field studies of this marsh area by Mudie (1970), by Ford et al., (1971a), and by Williams and Rieger (1973), no detailed biological survey of these wetlands was carried out specifically for this project. However, in connection with specific questions regarding the impact of the present project, a brief field examination of parts of the Sweetwater marsh was made by Dr. Joy Zedler on February 13, 1976.

3.6.2.1 Wetlands Vegetation

a. General

As presented by Mudie and Bradshaw (1971):

"The vegetation fringing the shores of south San Diego Bay comprises three main floral elements: a salt marsh flora at the lower elevations, a maritime brush flora on the upland border of the salt marsh, and a brackish water flora in areas where fresh water runoff penetrates the salt marshes. The relative distribution of these three floras is governed by the tolerance of the vegetation types to soil salinity and to fresh or salt water inundation." This distribution is depicted in Figure 3-5.



Modified from Mudie and Bradshaw (1971) in Filittner et al (1971).

OSA·EQA·MBC
SDUPD Planning bs

Figure 3-5 Elevational distribution of wetlands vegetation.

associated with those named above are discussed in detail in Mudie (1970).

b. Sweetwater-Paradise Marsh

The Sweetwater-Paradise marsh complex adjoins the tidal reaches of the Sweetwater River and is situated west of I-5 between 24th St. in National City and the Gunpowder Point upland in Chula Vista.

The marsh is described in the Corps draft Environmental Statement (USACE, 1975) as follows:

Salt marsh are the dominant form of vegetation found in the Sweetwater-Paradise marsh area. Plant growth is luxuriant and varies throughout all areas of the low and high marsh. All characteristic southern California salt marsh plants are represented. Also, a species of alkali heath considered to be locally rare by botanists is present in the marsh. The mudflats in the area support at least four common species of algae that provide an important habitat for young fish and small marine organisms. However, the mudflats lack a cover of eel grass, which is typically present in most natural coastal wetlands. Possibly the absence of the eelgrass is a result of dredging activity in the offshore region. The vegetation of the upland areas of this region has largely been altered by man and now carries only a thin cover of brush and weeds.

Although the Sweetwater-Paradise marsh complex is relatively small, it supports almost all of the major fish and large invertebrate habitats typical of other southern California estuaries. The tidal channels form an open water habitat that is directly influenced by seawater conditions in south San Diego Bay and seasonally by rain and fresh water runoff from the surrounding watershed. The bottom area of the tidal channel system consists of two major habitats, both of which are strongly influenced by the overlying water. These habitats are (a) the subtidal part of the channel bottom, usually consisting of coarser-grained (sandy) sediment that is the result of scour action by tidal currents; and (b) a lower intertidal mudflat zone, in which finer grain sediments (clays) provide stable conditions for burrowing animals. Large expanses of higher intertidal substrate surround the tidal channel system. This habitat, which consists of fine grain sediment, supports typical salt marsh vegetation and a small number of associated animal species.

c. Vener Marsh

According to Mudie (1970)

who refers to this 30 acre area as the "E Street Marsh,"

"This marsh appears to have formerly been connected to the Sweetwater River marsh via the saltflats (Vener Pond) on the northeastern side. Most of the marshland is lowlying and comprises a short or tall pickleweed community. The wetland is dissected by a network of small creeks and is presently unpolluted by run-off. However, filling activity on the north side is rapidly reducing the size of the wetland area."

d. Vener Pond

Although referred to in this report as Vener Pond, this area generally contains water only

during the winter months. Mudie (1970), who studied the area during the summer months, mapped the area as a saltflat. An area of glasswort community borders part of the east edge of the saltflat (see Figure 3-5).

e. F and G Street Marsh

According to Mudie (1970):

"The wetlands in this locality comprise approximately 16 acres of pickleweed community. The area is drained by a single narrow channel that originally extended north of F Street. The northern area is now occupied by a brackish water pond which is presumably fed by run-off from the adjacent fields.

"This small marshland is still in fairly healthy condition, hornshells, fiddler and mudflat crabs being present; however, filling has begun on the northern side and several of the creeks are blocked by trash....

Some additional fill has been placed in the northern part of this marsh. The remaining acreage (about 10-12 acres), however, is surprisingly healthy, considering the degree of impact and the proximity to Rohr and other developed areas.

f. Mudflats

The bayward margin of the project area is fringed by extensive mudflats exposed at low tide (see Figure 3-2). At mean lower low water, these mudflats have an area of more than 250 acres. In addition, an area of mudflat roughly 10 acres in size is present along the south margin of the 24th Street channel adjoining the north edge of the D Street fill.

According to the USACE

(1975):

"The mudflats in the area support at least four common species of algae that provide an important habitat for young fish and small marine organisms. However, the mudflats lack a cover of eel grass, which is typically present in most natural coastal wetlands. Possibly the absence of the eelgrass is a result of dredging activity in the offshore region."

g. Zonation of Vegetation in
Sweetwater Marsh

As to the typical vegetation zonation within the high and low marsh habitats in the Sweetwater Marsh, Mudie (1970) has summarized the relationships as follows:

"...The vegetation of [the] high marsh [elevations six feet or more above MLLW] is dominated by the low-growing shrub, Salicornia subterminalis (Glasswort), with an undercover of salt cedar (Monanthochloe littoralis) and, occasionally, Watson saltbush (Atriplex watsonii). [In the area of saltflats]...the dense growth of glasswort thins out and becomes interspersed with open areas of annual grasses and herbs; finally, the glasswort disappears altogether and only the scattered growth of annuals remains to form a fringe around the bare, salt-crusted surface that surrounds the salt[flat].

"Along the shoulders of the main drainage channels in the high marsh areas, and in depressions within the glasswort community, the characteristic glasswort assemblage is replaced by a mixture of species that are usually associated with the upper elevations of the low marsh (e.g. pickleweed, marsh lavender and alkali heath).

"...[in] the central wetland region of the Sweetwater marsh...the elevation of the marsh surface here

ranges between approximately 4.5 and 5.5 feet above MLLW, the lower elevations being represented by minor creeks draining the marsh surface. The vegetation is typical of the upper levels of the low marsh of the South San Diego Bay wetlands and is dominated by a tall dense growth of pickleweed (Salicornia virginica). Intermingled with this dominant herb are a variety of subdominant salt marsh species e.g. California sea-blite (Suaeda californica), alkali heath (Frankenia grandifolia), marsh lavender (Limonium californicum), saltwort (Batis maritima) and salt grass (Distichlis spicata); the last two species are low-growing and are thus generally confined to the undercover below the taller, more shrubby herbs. In the water-logged creek sides and bottoms of this marsh region, the characteristic plant assemblage is usually replaced by an open growth of saltwort and scattered cordgrass (Spartina foliosa). Poorly drained depressions (pans or 'rotten spots') lying below the average level of the low marsh surface are also characterized by a change in species dominance: the pickleweed assumes a low growth form and shares its dominant position with saltwort or annual pickleweed (Salicornia bigelovii); local patches of low-growing herbs such as arrow grass (Triglochin maritima) and Jaumea (Jaumea carnosa) may appear where the vegetation cover is less dense.

"The characteristic vegetation of the lower levels of the low marsh at Sweetwater [occupies areas ranging in elevation from approximately +3.3 to] 4.5 feet above MLLW.... Between +3.3 and 3.5 ft. dense stands of cordgrass appear in areas where wave action is slight and deposition of fine clayey silts has occurred (i.e., on protected shorelines); however, in more exposed shoreline areas, annual pickleweed tends to replace the cordgrass at this elevation. Above +3.5 ft., the cordgrass assumes co-dominance with pickleweed (Salicornia virginica) and subdominants such as saltwort and annual pickleweed appear. Local areas of increased elevation and improved elevation, usually represented by creek levees, are characterized by an absence of cordgrass and by a dominance of pickleweed; in some areas, California sea-blite and alkali heath may occur as subdominants with the pickleweed.

..."Below +3.3 ft., the low marsh vegetation gives way to mudflats that are colonized only by species of Green Algae....

"The composition of the low and high marsh vegetation in the other salt marsh areas of South San Diego Bay is essentially similar to that in the Sweetwater region. For example, the composition and structure of the low marsh of the Paradise Creek, E Street, F Street and Coronado Cays wetlands is almost identical with that represented by Transects II and III of the Sweetwater marshland. Similarly, the structure of the high marsh vegetation is basically the same in all those South Bay marshes in which this zone is present."

According to USACE (1975):

"Two species of multicellular algae and the marine eel grass, Zostera marina, form mats or clumps on the bottom and margins of the tidal channel in some areas. These mats consist of both living and detrital plant matter which sometimes become partially embedded or attached in the sediment. The material apparently is carried into the tidal channels from San Diego Bay where all three of these plant species occur.... These accumulations of algae and eel grass are an important habitat for small fishes and invertebrates."

3.6.2.2 Wetlands Fauna

The Sweetwater-Paradise Marsh and its adjacent wetlands area provide extremely important habitat for migratory shorebirds and waterfowl, as well as nursery grounds for a number of recreational fish species. Many of these birds and fish in turn depend for food on the molluscs, crustaceans, and other invertebrates which inhabit the mudflats, tidal channels, and marsh areas. In addition, as is discussed in a later section, at least five endangered (or rare) species of birds use this marsh area.

Because of the detailed nature of field investigations of the Sweetwater Marsh carried out

in 1971 by Ford and his colleagues and reported in Ford et al., (1971a) and USACE (1975), new field inventories of the vertebrate and invertebrate populations of the area were not carried out for this project. Accordingly, the following brief discussion of wetlands fauna is, in large part, excerpted from these two reports.

Regarding the bird fauna of this marsh area, as presented in the Corps of Engineers Draft Environmental Statement (USACE, 1975):

"The Sweetwater-Paradise marsh complex is heavily used by a great variety of both resident and migratory birds.... Along with San Diego Bay, the marsh forms a resting and feeding stop on the Pacific flyway, an important route for migratory waterfowl.... The California Department of Fish and Game reports that 180 [avian] species utilize the San Diego Bay marshes at one time or another during the year (USF&WLS, 1971) and most of these species can be found in the marsh complex. On October 2, 1971, 52 bird species were observed in the marsh and on the immediately adjacent riverbanks....

"The marsh and adjacent tidal mudflats provide important feeding habitats for a wide variety of water associated birds; at high tide many birds rest in inland portions of the marsh. The marsh itself provides nesting habitats for many common species as well as for the clapper rail, Belding's savannah sparrow, and, possibly, the tiny black rail. The marsh is a habitat for several non-waterfowl species such as the short-eared owl and long-billed marsh wren.

"Although the Sweetwater-Paradise marsh complex is relatively small, it supports almost all of the major fish and large invertebrate habitats typical of other southern California estuaries. The tidal channels form an open water habitat that is directly influenced by seawater conditions in south San Diego Bay and seasonally by rain and fresh water runoff

from the surrounding watershed. The bottom area of the tidal channel system consists of two major habitats, both of which are strongly influenced by the overlying water. These habitats are (a) the subtidal part of the channel bottom, usually consisting of coarser-grained (sandy) sediment that is the result of scour action by tidal currents; and (b) a lower intertidal mudflat zone, in which finer grain sediments (clays) provide stable conditions for burrowing animals. Large expanses of higher intertidal substrate surround the tidal channel system. This habitat, which consists of fine grain sediment, supports typical salt marsh vegetation and a small number of associated animal species."

As to invertebrates, the Corps' Environmental Statement (USACE, 1975) reports that:

"Quantitative sampling was conducted during September 1971 at six representative locations within the Sweetwater River and Paradise Creek marshes [Ford et al., 1971a]. The species of marine algae, marine grasses, and invertebrates obtained in 0.25 square meter quadrant samples are listed in [USACE, 1975, as are]...the species of fishes collected in quantitative net samples.... The sampling has shown that the Sweetwater-Paradise marsh complex supports assemblages of tidal channel, tidal flat, and salt marsh organisms that are common in other relatively undisturbed estuaries in southern California and Baja California. In general, most forms inhabiting these marsh areas are known to be tolerant of moderately wide ranges of salinity, temperature, and other environmental conditions that occur on a seasonal basis. This assemblage of organisms has complex food web (feeding) relationships [Ford et al., 1971b].

"Bivalve molluscs are the dominant group among the larger invertebrate animals living in the sediment of the tidal channels and adjacent mudflats.... Several of these species form a potential recreational resource for clam-diggers [see USACE, 1975].

"Polychaete worms and gastropod molluscs (sea snails) are dominant groups in terms of number of species and abundance. Because most of the polychaete species are quite small, they were not adequately sampled by the method used in the survey [Ford et al., 1971a].

"The higher intertidal areas of salt marsh vegetation support only two species of marine invertebrates. These are the very abundant California horn shell, Cerithidea californica, and the fiddler crab, Uca crenulata, which live in burrows on the mudflats and in the lowest parts of the vegetated areas of the marsh.

"Species of fishes known to occur in the Sweetwater-Paradise Creek marsh areas and those taken in quantitative sampling during September 1971 are listed in [USACE, 1975]. The dominant fish species found in the marsh, in terms of distribution and abundance, are the California killifish, the topsmelt, and cheekspot goby, and young individuals of the diamond turbot. The diamond turbot, and the California halibut are of importance to recreational fishing in the adjacent areas of the San Diego Bay. The presence of large numbers of young diamond turbot in the main tidal channel of the Sweetwater marsh suggests that it may be an important nursery area for this species in south San Diego Bay [Ford, et al., 1971a]."

3.6.2.3 High Interest Species

As presented in the Corps'

Environmental Statement (USACE, 1975):

"...The following species of birds, which are known to reside in or visit the Sweetwater marsh, are on the U.S. Department of the Interior and the California Department of Fish and Game lists of endangered species: the [light-footed] clapper rail, the California least tern, and the California brown pelican."

The light-footed clapper rail, which prefers the Spartina community for nesting and forage

(Jorgenson, 1975), is totally dependent on marsh habitat for survival. According to USACE (1975):

"The brown pelican may be found in San Diego throughout the year, but its nearest breeding ground is the Coronado Islands. The pelican feeds in the bay and in the open sea, but it also roosts and forages on sandbars and tidal flats adjacent to the marshes. The least terns breed in the San Diego area from April to September. They fish around the edges of the marshes at high tide and in the tidal channels during all tidal stages. They also may use the tidal flats for resting.... Tidal mudflats and marshes provide the only feeding habitats for this species, and there is probably a small breeding population in the Sweetwater-Paradise marsh complex. In addition a few migrant clapper rails may visit the complex during the winter. The marsh is also used by the Belding's savannah sparrow which is listed as 'endangered' by the California Department of Fish and Game."

According to Collier (1976), the Belding's savannah sparrow tends to be most abundant in the various Salicornia communities and in stands of Distichlis. This sparrow is also known to use mudflats adjacent to the marsh in foraging for insects.

As presented in the Corps' Environmental Statement (USACE, 1975):

"The California black rail, which is listed as 'rare' on the Department of Fish and Game list, may also live in or visit the Sweetwater-Paradise marsh complex. It is a small bird, very secretive in its habits. The black rail once commonly nested in the Sweetwater-Paradise salt marshes. If the species still exists in the local area, the Sweetwater-Paradise marsh is the most likely area where it could survive.

"The Department of Interior is in the 'notice of review' stage for 42 species of butterflies. This stage precedes possible inclusion on the endangered list or threatened list. One species, the wandering skipper, also known as the salt marsh skipper, is found in San Diego County and is dependent on a few halophytic grasses it finds to eat along beaches and marshes.

"...The apparent estuarine habitat requirements of the young of the California halibut, the diamond turbot, and a number of other fish represent a very critical factor in the survival of these species. It is important that the very limited number of remaining estuarine areas such as the Sweetwater and Paradise Creek marshes be maintained, as nearly as possible, in their natural state if species that require estuarine habitats are to survive.

"The area supports three potentially threatened plant species: California cord grass, beach lotus, and yerba reuma. The Sweetwater Marsh is probably the last sanctuary for yerba reuma in the United States. In addition, nine plant species noted as locally rare in the San Diego Bay region are found in the marsh complex [see USACE, 1975]."

3.6.3 Marine Biology

The flora and fauna in the waters and bottom sediments in the portions of the Bay at and near the project site are parts of the much larger San Diego Bay estuarine ecosystem. This ecosystem is discussed at some length in various reports and studies, including those by Ford (1968), Flittner et al., (1971), Ford et al., (1970, 1971, 1972), Ford and Chambers (1973, 1974) Browning, et al., (1973), Peeling (1974), Corps of Engineers (1975), and Smith and Wright (1976), to which the interested reader is referred.

According to Browning et al., (1973),

"...natural habitats in and around the Bay have been greatly altered or reduced during the last 50 years by development and maintenance projects... Nevertheless, the remaining habitats are important to fish and wildlife. These include 11,000 acres of open water (80% of which is classified as shallow, with mud or sand bottoms), some 600 acres of mudflats, approximately 350 acres of salt marsh, about 1,400 acres of salt ponds, and a limited acreage of upland sand dunes and chaparral.

"These habitats support an impressive number of estuarine organisms. ...at least 100 species of water-associated birds...forty-three species of fish, and at least 49 species of snails, clams, crabs, shrimp, worms and other invertebrates have been collected from various bay habitats."

Species lists for various habitat types are presented in Browning (1973) and in the other references cited.

Of particular interest is the strong possibility that the Sweetwater Marsh and adjacent mudflats also serve as a nursery area for commercially valuable fish species, the California Halibut (*paratichthys californicus*).

3.6.3.1 South San Diego Bay

Various aspects of the marine biology and ecology of south San Diego Bay are described in a number of the papers and reports just cited (particularly those by Ford and his associates) and need not be repeated here. Briefly, however, as described by Ford (1968):

"South San Diego Bay supports assemblages of marine organisms that are characteristic of the inner portions of relatively undisturbed bays and estuaries in California and Baja California. Ecologically similar forms inhabit bays and estuaries in other temperate areas of the world (Hedgpeth, 1957). In general, the forms found in the south Bay are tolerant of moderately wide ranges of temperature, salinity, and dissolved oxygen content and thus are able to survive seasonal and short term changes in these factors that occur there."

3.7 Archaeology

3.7.1 Cultural Considerations

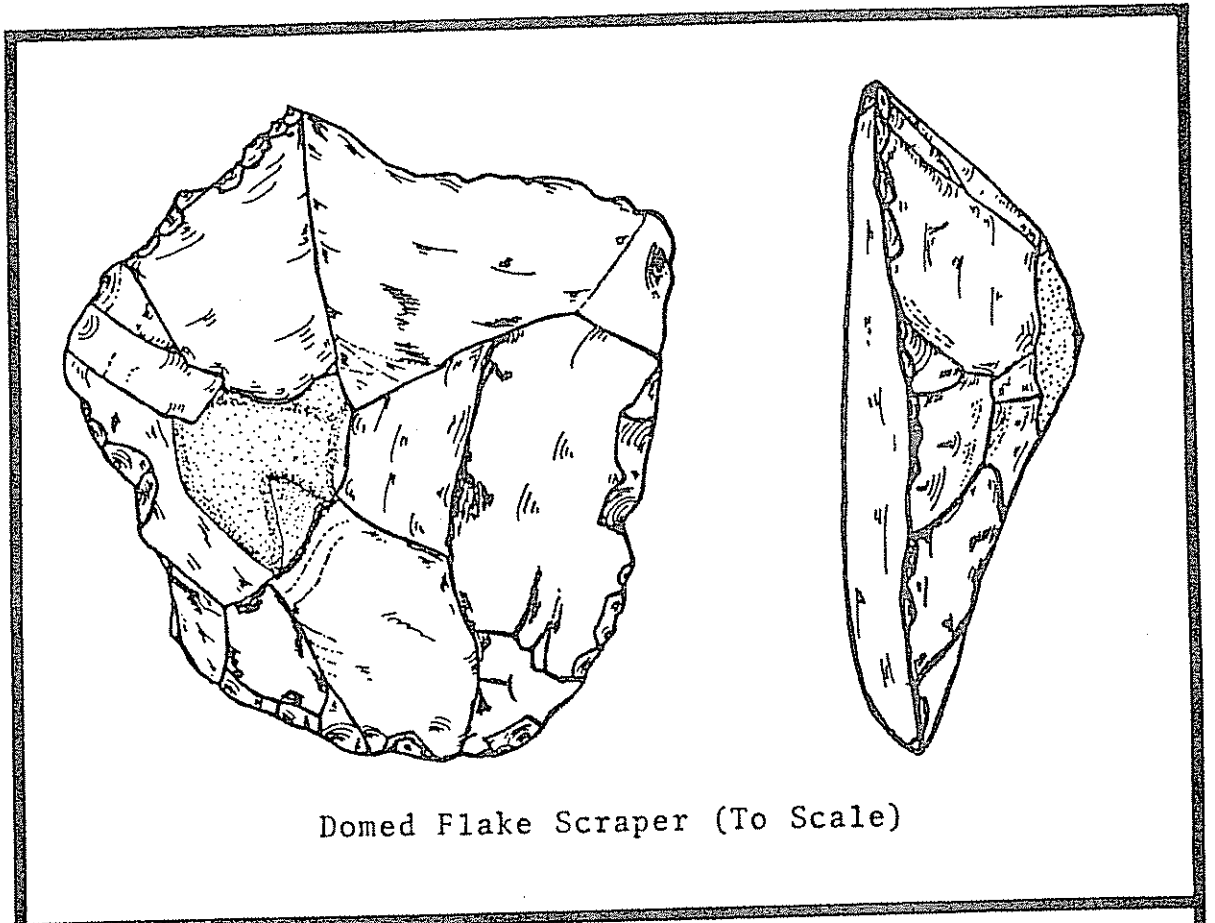
Commencing about 1,000 years ago and continuing into the Hispanic period, circa 1869, the Late Milling (Kumeyaay) people lived in the Chula Vista region. A series of villages and semi-permanent settlements are historically noted for this area including the villages of Chiap, Los Choyas, Apusquel and Alysuhui (Carrico, 1976).¹

The Kumeyaay inhabitants of Chula Vista were closely related to the desert peoples of the southwestern United States and shared a common language (Yuman) with many of the desert tribes. The Kumeyaay manufactured pottery, cremated their dead, hunted with a bow and arrow, lived in semi-permanent villages and may have been practicing proto-agriculture or horticulture when first contacted by the Europeanas (Shipek, 1970; Shipek, 1974; Rogers, 1939; Kroeber, 1970).

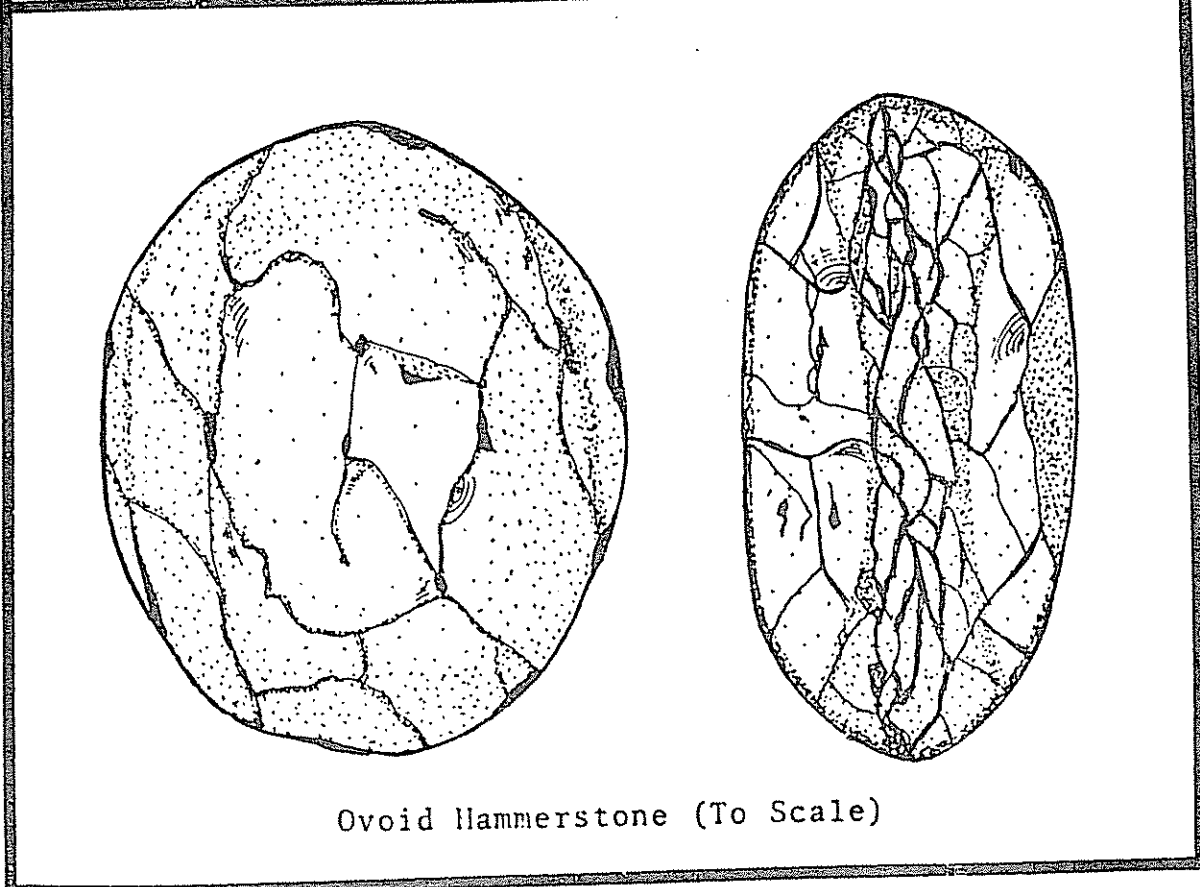
3.7.2 Survey Results

One minor archaeological site was encountered adjacent to a reservoir in the west-central portion of the property (Subarea A). Situated at an elevation of approximately 10 feet above sea level, this site consists of a widely scattered, thin veneer of shellfish, manos and stone scrapers. Diagnostic artifacts are depicted in Figure 3-6.

¹The data discussed in this section is a summary of a much larger report which is on file and available for public review at WESTEC Services, Inc., San Diego.



Domed Flake Scraper (To Scale)



Ovoid Hammerstone (To Scale)

Figure 3-6 Diagnostic Artifacts

Intensive field investigation revealed that this site covers an approximate area of 200 feet by 200 feet. A series of random post holes did not indicate any subsurface materials nor midden depth. The presence of this site in an area that has been severely impacted by farming activities and road-cutting seriously compromises the context and scientific value of the materials therein. The lack of significant depth may indicate that the site never possessed any appreciable midden buildup or it may signal that farming activities and clearing have removed the top portions of the site.

Based on the type of tool assemblage and the shellfish remains, it is suggested that this site, designated as WS-76-6, was the scene of temporary camping and foraging activities for the early peoples of the Chula Vista region. The presence of tools which are primarily culinary (i.e., for food preparation) and the scattered remains of local shellfish indicate that this may have been a seasonal zone of coastal exploitation for a people who varied their diet and thus gained valuable nutrients by exploiting the coastal lagoons and marshes. Sites of this type quite often lack a midden buildup because of the limited use activities which took place there or because of limited time/population factors.

3.8 Paleontological Resources

During geologic and archaeologic field surveys, the site was also investigated for paleontological resources. The survey

revealed no potential for such resources in this area.

Further, the natural characteristics of the site, i.e., low-land/marsh are not normally associated with high value paleontological resources (Carrico, 1976).

3.9 Historical Resources

There is an existing structure of possible historical significance, the old munitions factory. Therefore, the site was reviewed with local historical societies as well as the Federal Register of historical sites. This review in conjunction with discussions with the State Historical Preservation Officer indicates that the project area possesses no historic resources of significance (Carrico, 1976).

3.10 Land Use/Public Access

The existing land use pattern for the northern sector of the redevelopment plan is shown in Figure 2-2. It can be seen that the major land uses are the marsh areas (approximately 126 acres), agriculture (128 acres) and open space (vacant land) totaling 140 acres. The balance of the area is used for small commercial activities such as boat building and a motel. Existing transportation uses are limited to G Street, the connection of G Street to Tidlands Avenue where it runs south towards the Rohr facilities, and the F Street connection to the bay and G Street. The vast majority of the northern section has no transportation facilities other than limited

dirt service roads. This lack of transportation facilities and the agricultural operations serve for the most part to prevent all but unauthorized public access.

There are two main landholders in the northern section, the Atchison, Topeka and Santa Fe (AT&SF) Railroad and the San Diego Port District (approximately 374 acres). Furthermore, there is an additional 20 acres owned by Samuel Vener and some even smaller parcels (1/2 to 3 1/2 acres) owned by Rayne Soft Water Service, the Cranks and the Capps.

Mr. Vener leases approximately 108 acres from the AT&SF Railroad which he adds to his own holdings for the purpose of agriculture. For the most part, these agricultural lands are classified "HrC" according to the U.S. Department of Agriculture's Soil Capability charts. While soils of this classification, in and of themselves, are not considered to be prime agricultural soils, the combination of soils and climate in the area are particularly conducive to cultivation of horticultural crops such as tomatoes (Chula Vista, 1976).

According to the City's Master EIR:

"The mixed uses of the project area have led to a completely uncoordinated land use pattern, and it appears that until recently, the attitude has been that the area was essentially a waste area. It appears that the land was held by property owners with the expectation that as industrial use of the bay front extended southward from San Diego, the Chula Vista Bay Front would also ultimately become industrialized. Based on those assumptions, landfills were made, and in one locale, industry did locate.

The other areas of landfill are barren, and covered with weeds. Public access is essentially non-existent north of F Street and west of Bay Boulevard. Access to the bay itself by the public is limited to the foot of G Street and the J Street area of landfill, and none of the land area presents a particularly aesthetically pleasing appearance."

3.10.1 Zoning

The zoning for the project area is predominately a Planned Community zone (PC). This zoning ... "provides for orderly development of large tracts of land which may contain a variety of land uses..." Variances from the above are found along the bayside margin of Subarea B, where the R-3-H-P zoning allows for high density residential activities. This zoning would allow for up to 54 du/acre. The existing commercial boat building activities and the Rayne operation are in a CVP zone which permits uses and businesses for visitors and travelers such as motels, restaurants and theaters. In addition, conditional use permits would sustain uses such as car washes, service stations, nightclubs and commercial recreation (see Figure 3-7).

In summary, the tidelands of Chula Vista have a history of poor utilization because of natural and man-made conditions. The significant natural factors include the shallow depth of the South Bay, the proximity of the area from the ocean for both recreational and commercial boating purposes, and the extensive marshlands. The man-made factors center on the railroad rights-of-way, the freeway, the high power lines and the subsequent orientation and growth of the City away from the

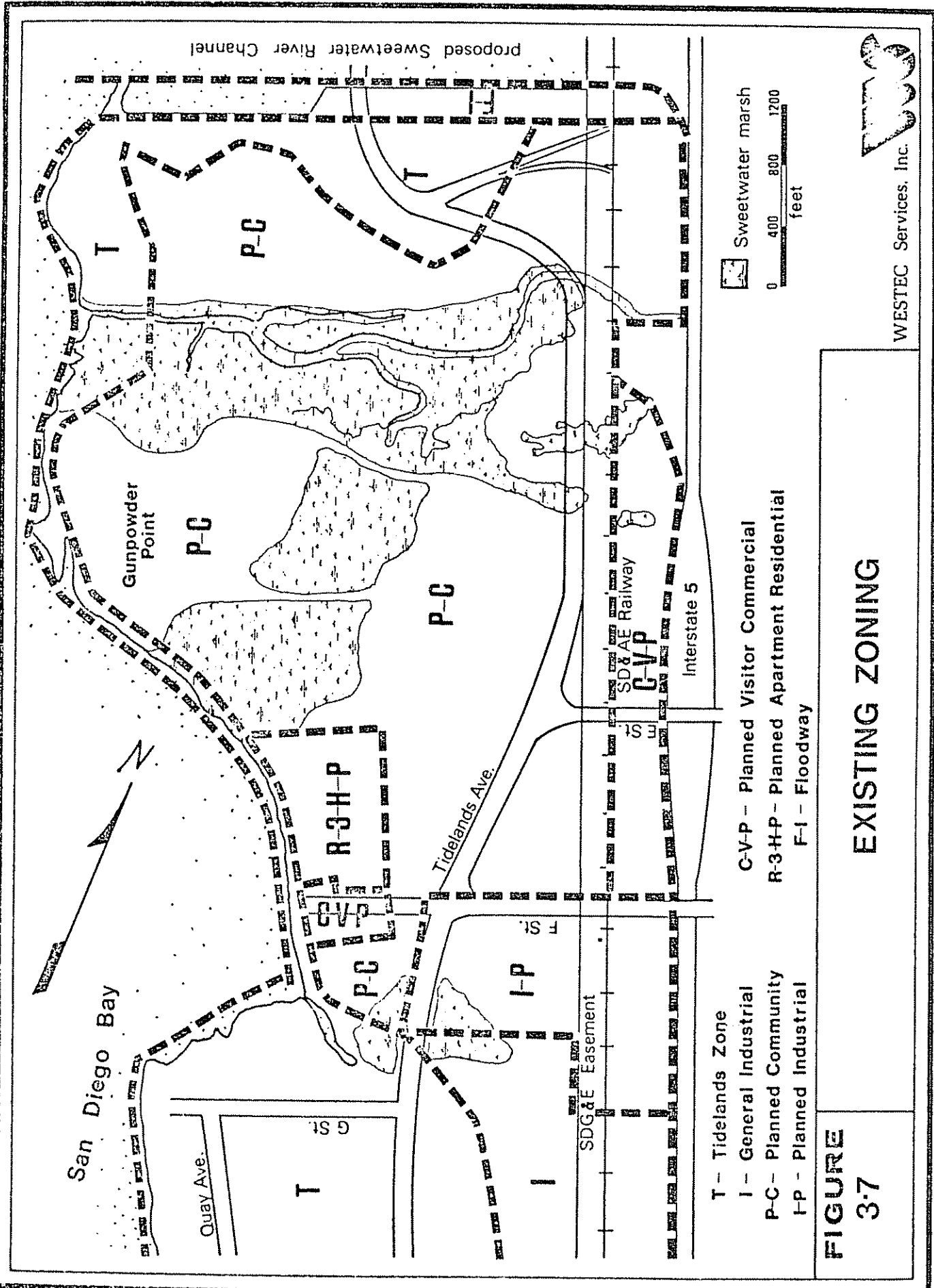


FIGURE 3-7

EXISTING ZONING

- T - Tideland Zone
- I - General Industrial
- P-C - Planned Community
- I-P - Planned Industrial
- G-V-P - Planned Visitor Commercial
- R-3HP - Planned Apartment Residential
- F-1 - Floodway

water (Chula Vista, 1973). With the exception of the early (World War I) munitions plant on Gunpowder Point and the existing agricultural/commercial activities, use of the overall area, along with public access to the site, has been limited. Site zoning is varied and relatively non-specific, permitting a wide variety of land use.

3.11 Aesthetics

The northern portion of the Chula Vista Bayfront provides a viewshed of the marsh and bayfront (waterfront) (see Fig. 3-8). These viewsheds are available from I-5, Anthony's Restaurant, the Rohr facility, as well as a variety of locations within the project area. Further, views of the Silver Strand, the San Diego skyline, Mexican coastal hills and the Coronado Bridge are all visible from the site. In the opinion of the Coastal Commission (1976), these views provide "much needed open space and a break from the industrial development to the north and south."

Currently, however, much of the viewshed is: 1) not accessible to the public except from I-5, 2) degraded by existing industrial structures (Rohr) and the lack of landscaping, and 3) generally suffers from the junkyards, power lines and agricultural facilities which detract from the potential beauty. Also, on a more localized level, the dumping of street sweepings and other assorted debris (brick, trash, etc.) serves to litter and degrade the landscape, all of which further detracts from the viewshed.

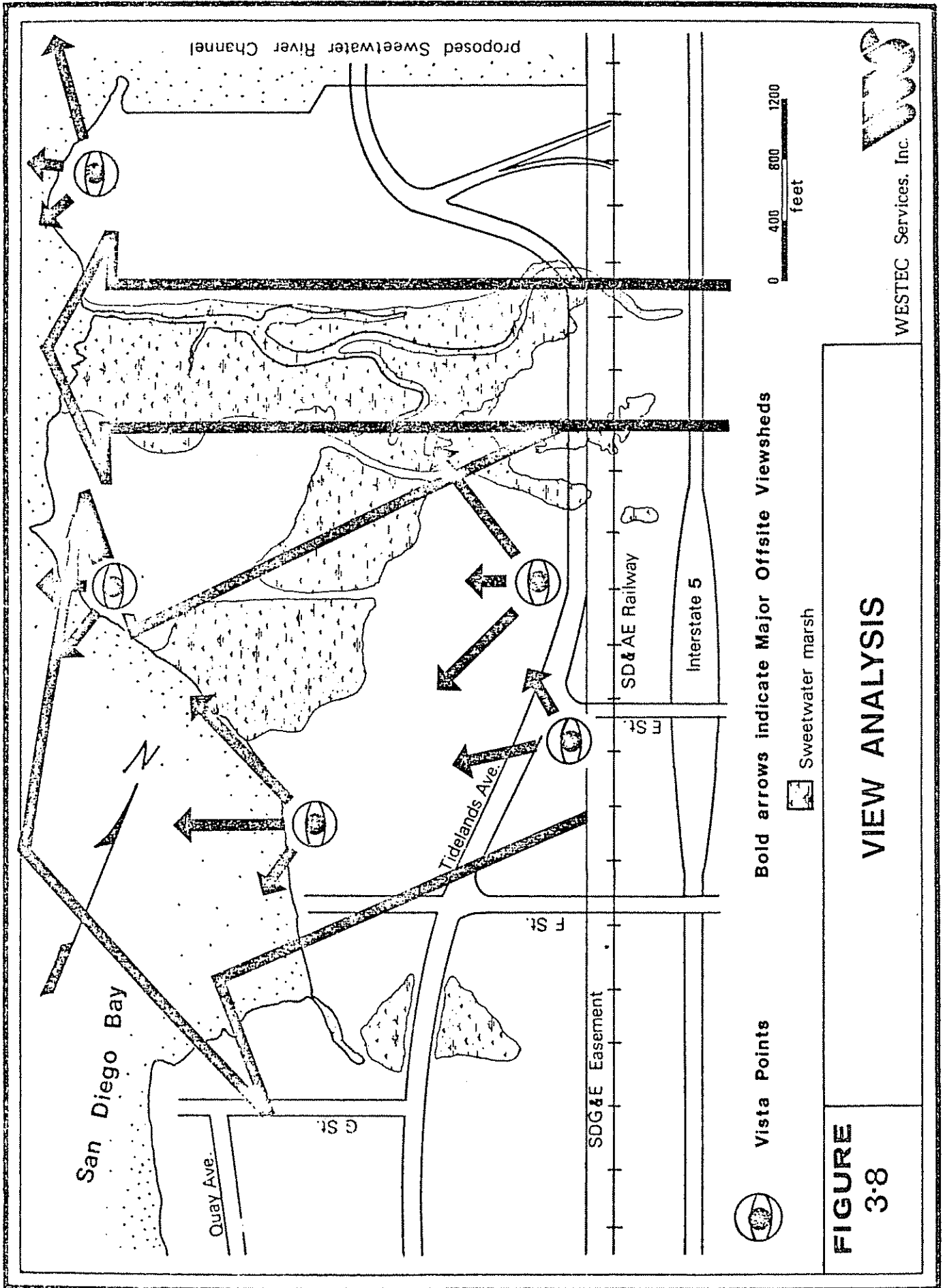


FIGURE 3-8

VIEW ANALYSIS

3.12 Socio-Economic Factors

3.12.1 Community Social Description

The sole population residing within the project boundaries are a few families who reside in the few isolated homes on Gunpowder Point. They are families of employees of Vener Farms (City of Chula Vista, 1973). The area within the project boundaries otherwise contains little in the way of residential population or dwellings.

Of the 6,434 persons employed in the entire Bayfront area, a vast majority work in businesses outside the project boundaries (Rohr, San Diego Gas & Electric, etc.). The major employment generators within the project site include Vener Farms, with approximately 203 employees, and several small firms (boat-yards, soft water plant, etc.) which account for approximately 60 additional employees (City of Chula Vista, 1973).

The Chula Vista Bayfront project lies within Census Tract 24. The following table presents pertinent demographic and housing data for this census tract, the City of Chula Vista, and the County of San Diego (City of Chula Vista, 1975).

As indicated on Table 3-5, Census Tract 24 is experiencing significantly lower growth rates in population and housing inventories than the City as a whole. This is primarily due to the recent trend of urbanization underway in the eastern area of the City.

Table 3-5

DEMOGRAPHIC AND HOUSING DATA

	1970 Population	1975 Population	Percent Increase	1970 Housing	1975 Housing	Percent Increase
Census Tract 24*	5,753	5,830	1.33	2,758	2,905	5.32
City of Chula Vista	67,901	75,137	10.7	22,951	27,320	19.0
County of San Diego	1,357,854	1,559,505	14.9	447,739	578,899	29.3

As of 1975, Chula Vista relied quite heavily upon the metropolitan San Diego area as an employment generator. Only 19.5 percent of Chula Vista's "heads of household" are employed in the Chula Vista-Sweetwater geographic area. A large portion of those remaining, work in the Metropolitan San Diego area (City of Chula Vista, 1975). The City Planning Department has estimated that if Chula Vista is to provide employment for a higher proportion of its population, employment opportunities will have to more than double by 1990. They estimate that the type of jobs needed will primarily be craftsmen, technical and professional positions (City of Chula Vista, 1975).

3.12.2 Community Tax Structure

The following tables and brief discussions summarize the overall characteristics of the tax structure. The information is taken from the Chula Vista Redevelopment Agency's official statement regarding 1975 tax allocation bonds. For further information we refer the reader to that document.

The City of Chula Vista utilizes the facilities of San Diego County for the assessment and collection of taxes for City purposes. City taxes are assessed and collected at the same time and on the same tax rolls as are county, school, and special district taxes.

The following tabulation summarizes the growth in assessed valuation, before deduction of the State-reimbursed

Table 3-6
1974/75 ASSESSED VALUATIONS

Assessment Roll	Net Assessed Valuation	State-Reimbursed Exemptions	Assessed Valuation For Revenue Purposes
Secured	\$173,310,419	\$27,347,281	\$200,657,430
Utility	27,453,010	---	27,453,010
Unsecured	<u>14,305,273</u>	<u>6,947,029</u>	<u>21,252,302</u>
TOTAL	\$215,068,432	\$34,294,310	\$249,362,742

Source: Chula Vista Redevelopment Agency

Table 3-7
ASSESSED VALUATION GROWTH

Fiscal Year	Assessed Valuation
1970/71	\$158,999,673
1971/72	183,027,479
1972/73	196,182,051
1973/74	203,974,166
1974/75	249,362,742

exemptions, of the City of Chula Vista over the past five fiscal years. The City's assessed valuation increased by more than 56 percent over the five-year period.

The City's 1974/75 tax rate per \$100 assessed valuation is \$1.35, composed of the following elements: General Fund, \$0.52; Parks and Recreation, \$0.30; Planning, \$0.11; Library, \$0.17; Debt Service, \$0.06; and Retirement, \$0.19.

Tax Code Area 1000 is the largest in the City, accounting for over 60 percent of Chula Vista's assessed valuation. Total tax rates in this tax code area for the past five years have ranged between \$10.133 and \$11.045 per \$100 assessed valuation, as shown in Table 3-8.

Finally, Table 3-9 represents a summary of the City's revenues and expenditures for the past five fiscal years as reported by the State Controller. The 1975/1976 data is, as of yet, not available. The City General Fund balanced on June 20, 1975 and totaled \$1,875,150. compared with \$1,205,950 on July 11, 1974.

3.13 Community Resources

3.13.1 Police

Police service for the northern sector of the Chula Vista Bayfront Redevelopment Project is provided by the Chula Vista Police Department which emanates from the Main Station at the Civic Center, approximately one mile from the

Table 3-8

TAX CODE AREA 1000

TAX RATES

Tax Agency	1970/71	1971/72	1972/73	1973/74	1974/75
City of Chula Vista	\$ 1.500	\$ 1.450	\$ 1.450	\$ 1.450	\$ 1.350
San Diego County	2.745	2.939	2.711	2.711	2.691
Education	6.289	6.359	6.694	5.854	5.832
Metro. Water District	.095	.095	.080	.080	.150
CWA Irrigation	.090	.100	.110	.110	.110
Total Rate	\$10.719	\$10.943	\$11.045	\$10.205	\$10.133

Table 3-9

REVENUES AND EXPENDITURES

	Fiscal Year				
	1969/70	1970/71	1971/72	1972/73	1973/74
REVENUES					
Property Taxes	\$1,988,108	\$2,234,573	\$2,451,856	\$2,667,382	\$2,478,848
Sales Taxes	1,393,753	1,493,691	1,568,091	1,788,318	2,075,142
Other Taxes	327,957	744,383	925,637	1,092,475	1,237,438
Licenses and Permits	167,359	136,331	159,916	199,772	179,408
Fines and Penalties	153,723	148,845	133,077	105,494	126,203
Use of Money and Property	281,679	243,913	168,569	210,764	451,963
From Other Agencies	1,486,753	1,695,425	2,062,489	3,244,699	3,371,816
Service Charges	648,243	734,028	760,392	789,216	910,154
Other Revenues	553,214	223,863	132,999	87,169	43,824
Total Revenues	\$7,000,789	\$7,655,052	\$8,363,026	\$10,185,289	\$10,874,796
EXPENDITURES					
General Government	\$1,616,612	\$1,500,013	\$2,092,286	\$2,300,196	\$2,400,618
Public Safety	2,733,620	2,342,955	2,795,973	3,014,216	3,075,583
Public Works	1,882,703	1,867,467	2,222,698	2,811,270	2,026,780
Library Services	272,349	304,522	328,749	359,686	380,168
Parks and Recreation	1,073,287	1,216,988	948,559	1,128,312	1,016,630
Contributions to Government	---	51,300	67,458	72,149	83,660
Total Expenditures	\$7,578,571	\$7,283,245	\$8,455,723	\$9,685,829	\$8,983,439
CAPITAL OUTLAYS					
(Included in Expenditures)	\$2,087,815	\$1,103,755	\$1,201,945	\$1,781,515	\$763,968

project site. The City maintains an operating force of 88 officers and utilizes 40 vehicles for patrol and investigative purposes (Clark, 1976).

Police service for San Diego Bay adjacent to the project site is provided by the San Diego Unified Port District Harbor Police. The Harbor Police have an operating force of 66 officers who patrol the entire San Diego Bay area including the airport, from their main station on Shelter Island,

Two Harbor Police officers using one boat and one motor vehicle patrol the Chula Vista Bayfront (Lorillard, 1976).

There are no special or unusual types of crime committed in the project area. Due to its vacant status, law violations have consisted mainly of malicious mischief and off-road motorcyclists riding in the area. The Chula Vista Police Department patrols the project site through the use of motor vehicles and when necessary, off-road motorcycles. Isolated incidents of boat burglaries have been reported by the Harbor Police (Lorillard, 1976).

3.13.2 Fire

Fire protection for the project site is provided by the Chula Vista Fire Department. The closest facility to the project site is Fire Station #1 located at the Civic Center (447 F Street) approximately 1 mile from the eastern project boundary. This distance translates into a response time of

from 3 to 4 minutes depending upon the location of the call within the project site. Station #1 has 8 men on duty at all times and is equipped with 1 pumper, 1 ladder truck, 1 grass rig, and 2 reserve pumpers. Station #2 at 80 East J Street (four miles away) serves the project area with 4 men on duty at all times, 1 pumper, 1 mini-pumper and a response time of 6-8 minutes. A structural alarm merits a minimum response of 2 engine companies and 1 ladder company. The City also maintains a mutual aid agreement with other jurisdictions in the South Bay region and throughout San Diego County (Stamen, 1976).

3.13.3 Solid Waste Disposal

Minimal amounts of solid waste are currently being generated by the project site. Solid waste service to Chula Vista is provided by the Chula Vista Sanitary Service Company, the City's franchised contractor. This company provides service on a weekly basis for all areas through individual contract agreements.

Solid waste from the site is transported to the sanitary landfill operated by the County of San Diego on Otay Valley Road, one mile east of its intersection with I-805. This site is located approximately 6.5 miles from the project site and has a projected lifespan of 12-15 years (Thimm, 1976).

3.13.4 Energy/Utilities

3.13.4.1 Electricity

The project area is currently served by the San Diego Gas & Electric Company. Major distribution

facilities include six 69 KV power lines along Bay Boulevard. One 69 KV line is reduced to 12 KV at the Montgomery Substation at the corner of G Street and Bay Boulevard. 12 KV electric lines are located beneath E Street to Vener Farms, along F Street to the Bay, and throughout the area surrounding the project site (Hollins, 1976).

3.13.4.2 Gas

Natural gas service to the project area is also provided by the San Diego Gas and Electric Company. Distribution facilities in the area include a 4-inch gas line running along E Street to Vener Farms, a 6-inch gas line along G Street extending to Quay and Tidelands Avenues, a 3-inch and 4-inch gas line along F Street, a 1 1/2-inch and 4-inch gas line along D Street, and a 2-inch line along C Street (Hollins, 1976).

3.13.4.3 Water

Water service to the project area is provided by the California American Water Company which receives water from the Colorado River (via the South Bay Irrigation District, a member of the Metropolitan Water District) and from the Sweetwater River Valley watershed. The water is stored at the Sweetwater Reservoir. The California American Water Company serves the Sweetwater Water District which is composed of National City, Bonita, South San Diego, and Chula Vista.

Total domestic demand for the Sweetwater District is currently 29,300 gallons per minute (gpm) while the total available supply (flow available from all sources + district storage) is 104,556 gpm (Wildes, 1976).

Distribution facilities in the project area include 12-inch water mains extending along E Street to the Vener Farms, F Street to the Shangri-La Restaurant property, and along G Street to Quay and Tideland Avenue.

3.13.4.4 Sewers

The project area is served by the sewage lines operated by the City of Chula Vista; resultant flows are transported to the San Diego Metropolitan Treatment and Disposal System. These flows are pumped north through San Diego, combined with flows from other jurisdictions, and are treated and out-letted into the Pacific Ocean. This San Diego Metropolitan Treatment Plant provides primary treatment for average daily flows of 120 million gallons per day (MGD). Expansion plans (two additional sedimentation basins) were recently completed (January, 1976) in order to better handle these flows. The City of Chula Vista's capacity rights in this system are 22 MGD, while their average daily generation is 6 MGD (Daoust, 1976).

Existing facilities in the project area include a 10-inch line along G Street and an 8-inch line along E Street which run perpendicular to the eastern boundary of the project site (Daoust, 1976). The City of Chula Vista

has direct access to the Metropolitan interceptor through an 18-inch interceptor at G Street and a 24-inch interceptor at J Street. Sewage flows through the G Street interceptor are currently in excess of the design capacity of the line. Present flow in the J Street interceptor are 70 percent of design capacity (Lowry and Associates, 1976).

3.13.4.5 Telephone

The planning and provision of telephone service to the project area is the responsibility of the Pacific Telephone and Telegraph Company. The only telephone facility currently existing at the site is a 50-pair above-ground cable serving Vener Farms. This cable comes off a 100-pair cable which runs along Bay Boulevard from F Street (Moreno, 1976).

3.13.5 Open Space

The project site is presently providing an open space image to surrounding land uses. It should be emphasized however, that the 288.4 acres (plus 126 acres of marsh) is for the most part physically inaccessible to the public. The exception would be the existing commercial activities at the end of F Street. Thus, the open space is available only in a visual sense and as discussed earlier, visual accessibility is also limited. Further, there are no real "vista points" where stationary viewing can be obtained.

3.13.6 Transportation/Access

As Figure 2-3 shows, the existing transportation system is limited. There is a narrow two-lane road which connects the existing Tidelands Avenue (south of Rohr) to F Street. This provides limited accessibility (4-5000 ADT) to Subarea E and the commercial activities of Subarea B. Bay Boulevard presently provides the only surface street connection (2400-3000 ADT) between F and E Street (although there is free-way connection). There is no public transportation system in Subareas A and C. There is a limited unimproved private road system serving the agricultural area and providing maintenance access to SDG&E power lines and the D Street landfill. Subarea C is also accessible via dirt roads off of Bay Boulevard. It was observed that off-road vehicles (dune buggies and dirt bikes) do use this road to reach the D Street fill and thereby drive out onto the fill area. This is however, unauthorized access. In summary, the overall transportation system is limited in terms of facilities and demand, and therefore so is general public access.

4.0 ENVIRONMENTAL IMPACT ANALYSIS

4.1 Earth Characteristics

4.1.1 Geology

4.1.1.1 Impact

The Chula Vista Bayfront site, like virtually all parts of southern California, is subject primarily to geologic impacts related to seismicity. This analysis, thus, emphasizes seismic-induced hazards, although other potential geologic hazards are considered.¹

a. Seismic Hazards

In general, four classes of seismic-induced hazards merit evaluation: ground shaking, ground rupture due to fault displacement, ground failure, and seismically-triggered flooding resulting from tsunamis or seiches.

- Ground shaking

An analysis of ground shaking impacts expected at the Bayfront site is shown as Table 4-1. Based on estimated recurrence intervals on "active" faults,

¹Unless otherwise cited, the information and conclusions found in this subsection are based on the geotechnical report for the site prepared by Southern California Testing Labs, 1976.

Table 4-1

SIGNIFICANT FAULTS AND SUMMARY OF ANTICIPATED GROUND SHAKING

Causative Fault Zone	Distance From Subject Site (Miles)	Approximate Age Of Most Recent Displacement	Maximum Probable Earthquake (Richter Magnitude)	Expected Firm Ground Acceleration (Gravity)	Ground Shaking Intensity On Average Soil (Modified Mercalli Scale)	Estimated Recurrence Interval (Years)
Rose Canyon/ San Diego Bay(1)	0.5-1.4(2)	11,000 to 120,000 years before present. Holocene movement possible. (2)	5.5-6.5(11)	.28(11)	VII-VIII(11)	300(1)
La Nacion/ Sweetwater	3.5(2)	11,000 to 120,000 years before present. (2, 5)	5.0(11)	0.20(8)	VII(9)	300(1)
Elsinore	45(3)	11,000 to 2x10 ⁶ years before present (4)	6.9-7.3(11)	0.10(8)	VI(9)	100(6)
San Jacinto	66(3)	1968(4)	6.9-7.3(11)	0.05(8)	V-VI(9)	100(6)
San Andreas	95(4)	1968(4)	8.0-8.5(11)	0.06-0.07(8)	V(9)	40-100(10)
San Clemente	40(4)	Unknown	6.9(7)	0.09(8)	VI(9)	Unknown

- (1) Moore and Kennedy, 1975 (5) Hart, 1974; Dowlan et al., 1975 (9) Coulter et al., 1973
- (2) Kennedy et al., 1975 (6) Woodward-Gizienski & Associates, 1974 (10) Lamar et al., 1973
- (3) Lough, 1974 (7) Bonilla, 1970 in Greensfelder, 1974 (11) Southern California Testing Laboratory, 1976
- (4) Jennings, 1973 (8) Schnabel and Seed, 1973

POTENTIALLY ACTIVE FAULTS

ACTIVE FAULTS

ground shaking of Modified Mercalli (M.M.) Intensity VI, is the most likely to occur during the life of the proposed project. For reference, the entire Modified Mercalli Intensity scale is provided as Table 4-2. It should be noted that significantly less likely but more damaging ground shaking (M.M. Intensity VII-VIII) could occur due to the maximum probable event on the "potentially active" Rose Canyon/San Diego Bay fault zone.

- Ground Rupture

Movement along a fault can result in displacement or rupture of the ground surface along the fault trace. Generally it is not technically or economically feasible to design and construct a building capable of withstanding the seismic rupture of its foundation. Thus, an area traversed by a fault or fault zone considered capable or potentially capable of displacement is best avoided.

As discussed in Section 3.1.1.2 and shown on Figure 3-1, no known faults pass through the development site. The potential for impacts due to ground rupture is thus considered insignificant.

- Ground Failure

Due to the relatively shallow water table beneath the subject property and the occurrence of cohesionless sands and silts, the site's potential for liquefaction cannot be overlooked. In order to evaluate this potential, the most predominant as well as critical soil types

Table 4-2

THE MERCALLI INTENSITY SCALE
(As modified by Charles F. Richter in 1956 and rearranged)

<i>If most of these effects are observed</i>	<i>then the intensity is:</i>	<i>If most of these effects are observed</i>	<i>then the intensity is:</i>
<p>Earthquake shaking not felt. But people may observe marginal effects of large distance earthquakes without identifying these effects as earthquake-caused. Among them: trees, structures, liquids, bodies of water sway slowly, or doors swing slowly.</p> <p><i>Effect on people:</i> Shaking felt by those at rest, especially if they are indoors, and by those on upper floors.</p> <p><i>Effect on people:</i> Felt by most people indoors. Some can estimate duration of shaking. But many may not recognize shaking of building as caused by an earthquake; the shaking is like that caused by the passing of light trucks.</p> <p><i>Other effects:</i> Hanging objects swing. <i>Structural effects:</i> Windows or doors rattle. Wooden walls and frames creak.</p> <p><i>Effect on people:</i> Felt by everyone indoors. Many estimate duration of shaking. But they still may not recognize it as caused by an earthquake. The shaking is like that caused by the passing of heavy trucks, though sometimes, instead, people may feel the sensation of a jolt, as if a heavy ball had struck the walls.</p> <p><i>Other effects:</i> Hanging objects swing. Standing autos rock. Crockery clashes, dishes rattle or glasses clink.</p> <p><i>Structural effects:</i> Doors close, open or swing. Windows rattle.</p> <p><i>Effect on people:</i> Felt by everyone indoors and by most people outdoors. Many now estimate not only the duration of shaking but also its direction and have no doubt as to its cause. Sleepers awakened.</p> <p><i>Other effects:</i> Hanging objects swing. Shutters or pictures move. Pendulum clocks stop, start or change rate. Standing autos rock. Crockery clashes, dishes rattle or glasses clink. Liquids disturbed, some spilled. Small unstable objects displaced or upset.</p> <p><i>Structural effects:</i> Weak plaster and Masonry D* crack. Windows break. Doors close, open or swing.</p> <p><i>Effect on people:</i> Felt by everyone. Many are frightened and run outdoors. People walk unsteadily.</p> <p><i>Other effects:</i> Small church or school bells ring. Pictures thrown off walls, knicknacks and books off shelves. Dishes or glasses broken. Furniture moved or overturned. Trees, bushes shaken visibly, or heard to rustle.</p> <p><i>Structural effects:</i> Masonry D* damaged; some cracks in Masonry C*. Weak chimneys break at roof line. Plaster, loose bricks, stones, tiles, cornices, unbraced parapets and architectural ornaments fall. Concrete irrigation ditches damaged.</p>	I	<p><i>Effect on people:</i> Difficult to stand. Shaking noticed by auto drivers.</p> <p><i>Other effects:</i> Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Furniture broken. Hanging objects quiver.</p> <p><i>Structural effects:</i> Masonry D* heavily damaged; Masonry C* damaged, partially collapses in some cases; some damage to Masonry B*; none to Masonry A*. Stucco and some masonry walls fall. Chimneys, factory stacks, monuments, towers, elevated tanks twist or fall. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off.</p> <p><i>Effect on people:</i> General fright. People thrown to ground.</p> <p><i>Other effects:</i> Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. Steering of autos affected. Branches broken from trees.</p> <p><i>Structural effects:</i> Masonry D* destroyed; Masonry C* heavily damaged, sometimes with complete collapse; Masonry B* is seriously damaged. General damage to foundations. Frame structures, if not bolted, shifted off foundations. Frames racked. Reservoirs seriously damaged. Underground pipes broken.</p> <p><i>Effect on people:</i> General Panic.</p> <p><i>Other effects:</i> Conspicuous cracks in ground. In areas of soft ground, sand is ejected through holes and piles up into a small crater, and, in muddy areas, water fountains are formed.</p> <p><i>Structural effects:</i> Most masonry and frame structures destroyed along with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes and embankments. Railroads bent slightly.</p> <p><i>Effect on people:</i> General panic.</p> <p><i>Other effects:</i> Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land.</p> <p><i>Structural effects:</i> General destruction of buildings. Underground pipelines completely out of service. Railroads bent greatly.</p> <p><i>Effect on people:</i> General panic.</p> <p><i>Other effects:</i> Same as for Intensity X.</p> <p><i>Structural effects:</i> Damage nearly total, the ultimate catastrophe.</p> <p><i>Other effects:</i> Large rock masses displaced. Lines of sight and level distorted. Objects thrown into air.</p>	VIII
	II		IX
	III		X
	IV		XI
	V		XII
	VI		
	VII		
		<p>* Masonry A: Good workmanship and mortar, reinforced, designed to resist lateral forces.</p> <p>* Masonry B: Good workmanship and mortar, reinforced.</p> <p>* Masonry C: Good workmanship and mortar, unreinforced.</p> <p>* Masonry D: Poor workmanship and mortar and weak materials, like adobe.</p>	

encountered during the soil investigation (SCTL, 1976) were analyzed. In addition, it was assumed that the groundwater table would vary from 5 to 10 feet below grade and that the critical soil type could occur at a depth of from 5 to 25 feet below grade. It was also assumed that the design earthquake for the site would have a Richter magnitude in the order of ¹7 and, hence, ten significant stress cycles.

Assuming a maximum ground acceleration of 0.1g, it can be shown (using the procedure of Seed and Idriss, 1970) that the relative density of the soil considered would have to be less than 40 percent for liquefaction to occur. The laboratory tests and sampler penetration resistances performed on the native cohesionless sands and silts suggest that the relative density of the on-site soil is greater than 60 percent. Therefore, based upon the information available (considering probable earthquakes on known active faults) it appears that the site's liquefaction potential is remote, unless ground accelerations of roughly 0.2g are anticipated. However, earthquakes on potentially active faults (i.e. Rose Canyon), could create liquefaction problems.

Differential settlement or subsidence resulting from seismic induced ground shaking is most likely to occur where thick deposits of loose cohesionless sands or silts are prevalent either above or below the water table. As previously indicated, these soil types, where

¹Significant stress cycles are related to duration of ground shaking which is a significant factor in assessing liquefaction potential.

encountered, were found to be in a medium dense to dense state. This was particularly true with the Bay Point formation soils. In the marshland areas, the bay muds were found to be very soft; however, it is believed that their inherent cohesion and low permeability is sufficient to resist densification due to short duration seismic loads.

Although there are no reported cases of lateral spreading or earth lurching occurring in San Diego County, the possibility of this type of seismic-induced ground failure should be considered. Generally this results from a combination of strong ground shaking, liquefaction, and in the case of lurching, the juxtaposition of very dissimilar materials. With the exception of liquefaction potential, the present state-of-the-art does not permit a reasonable method of evaluation for where and how each condition is likely to occur. Since (1) no active faults are known to pass through the site; (2) the area is relatively quiet (seismically); and (3) liquefaction potential appears to be remote, it is suspected that the potential for lateral spreading or earth lurching is also remote.

- Seismically-Triggered Flooding

Two classes of seismically-triggered flooding are considered in this analysis: tsunamis and seiches. Tsunamis are great sea waves produced by a sub-

marine earthquake, landslide, or volcanic eruption, and are commonly called tidal waves. History has shown that these waves cause enormous damage to coastal communities in their paths. Logically, a submarine earthquake is the only event that could produce a tsunami that would affect the coast of Southern California. The Chilean earthquake in 1960 produced waves that caused damage to yachts and coastal engineering works (Shepard, 1963), yet the Alaskan earthquake of 1964 caused no significant damage (Woodward-Gizienski, 1974). In the event that a seismic sea wave threatened the San Diego area, the Silver Strand could provide a buffer zone for the subject site, thereby reducing property damage. "Due to the location of the Continental Shelf in the San Diego Region, there is only a remote possibility that the Chula Vista Planning Area's littoral territories and structures would suffer appreciable damage from seismically-induced tsunamis" (City of Chula Vista, 1974).

Seiches are periodic oscillations (usually earthquake-induced) of water in inland bodies of water, harbors, bays, etc. In the event a major earthquake hit the San Diego region, it is conceivable that a wave could propagate across the San Diego Bay and cause damage to shoreline structures and property. With the absence of data, it is exceedingly difficult to even predict an event of this nature

or the magnitude of the induced waves. If history is any indication of the potential hazard, it is safe to say that storm-generated waves represent a greater hazard to the San Diego Bay shoreline than does the possibility of seiches.

b. Non-Seismic Hazards

Because of the subject property's gentle topography, landsliding is not considered a significant factor. Further, the project area is not considered susceptible to impacts resulting from areal land subsidence or volcanic erupting (Alfors et al., 1973). No unique or unusual geologic resources were noted or are reported to exist on the site (County of San Diego, undated).

4.1.1.2 Mitigation

a. Ground Shaking

Whereas there are no structures proposed as part of this project and the roadways would not be adversely affected by ground shaking, no mitigation is proposed. However, the following discussion is offered for subsequent development considerations. All structures built on the project site should be designed and constructed with a consideration of the seismic ground shaking parameters presented in Table 4-1. Historically, the performance of well designed and constructed

one or two-story residential structures and light commercial or industrial structures on good foundation material has generally proven to be satisfactory. For medium or high-rise structures, and for all critical-use, high cost or high occupancy structures, the development of a "seismic response spectrum" may be necessary. Such a "spectrum" would provide the design engineer with data concerning the frequency interaction between the proposed structure and the underlying soil column during predicted earthshaking episodes.

b. Ground Failure

It should be noted that the evaluation of liquefaction potential (Subsection 4.1.1.1a) is complicated by the fact that sand lenses as thin as one inch have been known to liquefy. This makes the detection, sampling, testing, and determination of the lateral extent of such thin lenses extremely difficult. It is therefore advisable that as specific development plans for particular areas of the site progress, additional test borings be performed with an emphasis on correlating the lateral extent and relative density of loose cohesionless silt or sand layers occurring in the upper 30 feet. Test borings completed to date suggest that such an investigation is most warranted for structures planned for the hydraulic fill area at the northern end of the site. Those structures founded on Bay Point formation soils will likely encounter dense sands.

4.1.1.3 Analysis of Significance

The potential for ground shaking is present throughout California due to the active tectonic province in which we are situated. Estimated predictions of the magnitude of ground shaking as well as the potential for ground failure are rough at best, however, damage can be minimized through proper analysis, engineering design and construction.

4.1.2 Soils

4.1.2.1 Impact

The most significant potential soils impacts at the project site are related to the presence of organic mud deposits on the tidal flats, marshlands, and possibly beneath fill areas. The weak, compressible nature of these soils makes them very poor foundation materials. In addition, the mud thickness is often very erratic and variable, leading to possible differential settlement problems. The mud deposits will tend to squeeze out from beneath heavy loads or, where lateral squeezing is deliberately prevented by confinement, they will gradually compress or subside over a period of years under the weight of fill or structures.

The construction of facilities on older, poorly planned fills consisting possibly of deleterious materials

over bay muds, could lead to irregular settlements. If such settlements amount to several inches or more, damage to roadways or utilities could occur.

4.1.2.2 Mitigation

Where static loads resulting from fill or proposed structures are anticipated for the marshland or dredged fill areas, the potential for differential settlement or subsidence will be very high. Mitigating measures such as the use of surcharge fills or special foundation systems (piles, "floating" mat, etc.) are currently being analyzed by Southern California Testing Laboratory. Obviously, as specific design parameters or a particular structure become formalized, it will be necessary to perform a detailed foundation analysis. It is anticipated that most light buildings can be supported on shallow foundations in the areas of the denser formational soils. Heavy structures or structures especially sensitive to settlement will require pile or other special foundations.

Areas of poorly planned, uncontrolled fills on the subject site have been delineated during the preliminary soils and geologic investigation (SCTL, 1976). Where possible, such areas will be avoided during site development. Where they cannot be avoided, deleterious materials will be removed and replaced with properly designed and compacted fill material.

4.1.2.3 Analysis of Significance

Soil conditions at the subject property will cause both technical and economical problems in land development. However, given a conservative approach to analysis, design and construction, no unavoidable adverse impacts should be realized.

4.1.3 Groundwater

4.1.3.1 Impact

Implementation of the Bayfront redevelopment will cause a reduction in the recharge to the aquifer beneath the site. This loss of groundwater percolation is considered insignificant because of the extremely low quality of the existing groundwater and the fact that no use of groundwater on-site is being made or is proposed.

Seismic-induced soil liquefaction and adverse settlement impacts due to groundwater-saturated sediments on-site are discussed in Subsections 4.1.1.1 and 4.1.2.1. Further groundwater-related impacts are associated with excavations beneath the water table. Such excavations are anticipated for installation of underground utilities or, possibly, for building substructures.

4.1.3.2 Mitigation

To alleviate problems associated with excavating beneath the water table, the excavation area can be

dewatered by pumping a well point system installed adjacent to the area. Alternatively, it may be necessary to surround the excavation with sheet piling and pump from within the work area.

4.1.3.3 Analysis of Significance

No significant, unavoidable groundwater-related impacts are foreseen.

4.1.4 Drainage

4.1.4.1 Impact

The existing regional drainage patterns on the subject site will be altered as shown on Figure 2-7, the proposed drainage plan. A narrative describing the drainage alterations is provided in Subsection 2.1.2, and detailed discussions of the biological and water quality impacts of the drainage plan can be found in Subsections 4.1.1 and 4.3.1 respectively.

Portions of the study area subject to inundation from a 100-year flood are shown on Figure 3-2. Areas within the floodplain are primarily areas in which little or no development is proposed (i.e., Sweetwater Marsh and Vener Marsh). Portions of the floodplain, however, do encroach onto the low-lying fringes of Gunpowder Point and Vener Farm, and the Tidelands Avenue extension crosses a wide segment of the

floodplain. This latter point is very important if phasing allows for completion of this project prior to the Corps' Flood channel. This land fill road could restrict existing upland flow. Thus, bridge and culvert sizing and situating become significant.

a. Site Specific

The drainage plans reveal that under existing conditions, approximately 85 acres drain directly into the marsh area with the balance generally diverted to the Bay. Completion of the proposed grading plan will see a reduction (to approximately 75 acres) in the acres draining into the marshes.¹ The balance of the upland drainage area (roughly 213 acres) will drain into the Bay. Thus the site specific drainage into the marsh will decrease by approximately 11 percent with an associated increase of flow into the Bay.

4.1.4.2 Mitigation

Impacts due to potential flooding would, of course, not be significant if the proposed Corps of Engineers Sweetwater River channelization project is implemented. However, since the scheduling of the channelization project is currently uncertain, flood protection measures should be provided by either structural or restrictive land use methods.

¹Wilsey & Ham estimates the range between 60-90 acres with 75 being the best estimate.

Specifically, project elements susceptible to flood damage should be raised to a minimum elevation of 10 feet MSL, well above the level of the 100-year flood. Land uses on the fringes of the floodplain will be limited to project elements such as parking lots or the golf course which would not sustain significant damage should a flood occur. A majority of the flood-susceptible area will be retained in its natural state.

The proposed extension of Tideland's Avenue crosses nearly 2,000 feet of the Sweetwater River floodplain (Figure 3-2). The crossing will consist, in part, of approximately 1,650 feet of earth fill across the higher parts of the floodplain. Culverts would be provided as necessary to carry storm runoff beneath the fill embankment. Across the deeper channel of the river, the roadway would be constructed over a bridge of sufficient length and height to pass the design flood. It is estimated that 300 to 350 feet of roadway would have to be supported by this bridge to allow the design flood of 60,000 cfs to pass.

In an effort to prevent siltation and erosion from site drainage, there would be the installation of sedimentation basins and de-energizers. This should sufficiently reduce adverse impacts. No other parts of the drainage plan would require mitigation at this time.

4.1.4.3 Analysis of Significance

Although the existing drainage pattern will be altered, no significant consequences are foreseen in terms of flooding. Analysis of the biological and water quality significance of this alteration are discussed in Subsection 4.1.1.1 and 4.3.1, respectively. Generally, it is suspected that on-site flow (prior) to urbanization will not be substantially different from existing conditions in terms of quantity. As noted the receptor points would be slightly, but not significantly altered. However, the drainage may become a significant problem with ultimate build out. As development proceeds careful attention should be given the subject in terms of both quantity and quality.

4.1.5 Mineral Resources

4.1.5.1 Impact

Because no economically significant mineral resources exist on the Bayfront site, no related impacts are foreseen.

4.1.6 Land Form

4.1.6.1 Impact

The existing land form at the Bayfront site will be altered as shown on the proposed grading plan

(Figure 2-7). Grading will consist essentially of cutting portions of the higher ground along the easterly side of the site, and filling in the central and part of the western portion. The proposed building area on Gunpowder Point will be raised to 10 feet MSL, and the Vener Farm and areas to the southeast will be filled to a maximum elevation of approximately 15 feet MSL. The D Street fill area, because of potential adverse settlement problems, will receive special treatment to create a viable building area. The top 3-4 feet of existing fill will be removed and the underlying soil vibratory compacted. The removed material will be replaced and recompactd and additional compacted fill added to bring the area to the proposed finish grade of 10 to 15 feet MSL. Contemplated foundation areas will then be surcharged for a period of time to achieve consolidation of the underlying materials, prior to construction.

All ground surfaces will be graded to provide a minimum 1 percent drainage gradient. It is estimated that approximately 1 million cubic yards of imported fill will be necessary to bring the site to the proposed finish grade.

In addition to altering the existing land form, grading will affect the marshlands on the site. This impact is discussed in Section 4.1.1. Grading will also create a short-term potential for erosion where freshly graded surfaces are exposed to seasonal rainfall. Such erosion could

produce increased amounts of silt to be transported to the marshes and San Diego Bay.

4.1.6.2 Mitigation

Measures to mitigate the short-term erosion and resulting siltation potential focus primarily on prevention of sediment removal from exposed surfaces or trapping sediment that has been removed. Prevention of sediment removal can be accomplished by the immediate stabilization of exposed surfaces with grass or ground cover plants, or by limiting grading to the late spring, summer or early fall months when heavy rainfall is unlikely. The use of sedimentation basins, as shown on Figure 2-7, is planned to prevent the removal of silt from the site.

4.2 Climate

4.2.1 Impact

It is not expected that any of the facets of this project would impact the climate of the area. There might be some extremely minor alteration of wind patterns and thermal exchange rates. However, these would be of such low magnitude so as to not be adverse.

4.2.2 Mitigation/Significance

Whereas, there would be no impact of any measurable significance to the area climate; no mitigation is proposed.

4.3 Air Quality

4.3.1 Impact

The project in and of itself will create only short-term impacts on localized air quality, related to grading and other earthwork activities. Its primary long-term impact on local and regional air cells will be largely beneficial for the following reasons:

- It will not generate new motor vehicle trips. Instead, it will provide an alternate route for trips currently being made.
- By providing an alternate route, the roadway extension will serve to reduce current congestion, particularly related to the Rohr facility, and in so doing, will minimize the frequency of idling motor vehicles.
- In some cases, it may provide a more direct route to a particular destination, thus reducing total vehicle miles travelled (VMT).
- The project will serve to lessen the probability of carbon monoxide (CO) hot spots being created next to congested traffic lanes.

The major impacts on air quality are secondary in nature, in that the project will pave the way for subsequent development of adjacent land. These secondary impacts are discussed in general terms in this EIR and will be the subject of subsequent, detailed analyses, related to each portion of the development.

4.3.1.1 Mobile Sources

To establish at least a broad estimate of pollutant emissions related to these secondary impacts, however, we have attempted below to provide estimated emission rates, using the best data currently available regarding probable land uses and related trip generation factors. For purposes of this analysis an average trip length of 7.5 miles was used. Two sets of emissions data are used. The first is based on the City's Environmental Review Policy and reflects 1975 emission rates. In our estimation, these factors represent a worst case projection. The second set of emissions data was taken from AP-42, Supplement 5 and represents 1980 emission rates. These factors reflect the implementation of more stringent controls and thus produce less severe pollutant emission rates. The trip generation rates shown in Table 4-3 were provided by Wilsey & Ham (1976).

The Air Resources Board and the APCD were consulted. A numerical analysis of the project impacts follows.

Table 4-3

TRIP GENERATION

<u>Land Use Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Trip Generation</u>	<u>Range</u>	
				<u>Low</u>	<u>High</u>
I. <u>Subarea A</u>					
A. <u>Gunpowder Point</u>					
1. Hotel	500-750	units	2.5	1250	1875
2. Commercial/ Restaurant	20,000	sq. ft.	.045	900	900
3. Public Park	7-15	acres	46	<u>322</u>	<u>690</u>
SUBTOTAL RANGE				2472	3465
B. <u>Gateway Area</u>					
1. Hotel/Motel	150-300	units	2.5	375	750
2. Commercial/ Restaurant	7500-15000	sq. ft.	.045	337	675
3. Parks	3-7	acres	46	138	322
4. Golf Course	10	acres	6.4	<u>64</u>	<u>64</u>
SUBTOTAL RANGE				914	1811
SUBTOTAL SUBAREA A				3386	5276
II. <u>Subarea B</u>					
1. Residential	250-300	units	6.7	1675	2010
2. Park	30	acres	46	<u>1380</u>	<u>1380</u>
SUBTOTAL SUBAREA B				3055	3390

Table 4-3 (Cont'd)

<u>Land Use Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Trip Generation</u>	<u>Range</u> <u>Low High</u>
<u>III. Subarea C</u>				
1. Motel	100-150	units	2.5	250 - 375
2. Residential	350-500	units	8.9	3115 - 4450
3. Commercial/ Restaurant	20-50000	sq. ft.	.045	900 - 2250
4. Park	20	acres	46	<u>920</u> - <u>920</u>
SUBTOTAL SUBAREA C				5185 - 7995
<u>IV. Subarea D</u>				
1. R.V. Park	300	units	6.8	2040 - 2040
2. Commercial	10-15000	sq. ft.	.045	450 - 675
3. Park	20	acres	46	<u>920</u> - <u>920</u>
SUBTOTAL SUBAREA D				3410 - 3635
(alternate)				
<u>V. Subarea E</u>				
1. Light Industrial	300-500	10 ³ sq. ft.	10.5	3150 - 5250
SUBTOTAL SUBAREA E				3150 - 5250

Taken cumulatively, these rates reflect a range of 18,186 to 25,546 motor vehicle trips daily (ADT) at ultimate buildout of the Bayfront Development Project. Because of the uncertainties surrounding the actual motor vehicle mix that will exist at that time, factors for light duty automobiles were used, inasmuch as they will represent, by far, the predominant mode of vehicle. To offset this assumption, the upper range of daily motor vehicle trips (25,546), and an average trip length of 7.5 miles were used to represent worst case conditions. These assumptions result in a total of 191,595 miles travelled daily. When coupled with the two methods of calculation described earlier, the assumptions result in the following estimates of pollutant emissions at buildout of the project shown in Tables 4-4 and 4-5.

4.3.1.2 Impact of Tidelands Avenue

Despite the fact that the extension of Tidelands Avenue will be located adjacent to a large line source of pollutant emissions (I-5), a microscale analysis of the effect the extension will have on CO levels at nearby receptor points has been performed. That analysis, which is described in detail in Appendix 3, applied worst case conditions at project buildout to determine probable carbon monoxide levels in 1980¹ at the following receptor points (see page 133):

¹The SDAQPT has stated that CO levels are expected to drop through the year 2000.

Table 4-4

METHOD 1 - ESTIMATED INCREMENTAL
INCREASE IN EMISSIONS - MOBILE SOURCES

<u>Pollutant</u>	<u>Emission Factor¹ gm/mi.</u>	<u>Total Tons/Day²</u>	<u>Total Tons/Year</u>
Carbon Monoxide	50	10.57	3,858
Hydrocarbons	6.5	1.37	502
Nitrogen Oxides (NO _x as NO ₂)	5	1.06	386
Particulates	.58	0.12	44
Oxides of Sulfur	.20	<u>0.04</u>	<u>15</u>
TOTALS		13.16	4,805

¹ Taken from Table A, page 35 of the City of Chula Vista Environmental Review Policy; March 18, 1975.

² Using worst case trip generation figures (25,546 ADT and 7.5 miles/trip).

Table 4-5

METHOD 2 - AP-42, SUPPLEMENT 5 FOR 1980

<u>Pollutant</u>	<u>Emission¹ Factor gm/mi.</u>	<u>Total Tons/Day²</u>	<u>Total Tons/Year</u>
Carbon Monoxide	11.43	2.42	882
Hydrocarbons	2.75	0.58	212
Nitrogen Oxides (NO _x as NO ₂)	2.0	0.42	154
Particulates	.58	0.12	48
Oxides of Sulfur	.20	<u>0.04</u>	<u>15</u>
TOTALS		3.58	1,311

¹ AP-42, Supplement 5.

² Using worst case trip generation figures (25,546 ADT and 7.5 miles/trip).

1. Chula Vista Community Hospital
2. Chula Vista Junior High School
3. May L. Feaster Elementary School
4. A typical receptor 200 meters downwind from I-5.

The results of that analysis indicate that, at the most heavily impacted receptor point (#4 above), Tidelands Avenue will contribute 0.27 parts per million (ppm), as compared with an assumed background level of 8 ppm and an I-5 contribution of 3.84 ppm. Total projected CO levels at this receptor point in 1980 are estimated to be 12.11 ppm, compared with a Federal standard of 35 ppm.

The impact of Tidelands Avenue on other receptor points ranges downward to a low projection of 0.11 ppm at Chula Vista Junior High School:

In sum:

1. Tidelands Avenue will have an insignificant effect on CO levels in 1980 and beyond.
2. Total projected CO levels from all sources in 1980 at the receptor points will be well below the Federal standard.

3. CO levels are predicted to drop further through the year 2000.

For a detailed review, please see Appendix 3.

4.3.1.3 Stationary Sources

Because of the wide diversity of probable uses, and the lack of definitive data regarding the characteristics of the Bayfront Redevelopment Project at ultimate buildout, it is almost impossible to calculate pollutant emissions from stationary sources related to the project. However, to provide at least a rough approximation of such emissions, the following assumptions and data were used:

- Total acreage within the Bayfront Redevelopment Area identified as "useable land" equals 257.83 acres.
- At 50 percent coverage, approximately 5.6 million square feet of building space will exist. (While 50 percent coverage is somewhat high, it is offset by an assumption that only single-story buildings will exist.)
- Using the City's natural gas and electrical consumption rates, the

following approximate amounts of
natural gas and electricity will be¹
consumed by the project annually:

355.4 million cubic feet of natural gas

40.1 million kilowatt hours of electricity

The above consumption rates translate
into the pollutant emissions shown in Tables 4-6 and 4-7.

4.3.2 Mitigation

Because the roadway, per se, will cause no long-term adverse environmental effects, no specific mitigation measures are warranted.

To mitigate the generation of dust and fumes during grading and earthwork activities, it is suggested that standard preventive measures be utilized, such as watering, use of a sheepsfoot tamper, dust palliatives, and the like.

Regarding secondary impacts, it is recommended that each subsequent stage use the most recent design techniques and architectural breakthroughs in order to minimize energy consumption, thereby reducing air quality impacts from stationary sources. Additionally, it is further proposed that the circulation system for the Redevelopment Project be design to maximize the use of pedestrian and bicycle

¹Assumes gas space heating, electrical central air conditioning and lighting.

Table 4-6
ESTIMATED INCREMENTAL INCREASES IN EMISSIONS
ELECTRICITY

<u>Pollutant</u>	<u>Emission Factor lb/KWH</u>	<u>Tons/Day</u> ¹	<u>Tons/Year</u> ^{1,3}
Particulates	0.001	0.02	7.6
Oxides of Sulfur	0.008	0.17	61.0
Oxides of Nitrogen	0.002	<u>0.04</u>	<u>15.2</u>
TOTALS		0.23	83.8

¹ Assumes that 38% of the electricity generated will utilize fossil fuels.

Table 4-7
ESTIMATED INCREMENTAL INCREASES IN EMISSIONS
NATURAL GAS

<u>Pollutant</u>	<u>Emission Factor</u> ² <u>lb/10⁶ ft³</u>	<u>Tons/Day</u>	<u>Tons/Year</u> ³
Particulates	19	0.01	3.4
Oxides of Sulfur	0.6	0.01	0.1
Carbon Monoxide	20	0.01	3.6
Hydrocarbon	8	0.01	1.4
Oxides of Nitrogen	80	<u>0.04</u>	<u>14.2</u>
TOTALS		0.06	22.7

² Taken from Table B, page 36 of the City of Chula Vista Environmental Review Policy; March 18, 1975.

³ Differences due to rounding.

trails and minimize, to the extent possible, dependence on the automobile for internal circulation.

Public transit routes should also be extended to serve the area, as development warrants.

4.3.3 Analysis of Significance

An estimate of the total pollutants that will be emitted as secondary impacts to this project are shown in Table 4-8.

Although the figures appear to be relatively high, the following precautions must be offered to aid in their interpretation:

- Mobile emissions represent the high range of estimated daily trips plus a fairly high average trip length (25,546 trips and 7.5 miles/trip, respectively) to represent worst case conditions.
- Mobile source emission rates were drawn from the City's Environmental Review Policy, which utilizes 1975 rates. The same factors for future years, which reflect the introduction of more stringent control policies are considerably lower (e.g. 50 grams/mile of CO in 1975 versus 11.43 in 1980).

Table 4-8

TOTAL ESTIMATED INCREMENTAL INCREASE IN EMISSIONS

ALL SOURCES

Pollutant	San Diego Air Basin Tons/Day ¹	Chula Vista Contribution to San Diego Air Basin	Proposed Development (Tons/Day)		Incremental Increase Relative to San Diego Air Basin (Percent)	Incremental Increase in Chula Vista's Contribution to San Diego Air Basin (Percent)
			Stationary	Mobile ² Total		
Carbon Monoxide	1322	65.44	0.01	10.57	10.58	16.2
Organics (including Aldehydes and Hydrocarbons)	281	13.91	0.01	1.37	1.38	9.9
Nitrogen Oxides	128	6.34	0.08	1.06	1.14	18.0
Particulates	59	2.92	0.03	0.12	0.15	5.1
Oxides of Sulfur	36	1.78	0.17	0.04	0.21	11.8
TOTALS	1827	90.44	0.30	13.16	13.46	

¹ Taken from Table C, Page 37 of the City of Chula Vista Environmental Policy; March 18, 1975.

² From Table 4-4.

- The basic assumptions which underlie the mobile source calculations, and particularly the stationary source emissions, are very tentative and somewhat speculative.
- Inasmuch as the projections contained herein relate to secondary (not primary) impacts of this project, it is assumed that more substantive air quality analyses will be performed for each subsequent portion of the overall development scheme.

Regarding the relationship of the emissions estimates outlined above to current or potential air quality problems or solutions the following points are offered:

- Chula Vista has traditionally suffered photochemical oxidant problems, along with the majority of the San Diego Basin. The Air Quality Planning Team has addressed this problem on a regional level and has proposed a series of strategies to achieve Federal Standards for oxidants. It thus follows that, if their strategies are implemented, Chula Vista, along with the remainder of the Basin, will experience an improvement in

oxidant as well as reactive hydrocarbon (RHC) levels. Whether the strategies are implemented or not, the Bayfront Redevelopment Project will contribute to the total emissions of the Basin and will thereby constitute an incremental degradation to the regional air cell.

- The roadway extension will constitute a line source of pollutants from mobile sources. It may also serve to reduce congestion, provide a more direct route for certain trips and thereby have a net beneficial effect on local and regional air quality.
- When viewed as a line source in close proximity to Interstate 5, the extension of Tidelands Avenue cannot be considered as a major source of pollutants, in and of itself (see Appendix 3).
- Although ultimate development will add rather heavily to Chula Vista's carbon monoxide contribution to the San Diego Air Basin pollutant levels, the Air Quality Planning Team has indicated that CO emissions are expected

to drop in the future and should not be a major regional air pollution problem through the year 2000. The same can be said for oxides of nitrogen.

- Ultimate development of the Bayfront Project will contribute to further increases in particulate and sulfur oxide emissions until region-wide solutions can be formulated.

4.4 Water Quality

4.4.1 Impacts

Anticipated impacts on water quality as a result of the actions listed in the project description would be the result primarily of a) grading of and modifying drainage from upland areas adjoining the marsh, and b) eventual changes in land use on the uplands.

As a result of eventual grading of the upland areas adjacent to the marsh (see proposed grading and drainage plan, Figure 2-7), the existing upland drainage would be modified approximately as follows:

- Drainage from the north and east sides of Gunpowder Point would be collected in swales and would enter the south side of Sweetwater Marsh at two points (see Figure 2-7) via sediment catchment basins.
- Drainage from the northern portion of Vener Farm would be collected in swales and would enter Sweetwater Marsh via a sediment catchment basin.
- Drainage from the southern half of the D Street fill would be collected in swales leading either to the Bay or to a sediment catchment basin near the east end of the D Street fill.

- No surface runoff would enter Vener Pond directly from adjacent uplands.
- The surface drainage from areas upstream of F and G Street Marsh (roughly the southern half of Vener Farm) would be gathered in a swale and diverted around the north side of the marsh and discharged to the Bay.
- The Rohr storm drain that formerly entered one channel of the F and G Street Marsh would be diverted directly to the Bay.

In short, surface runoff and associated sediment will be prevented from entering Vener Pond and Vener Marsh. Surface runoff from the adjacent uplands would enter Sweetwater Marsh via sediment catchment basins (see Figure 2-7) which should substantially reduce delivery of unwanted upland sediment to the marsh.

Because of the conversion of agricultural lands to urban use, the character and volume of the surface runoff would be changed. The nature and degree of this change (and thus the nature of the impacts on the Sweetwater Marsh) will depend primarily on the type of urban use of these uplands.

General categories of land use are specified in the Project Description (Section 2.0). Based on these anticipated land uses, it is possible to assess in a general

way the nature of the impact of runoff entering the Sweetwater Marsh.

Of anticipated land uses for Gunpowder Point (i.e., a hotel, a restaurant and commercial area, and 7 to 15 acres of park), the runoff from the park area can be expected to be rich in nutrients derived from fertilizer used on the park lawns. Of the anticipated land uses in the area east of Vener Pond (i.e., motel, restaurant and commercial area, parking for 900 to 1,200 cars, three to seven acres of park, and ten acres of golf course or recreation area), the surface runoff from Tidelands Avenue, the parking lot

in the commercial area can be expected to be contaminated with pollutants associated with vehicle use (oils and grease). As with the Gunpowder Point area, the park and golf course acreage would be rich in nutrients.

The effects of contaminated surface runoff on marsh vegetation and fauna are not well known but such effects would be expected to be adverse. In particular, the effects of runoff from Tidelands Avenue and parking areas

would be expected to be adverse because of contained hydrocarbons and other pollutants.

4.4.2 Mitigation and Significance

The runoff entering the Sweetwater Marsh that originates from the parks,

golf course, and recreation areas of the upland will probably have lower nutrient and pesticide content than the rainfall and irrigation runoff from present agricultural land use.

On the other hand, if runoff from Tidelands Avenue, and parking areas is allowed to drain into the marsh, the resulting effects on the marsh will probably be more adverse than any effects currently caused by agricultural runoff.

The expected adverse effects of roadway and parking lot runoff will be prevented by ensuring that parking lots and other vehicular related facilities do not drain into the swales that lead to the marsh.

4.5 Noise

4.5.1 Mobile Sources

4.5.1.1 Impact

Given the proposed land uses within the project,¹ the primary source of noise intrusion onto the redevelopment site will be traffic noise. On-site vehicle noise will be generated from E and F Streets, Tidelands Avenue, Bay Boulevard, and the proposed I-5/State Route 54 Interchange.

¹The land uses previously listed in Section 2.0 are tentative in terms of type and location. Thus, the noise analysis focuses on constrained areas where certain uses should not occur and offers generalized mitigation. Specific analyses should be performed with each development. The use most frequently used as a basis is residential because it has the "toughest" noise standards.

The principal noise source, however, as stated earlier, is Interstate 5. Future noise contours were developed for these roadways in accordance with the methodology developed by Wyle Laboratories (1973). The procedure establishes a day-night average sound level (L_{dn}). It sums the hourly equivalent noise levels over a 24-hour time period with an increased weighting factor applied to the nighttime period. This scale defines day as 7:00 a.m. to 10:00 p.m. with a weighting factor of unity; night is defined as 10:00 p.m. to 7:00 a.m. with noise occurrences during this period weighted ten times as significant as daytime. This scale is used by the Environmental Protection Agency to measure yearly average equivalent sound levels identified as requisite to protect the public health and welfare with an adequate margin of safety. It is also used by that Agency to assess vehicular, railroad, and aircraft noise. The Comprehensive Planning Organization employs the descriptor in measuring transportation noise in San Diego.

Each L_{dn} noise contour varies in its distance from the roadway depending on the following variables: average daily traffic (ADT), vehicle speed, number of lanes, percentage of trucks, gradient of roadway, the degree to which the roadway is elevated or depressed, and the surrounding topography. The developed contours are shown on Figure 4-1.

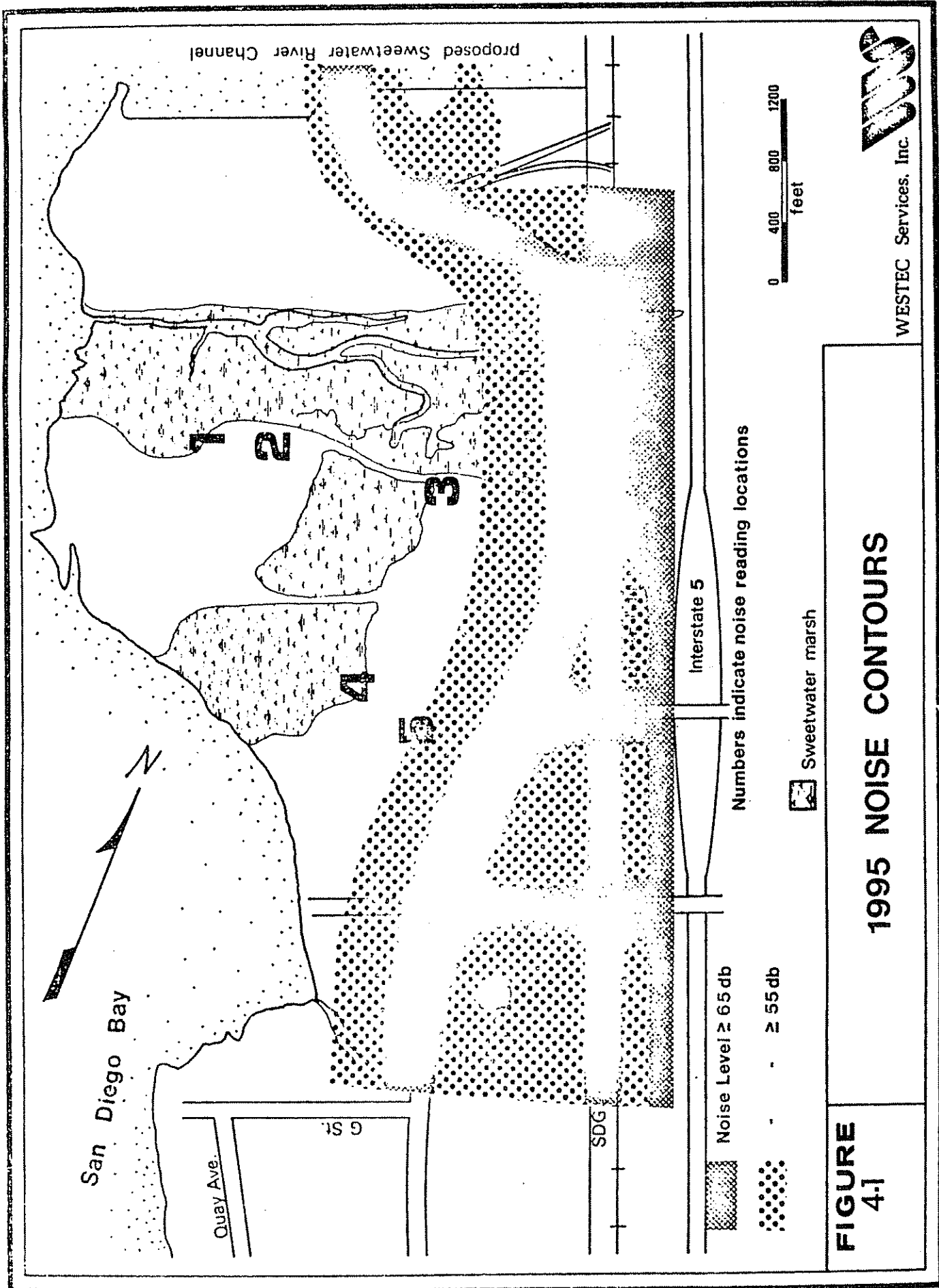


FIGURE 4.1

1995 NOISE CONTOURS

In addition to the L_{dn} method of describing noise, another descriptor, L_{10} , is used by the Federal Department of Transportation. The L_{10} level represents the A-weighted noise level which is exceeded 10 percent of the time over the duration of the sample noise measurement. This statistical descriptor has been utilized for assessment of noise impact of traffic noise where it represents a measure of the higher order sound levels occurring during a specific period.

The numerical value of L_{10} for the noisiest traffic hour approximates the value of L_{dn} for 24 hours (County of San Diego, 1975). For normally travelled roads the two values are usually within ± 1 dB. Thus, the L_{dn} contours for the project shown in Figure 4-1 approximate the equivalent L_{10} contours for the peak or noisiest hour.

L_{dn} 65 and L_{dn} 55 noise contours were calculated based on existing road volumes (I-5) and on predicted traffic flows (Caltrans, 1976; Wilsey & Ham, 1976). The L_{dn} 65 dB(A) contour allows for comparison in that it is the level generally considered compatible with unrestricted residential usage in urbanized areas (Wyle Laboratories, 1973). Sixty-five dB is also roughly the maximum outdoor noise level which may be attenuated through standard construction methods (15-20 dB reduction) to an acceptable interior level. In addition, the 65 dB level is easily correlated to the California Airport Noise Standard (of 65 CNEL) for residential areas. The Environmental Protection Agency (EPA) has identified an outdoor

level of L_{dn} 55 dB as the level requisite to protect the public health and welfare.

It should be kept in mind that these noise contours are based on the theoretical estimates of road characteristics, ADT, and traffic flow patterns and may change withn the next 20 years. Also, the 1995 figures are conservative due to recent amending (Assembly Bill 108, May 1975) of the California Vehicle Code, Section 27160, "Motor Vehicle Noise Standards" which modified the previous stepdown noise reduction standards. Because of this recent amending of the Vehicle Code, the 1973 case-graphs were utilized to determine the 1995 contours instead of the 1995 case-graphs. The developed contours do not take into account future technological advances for quieting automobile noise (specifically tire noise) or deductions for use of rapid transit by future project residents or visitors.

The area of highest potential noise levels is centered in the most eastern portion of the Sweet-water Marsh where the proposed Tidelands Avenue is to be built. A number of noise sources combine in this area, including traffic generated noise from Tidelands Avenue and Interstate 5, noise from the high voltage transmission lines (stationary noise source) and railroad noise from the San Diego and Arizona Eastern Railway. Optimally, this area is not to be occupied by any residential structures. Thus, the primary

effect of noise in this area will be to marsh-associated wildlife. Unfortunately, a thorough search of the scientific literature from 1950 to the present has revealed an almost complete lack of information concerning the effects of noise on wildlife (EPA, 1971). What is generally known, however, is that steady-state noise such as exists from a line source such as a roadway does not appear to dramatically disrupt wildlife use of an area. Sudden loud, intrusive noises are most disruptive to wildlife, especially during the mating and breeding season. Therefore, some disturbance to wildlife due to the operation of heavy construction machinery on the site during the early stages of construction should be anticipated.

Other areas of concern based on the calculated contours include the proposed golf course and some planned residential zones which may experience L_{dn} (L_{10}) levels of greater than 55 dB(A). Adequate construction methods should alleviate any potential interior noise problems and exterior noise levels may be attenuated somewhat through appropriate berm construction and landscape design.

A natural element which does not show up on Figure 4-1 but does affect the ambient noise levels throughout the site is the consistent on-shore breeze in the area.

Railroad noise through the site is infrequent. The branch line of the San Diego and Arizona Eastern (SD&AE) Railroad which runs from downtown San Diego to the Western Salt Company averages 0.6 trains per 24-hour day (Wyle Laboratories, 1973). All SD&AE operations occur between 7 a.m. and 10 p.m. L_{dn} 65 dB noise contours developed for this branch line by Wyle Laboratories (1973) extend approximately 120 feet on each side of the tracks.

4.4.1.2 Mitigation

Site preparation (grading), especially on Gunpowder Point and the D Street fill, the construction of Tidelands Avenue, and installation of buffers about the periphery of the marsh and mudflat areas, should be performed during the spring and summer. This would avoid noise conflict with the large influx of migratory avifauna which pass through during the fall and winter months (via the Pacific Flyway).

Because land uses are non specific, the noise contours as projected do not present a significant constraint or health hazard and detailed mitigation is not proposed. However, it is recommended that any eventual residential land use be kept away from the shaded areas on Figure 4-1. To help reduce noise from the roads the use of berms and/or barriers should be encouraged where possible. These can be used separately or in concert to effectively reduce noise

levels. Barrier positioning is an important factor in relation to the noise source and the observer or receiver point. Barrier height is also an important parameter in noise attenuation; a barrier of insufficient height may actually increase the annoyance potential and Ldn (L10) levels behind the barrier. This is due to a reduction in the steady noise of automobiles without reducing the peak noise of the trucks.

Where residential units may be contemplated in the area of Tidelands Avenue, consideration should be given to window placement away from the source of traffic noise. This may be especially important if two-story units are anticipated where the second story is not shielded by a berm or wall from Tidelands Avenue traffic noise.

4.4.1.3 Analysis of Significance

Traffic noise from I-5 and from the proposed roadways of the project area can be adequately dealt with through standard facilities setbacks, situating of residential units away from areas of noise concern, the use of standard noise insulation procedures for structures, and the use of landscaped berms. If such mitigation is used, the significance of noise impacts will be of minor consideration.

4.5.2 Stationary Sources

4.5.2.1 Impact

a. Industrial Sources

Rohr Corporation adjoins the project site to the south. This facility along with the San Diego Gas & Electric Power Plant (just over a mile further south) are stationary noise sources to the project site. Noise generated from these facilities is primarily screened from the site by Rohr's building design and SDG&E's distance to the site. These sources are therefore not significant noise sources to the project area.

b. Utility Sources

High voltage transmission lines such as those along the eastern boundary of the project site can be a source of audible noise and radio noise. Audible noise can incrementally affect people and the quality of life and radio noise can result in impaired radio reception. Periods of higher noise (both audible and radio) occur during high humidity, fog, and rain. These factors along with the existence of dust, salt, or insects on the conductor, number of conductors in a bundle, conductor size, and phase separation will all combine to impact the proposed project to some degree.

Previous studies indicate that audible noise associated with the operation of high voltage transmission lines falls within the Department of Housing and Urban Development (HUD) normally acceptable guidelines

(HUD, 1971; San Diego Gas & Electric Company, 1973). Audible noise levels of 48-50 dB(A) will occur at the right-of-way property lines during a "worst case" noise condition (rain). Normally, the lines will radiate noise well below the 48-50 dB(A) range; however, even under worst case conditions, the noise levels associated with operation of the transmission lines will fall within the lower end of the HUD Normally Acceptable criteria (HUD, 1971).

Radio noise, if below 40 dB, should cause only minimal interference. The predicted maximum of 42 dB for wet conditions is only slightly higher than the 40 dB level suggested. The predicted dry condition radio noise of 25 dB can be expected to cause minimal interference (San Diego Gas & Electric Company, 1973).

4.5.2.2 Mitigation

No mitigation required.

4.5.2.3 Analysis of Significance

Non-significant impact.

4.6 Biology

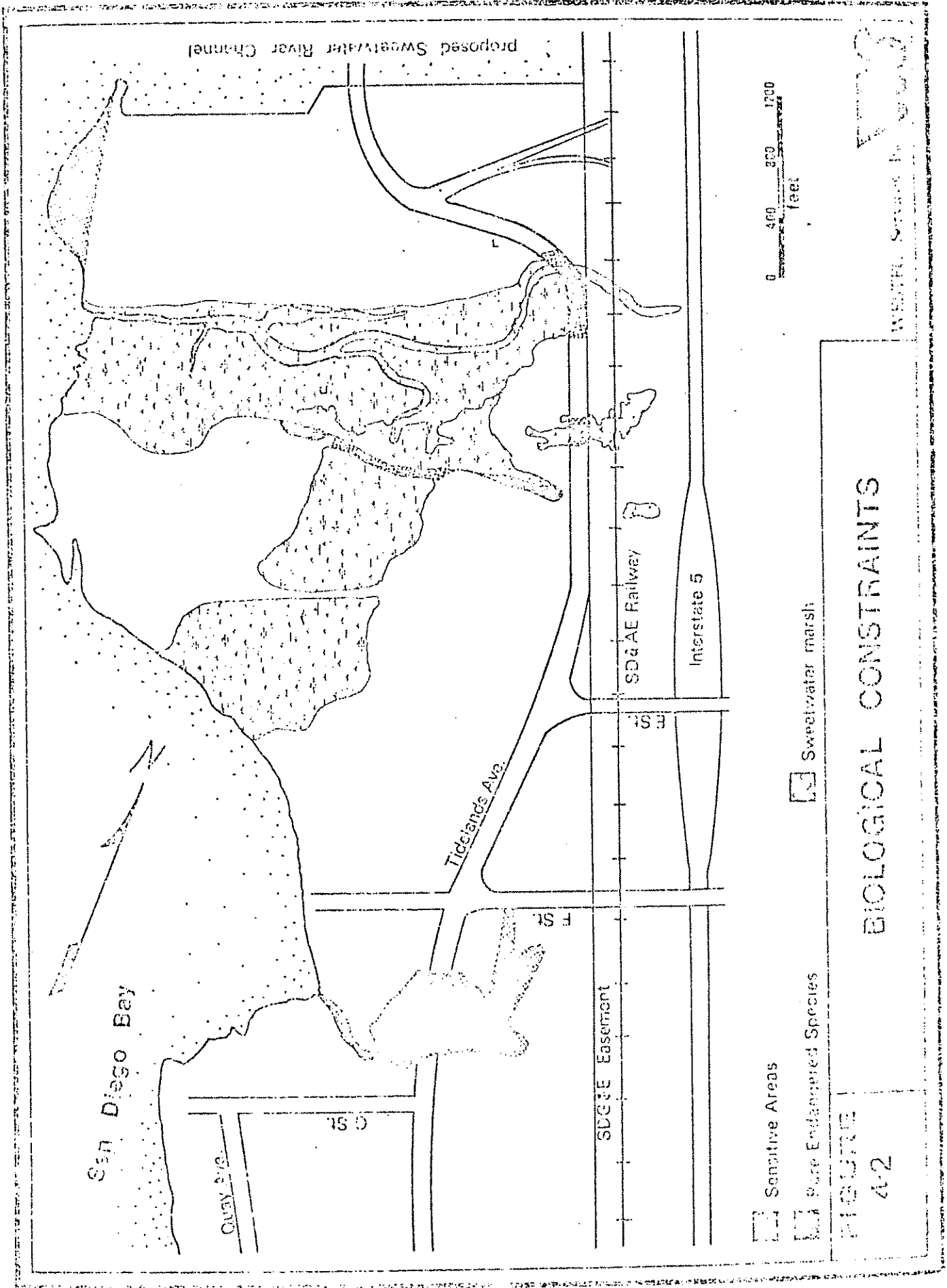
4.6.1 Terrestrial Biology

4.6.1.1 Impact

Of primary importance with regard to existing on-site habitat is the narrow strip of natural

(native) vegetation along the southern border of the Sweetwater Marsh (see Figure 4-2). The westward segment contains three (possibly four) floral species considered rare and endangered by the California Native Plant Society and a large stand (400 square feet) of mission live-forever (Dudleya edulis). The eastward segment contains two relict floral species but is primarily important due to the fact that it is a well-developed stand of brush, the lone such stand in the immediate area, offers protective cover and foodstuffs for wildlife, and effectively buffers the marsh area due to its impenetrable character.

Of note also is the extensive fill area lying between the Sweetwater Marsh and the Sweetwater Channel. Although currently highly disturbed by human usage (trail bikes and off-road vehicles) the area could be of primary importance for certain avifaunal species such as the snowy plover and the least tern which utilize sandy areas such as the fill for nesting purposes. Both the snowy plover and the least tern appear on the Audubon Blue List for 1976 (Arbib, 1975); the California Least Tern (Sterna albifrons browni) is classified as an endangered species by the California Department of Fish & Game (1974). The U.S. Dept. of Interior also lists the Least Tern as endangered. Ten least tern nests were reported on the fill during the 1975 nesting season, thirty-six during the 1974 nesting season. Fledging success has been poor due to destruction of eggs by off-road vehicles and



continuous disturbance of the adults. The fill is accessible also to dogs, feral cats and natural predators.

4.6.1.2 Mitigation

The two remaining natural areas of native vegetation along the southern border of the Sweetwater Marsh should be retained as buffering elements between the Marsh and the proposed project development. The most westward segment should itself be buffered because of the presence of a number of rare and endangered floral species.

Mitigation for the eventual loss of potential California Least Tern nesting sites in the Sweetwater Marsh and parts of the D Street Fill should be coupled with the enhancement in the higher elevations of the Sweetwater Marsh. (see Sec. 2.2.6 for a description) Interim protection for this species would necessitate fencing off or limiting access to all or part of the D Street fill during the late May to early August occupation period.

4.6.1.3 Analysis of Significance

The presence of three (possibly four) floral species which are considered to be of rare and endangered status make the western segment of the remaining native vegetation on-site a highly significance resource. The past

and persistent use of the D Street fill by the California Least Tern indicates that the extension of Tidelands Avenue to this area should include adequate mitigation measures for the continued nesting of this species in the South Bay area.

4.6.2 Wetlands Biology

4.6.2.1 Impacts

The principal adverse biological impacts on wetlands resulting from the actions listed in the project description would be as follows:

- Loss of roughly the eastern half (about seven acres) of the F and G Street Marsh by burial with fill for Tidelands Avenue. As discussed below under "Mitigation," this loss would be partially offset by creation of a new marsh area as a westward extension of the remaining part of the present F and G Street Marsh. This action would provide increased access of bay waters to the marsh.
- Burial of about four acres of the landward portion of the Sweetwater

Marsh by fill for Tidelands Avenue. In this area the marsh consists primarily of salt flats with little or no vegetation cover. Selection of this area for crossing the marsh was based in large part on the results of meetings between City of Chula Vista personnel and representatives of the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and California Department of Fish and Game.

- Burial of about one to two acres of marsh and littoral vegetation near the northwest end of Gunpowder Point (see Figure 2-7 grading plan).
- Loss of species that cannot readily move out of the area during placement of the fill, and displacement of mobile organisms inhabiting or feeding in the area to be filled.
- Some restriction of water movement in the landward, generally dry portion of the Sweetwater Marsh and Paradise Creek Marsh. As discussed below under Mitigation,

the main channel of the Sweetwater River would be spanned by a bridge-like structure. In addition, large diameter culverts under the Tidelands Avenue fill would facilitate access of tidal waters to areas east of the roadway.

- Dismemberment of the tidal stream in the F and G Street Marsh. As discussed below under Mitigation, the remaining meander loops would be joined by a connecting channel to ensure flushing of this marsh.
- Potential damage to marsh vegetation in areas adjacent to construction activities by earth moving equipment and other construction vehicles; this can be held to a minimum if suitable restrictions on vehicular use are rigorously adhered to.
- Temporary disturbance of birds and other organisms in the immediate vicinity of construction activities.
- Potential disturbance of 1) important marsh birds (such as the light-footed clapper rail), and 2) migratory

waterfowl and shorebirds, as a result of the eventual increase in human use of the Gunpowder Point and Vener Farm areas. As discussed under Mitigation, most of the marsh area will be bordered by protective fence and a 50 to 100 foot wide buffer zone planted with shrubbery that will partially screen the marsh from man's activities on the upland areas.

- Potential adverse effects on water quality in the marsh resulting from storm runoff from future urban development of existing agricultural land.

a. Beneficial Impacts

Provided that the mitigation measures specified in the following paragraphs are stipulated as conditions to the building permit, the project would have the following beneficial impacts:

(1) Enhancement of some of the 33 acres of virtually bare saltflat near the landward end of Sweetwater Marsh on the Bayward side of Tidelands Avenue, by

modification of drainage planting and generation of high marsh vegetation would produce a net gain in high marsh vegetation acreage. This is an important benefit because the Sweetwater Marsh complex now represents 95 percent of the total remaining acreage of high marsh in San Diego Bay.

(2) Establishment of a specifically defined buffer zone (containing a fence and appropriate plantings) bordering the various elements of marsh would benefit the marsh in two ways: 1) it would prevent any further encroachment of fill on the marsh area, and 2) it would partially shield the marsh areas from disturbance by two and four legged predators.

4.6.2.2 Mitigation

Biological impacts associated with the project such as: 1) burial of about seven acres of the F and G Street marsh, and about five to six acres of the Sweetwater

Marsh by Tidelands Avenue, and by grading at Gunpowder Point, 2) the loss of non-mobile organisms and the displacement of mobile organisms in the areas to be filled, 3) dismemberment of the tidal stream in the F and G Street Marsh, and 4) the potential stress on the marsh resulting from the eventual conversion of a low population farm area on adjacent uplands to a higher population urban area are inherent characteristics of the ultimate project and as such cannot be mitigated.

- Loss of part of the F and G Street Marsh will be offset in part by grading the area to the west of this marsh in such a way as to allow generation of about 3.5 acres of new marsh and tidal channels which would link the existing marsh directly with the Bay and the provision of marsh planting.
- Loss of the filled acreage across the Sweetwater Marsh will be offset by modifying the topography drainage & planting of the adjoining areas of saltflats so as to enhance development of marsh vegetation to replace part of the 33 acres of saltflats.

- If the F and G Street Marsh re-constitution is carried out successfully, then the net change in marsh habitat acreage as a result of the project should be roughly as shown in Table 4-9.
- As to the extent of restriction of water movement in the landward, generally dry portion of the Sweetwater Marsh and the Paradise Creek Marsh, the main channel of the Sweetwater River would be spanned by a bridge-like structure (see Figure 2-5). In addition, large diameter (36 or 48 inch) culverts under the Tidelands Avenue fill would be placed at all other areas of through drainage or standing water. These culverts would facilitate access of tidal waters to areas east of the roadway during periods of unusually high tides.
- The adverse effects of dismemberment of the tidal streams in the F and G Street Marsh will be partially offset by one or more channels

Table 4-9

CHANGES IN WETLANDS ACREAGE DUE TO THE PROPOSED PROJECT

Marsh Element & Pre-Project Acreage	Loss Due to Project	Gain Due to Enhancement	Net Change
Sweetwater 107	4 (Tidelands Ave.)	conversion of 10 to 15 acres of saltflat to marsh vegetation	
	1 to 2 (Gunpowder Pt.)		
	5 to 6 acres	10-15 acres*	+4 to 10*
F/G Street 12	7	7 acres of upland converted to marsh	0
	12 to 13 acres	+17 to 22 acres*	+4 to 10*

*The conversion of saltflat to marsh is not a 100% gain due to the inherent value of the saltflat.

connecting the remaining segments of the stream meanders, and by one or more additional channels connecting the Marsh to the Bay. In addition, the Rohr storm drain which empties into one channel of the existing marsh should be rerouted to the Bay. It should be noted that the size, shape, and location of these channels, as well as the desired elevation and configuration of the topography in the adjacent upland area to be converted to marsh (see item above) would be the subject of a separate design study that would be conducted before the current project is implemented.

- In order to minimize the impact of increased accessibility from the uplands bordering the marsh elements, a 50 to 100 foot wide buffer zone on the uplands will separate the marsh elements from the uplands. This buffer zone will contain a chain link fence constructed so as to effectively reduce access to the marsh by humans

and by predatory cats and dogs; the buffer will also contain native shrubbery and possibly trees that will help screen the marsh from man's activities on the developed uplands. The specific design of the buffer zone would be part of the design study referred to above.

- In order to minimize damage to marsh vegetation and the buffer zone during grading and other construction, the buffer zone on the uplands and the acceptable limits for vehicular movement for the Tidelands Avenue crossing of the Sweetwater and F and G Street Marshes should be laid out and prominently marked. In addition, the grading contract should contain a penalty clause which levies financial penalties for damages from unauthorized transgression into the buffer zone and the marsh areas. The grading inspectors for the City should be authorized to shut down grading temporarily if violations occur

Although these measures may seem excessive, it is very doubtful if construction damage to the marsh and buffer zone can be minimized in any other way.

4.6.2.3 Analysis of Significance

As to the significance of the impacts discussed above, providing that the following stipulations are met, the adverse biological impacts of the project are judged to be outweighed by the overall benefit of preserving the Sweetwater Marsh complex as an effectively protected marsh sanctuary. The stipulations are:

- That the Sweetwater Marsh complex (including Paradise Marsh, Vener Pond, Vener Marsh, the F and G Street Marsh, and the bayshore mudflats from G Street to the 24th Street channel (as shown in Figure 2-11) will be preserved as a sanctuary either as a result of Federal action, state action, municipal action, or by some combination of these actions. (This is not mitigation of impacts due to this project)
- That a buffer zone with the following characteristics will be

established bordering the Sweet-water Marsh, Vener Pond, Vener Marsh, and the reconstituted F and G Street Marsh: 1) width of buffer zone will not be less than 50 feet and may be as much as 100 feet where necessary, 2) the zone will contain a chain link fence so constructed as to effectively reduce access to the marsh, and 3) the zone will contain native shrubs.

- The upland area west of the remaining half of the F and G Street Marsh element will be graded to appropriate elevation and shape (including channels) so as to generate at least 3.5 acres of marsh vegetation. A marsh planting program will also be instituted.
- The topography and drainage of about 10 to 15 acres of the saltflats in the landward portion of the Sweet-water Marsh area west of Tidelands Avenue will be modified so as to facilitate generation of marshland, and a planting program initiated.

4.7 Archaeology

4.7.1 Impact

Implementation of the proposed grading plan would adversely impact WS-76-6 as the site does present limited data to researchers seeking to piece together a better portrayal of the past lifeways of humans. Thus, the loss of this site or its further impairment without the implementation of mitigation measures would result in the loss of scientific data which is non-renewable and intrinsically one-of-a-kind.

4.7.2 Mitigation

Although it is often desirable, on the part of the archaeologist, to preserve as many of the remnants of past human activity as is possible, the site on the Chula Vista Bayfront Project does not warrant such a suggestion. Preserved sites or sites suggested for preservation should either contain unique archaeological resources, provide a viable link with the past in terms of obtainable data, aesthetic elements (i.e., visual/tactile links between the present occupants and their ancient predecessors), or contain intrinsic value as an example of Native American life.

WS-76-6 does not, for the most part, contain the factors noted above. Due to its limited areal distribution, the lack of depth and its badly disturbed nature, this site does not have a great deal to offer either the professional

archaeologist in terms of hard data, nor the community as a whole. Therefore, the following steps for mitigating the loss of this minor site have been formulated, realizing and taking into account the limitations cited above.

It is suggested that an intensive surface collection of the remaining artifacts be conducted. Because of the disturbed nature of the site it is not recommended that an intensive micromapping investigation be conducted. The surface collection will consist of a thorough surface study and retrieval of all visible artifacts. The relative position of the various artifacts should be sketched on a base map to ensure that a controlled study has been conducted.

During the surface collection, it is suggested that a selective sample of shellfish remains also be collected and that these samples (at least one grouping) be subjected to a radiometric (C^{14}) dating test in an attempt to ascertain the date of the site. Such a dating study will help to place the site in a chronological framework without undue testing or analysis. Although more than one test group would be ideal, it is not absolutely necessary.

Following the surface collection, it is suggested that the artifacts be cleaned, catalogued and analyzed. The analysis should include the construction of a valid typology, the comparison of the recovered artifacts with others from

the area or with published literature on the artifacts from similar sites in San Diego County and a final report which integrates the recovered data and attempts to place the site within a regional context.

The value of the surface collection, dating technique and report preparation is that a scientific report will have been completed on a minor segment of the prehistory of the Chula Vista region. Although such a report will not contribute a large body of knowledge nor stand alone as a monumental synthesis, it will, nonetheless, provide valuable assistance and data to researchers and students.

An alternative to the above mitigation is to preserve the site as part of a buffer zone which has been suggested for an area surrounding the marsh. Although this site does not appear to warrant preservation or extensive activities to retain its physical presence, such a course of action would serve to fully mitigate the otherwise adverse impacts which would take place if land form alteration or construction activities take place in this area.

4.7.3 Analysis of Significance

The significance of this site is based on its relation to the coast and to other sites in the Chula Vista region. It is rare to find sites at this low an elevation

or this close to the Bay region. The location of this site relative to others in the area dictates that at least some significance be attached to this otherwise trivial site. It is suggested that the remaining artifacts (in excess of twenty individual specimens) and shellfish remains can contribute a small body of scientific knowledge to the scientific community and serve to help fill the existing gaps in the prehistory of Chula Vista and of San Diego County as a whole.

4.8 Paleontological Resources

4.8.1 Impact

As noted earlier, a brief review of the literature and a limited field survey revealed no paleontological finds on the site. As such no adverse impact is expected from the proposed project activities.

4.8.2 Mitigation

Whereas no adverse impact of significance is expected no specific mitigation recommendations are proposed. However, if during construction of Tidelands Avenue or laying of utilities a paleontological deposit is uncovered it is advised that all construction activities stop and that qualified individuals be allowed to review and, if necessary, salvage the findings.

4.8.3 Analysis of Significance

The lack of such resources prevents the discussion of any specific significance.

4.9 Historical Resources

4.9.1 Impact

The lack of observed or designated historical sites within the project precludes occurrence of any adverse impacts of significance. The old munitions factory is not considered to be architecturally unique nor significant enough to warrant preservation.

4.9.2 Mitigation

Because there appears to be no adverse impact of any magnitude, specific mitigation is not advisable. It may be prudent however, to photographically record the munitions factory for any future research which might come up on Gunpowder Point and why it received its name.

4.9.3 Analysis of Significance

While almost all structures and objects play some role in our history, the structures found within the project area have limited historical value. Whereas they may be "interesting", they are not of high enough significance to warrant further consideration.

4.10 Land Use/Public Access

4.10.1 Impact

4.10.1.1 Land Use

The impacts associated with this project will fall into two categories, primary and secondary. The primary land use impacts will be the alterations which would result from development of the road, utility improvements, the grading plan and the drainage plan. The realization of any of these plans and/or activities would have two major impacts. First, there will be both short and long term loss of marshland use in both the F and G Street Marsh and the main Sweetwater Marsh. Second, there would be a loss of agricultural land use. This loss would most likely be phased with development plans, but in the long term, the use will be eliminated. This impact is adverse in that removal of agricultural uses from the coastal zone has previously been discouraged by the Coastal Commission. In fact, the Coastal Plan strongly recommends the maintenance of such uses in the coastal areas because of the favorable climates and soils.

This project and its associated approval does not, as noted earlier, cover the proposed land uses within the redevelopment area. However, because the approval of the project could lead to the attainment of these uses, they must then be considered in terms of secondary impact. The possible land uses and their locations can be seen in Figure 2-12. Realization of such uses would significantly alter the existing agricultural and commercial activities and as such constitute an adverse impact.

4.10.1.2 Public Access

The fulfillment of this project will substantially change the accessibility of the site. There will be increased vehicular as well as pedestrian/bicycle use in the general area. Due to the lack of access at this time, this is considered to be a beneficial impact. However, there is one potential adverse consideration, in that increased access will create more direct contact between humans/animals and the marsh areas which here-to-fore have been buffered via the low accessibility. If proper steps are not undertaken, such an interface could be considered extremely detrimental.

4.10.2 Mitigation

4.10.2.1 Land Use

The land use impacts are considerable and the two major direct impacts are adverse. The impact of the roadways, drainage and grading on the marsh areas has been discussed in detail in Sections 4.4 and 4.6 and need not be repeated here. The loss of agriculture uses is difficult to mitigate. It is possible, that short term losses can be minimized through careful phasing. Further, short term relocation of the operations to the D Street land fill (it has the longest development lag time) is a realistic solution. In the long term, the only feasible form of mitigation is relocation of the agricultural operation to an alternate area. However,

due to the limited significance of the site, (it is not classified as prime agricultural land), an alternative site survey has not been conducted.

4.10.2.2 Public Access

The only negative aspect of increased public access can be mitigated through the establishment of buffer zones contiguous to the marsh areas. These buffers would vary in size and can be seen in Figure 2-11. The buffers shown are compatible with those proposed as part of the Corps of Engineers purchase of the marsh areas. The buffers will be a combination of natural vegetation and man-made landscaping. Further, they will incorporate an impenetrable barrier which will restrain humans as well as their domesticated animals from disturbing the marsh communities. These buffers should, where legally possible, be established in conjunction with any increase in public accessibility to the overall project area.

4.10.3 Analysis of Significance

4.10.3.1 Land Use

The loss of marshland uses and its significance is discussed in Section 4.6. The loss of the agricultural land use in terms of significance is difficult to ascertain at this time. There are presently studies in progress, under joint supervision of the CVRA and the Coastal

Commission, designed to develop specific answers to this question of significance. Some of the issues of concern are:

- The lack of prime soil classification of the area
- Water quality problems with agricultural runoff
- Economic viability
- Long term productivity

The answers to these questions will provide a proper framework in which to discuss significance. When that study is completed, it should be incorporated as part of the EIR/EIS for this project.

4.10.3.2 Public Access

The issue of public access is extremely significant, because it is the backbone of Proposition 20 and the Coastal Zone Plan. The project as described will significantly increase access to the overall area for both vehicles and pedestrian/bicyclists. The significance is enhanced because of the fulfillment of coastal zone policies.

The increase of public access to the site is also significant in that if proper mitigation is not instituted, the increased access may substantially degrade the very resource for which access is being sought. The proposed buffers & barriers will be established as development takes place near the marshes.

4.11 Aesthetics

4.11.1 Impact

The proposed project should not adversely impact the Bayfront viewshed. Design plans indicate that the maximum height of the roadway will be 15 feet (above ground level). This should not cause a negative impact from existing I-5 views of the site. It may however, decrease existing views from Bay Boulevard. Conversely, it will improve access to the viewshed by opening up areas previously physically and visually inaccessible. Further, the enhancement activities associated with construction will serve to improve overall site appearance through the collection and disposal of existing discarded debris. In association with the roadways, there will be both median and right-of-way landscaping which will have a positive aesthetic impact on the area. The proposed grading plan is also designed to provide maximum viewing from within the site. The approximate 20 foot high elevation along the eastern boundary may however, detract slightly from the viewshed outside of the project area looking towards the Bay.

4.11.2 Mitigation

Due to limits on the existing viewshed and the degraded status of parts of that viewshed, this project should be considered a form of mitigation in itself. The project would be subjected to CVRA appearance and design

review to ensure that each part of the project will ensure overall aesthetic improvement. Further, the proposed enhancement programs should be phased and completed in conjunction with roadway improvements.

4.11.3 Analysis of Significance

The appearance and design of the coastal zone is as important an issue as public access. As such, the coastal plan (Policies 44-56) encourage maintenance of coastal viewsheds, and where possible, improvement of those viewsheds. Therefore, the enhancement program and the increased visual access to the site are very important actions and should be seen as positive and significant to the policies of the Coastal Zone Plan.

4.12 Socio-Economic Factors

4.12.1 Community Social Description

4.12.1.1 Impact

It is anticipated that the elements accompanying the proposed project (roadway and utility extension, drainage and grading plans) will have little in the way of direct socio-economic effects upon the Bayfront area or the City as a whole. Given the lack of significant residential population within the project boundaries, little in the way of community barriers or divisions are expected to be created

as a result of the extension of the proposed roadways and utility corridors. As previously mentioned, there exists the potential for loss of some or all of the agricultural land use as a result of the extension of the project roadways. This impact may result in the ultimate displacement of the few families residing on Gunpowder Point.

While little in the way of socio-economic impacts are expected as a result of the current project, the impacts of ultimate development of the project site as discussed in Section 9 will be considerable. Any discussion or assessment of these socio-economic impacts can only follow submission of detailed development plans for these areas.

4.12.1.2 Mitigation

The impacts accompanying the aforementioned potential loss of agricultural land and residential displacement can be partially mitigated and at least delayed through a gradual phasing out of this land use.

4.12.1.3 Analysis of Significance

The socio-economic impacts accompanying the project considered herein are seen as being minimal. However, those impacts coincident with ultimate site development are seen as being highly significant and should be considered at future, more detailed project stages.

4.12.2 Community Tax Structure

4.12.2.1 Impact

The proposed project is not expected to sustain any adverse impact on the tax structure of the community. The tax allocation for the total redevelopment project, of which this action is an initial phase, will be handled in the following manner.

The Community Redevelopment Law authorizes a method of financing redevelopment projects based upon a prescribed allocation of property taxes collected within a project. The assessed valuation of taxable property within the project is, in effect, frozen at the level existing prior to adoption of the redevelopment plan, and all overlapping taxing bodies continue to receive the taxes derived by the levy of the current tax rate against this frozen base. All property taxes collected each year after the adoption of the redevelopment plan upon any increase in assessed valuation above the established base level may be credited to a redevelopment agency and pledged to the repayment of any indebtedness incurred in the development of the project. After all such indebtedness has been repaid, the total taxes produced by the project thereafter accrue to the respective taxing bodies in the usual manner. Thus, the tax allocation procedure not only permits each taxing agency to levy and collect taxes

on the level of assessed valuation existing in a project prior to redevelopment, but also provides that increases in assessed valuation occurring as a result of such redevelopment may be used as a basis for the repayment of costs or indebtedness incurred on behalf of the project.

During the course of redevelopment, assessed valuations may temporarily be less than the frozen base, as a redevelopment agency acquires land and improvements and the properties are removed from the tax rolls by virtue of the transfer to public ownership. As an agency disposes of the land for purposes of redevelopment, it is returned to the tax rolls with an assessed valuation that usually reflects the higher level of planned use prescribed in the redevelopment plan.

As previously stated, the Community Redevelopment Law authorizes the issuance of bonds by a redevelopment agency, and the payment of bond service costs is permitted from anyone or a combination of stated sources. The Bayfront Project Tax Allocation Bonds are secured by a pledge of all tax receipts produced from the incremental assessed valuation of the project (defined as the Tax Revenues) which are to be paid directly into the Agency's Special Fund established for the benefit of the bondholders, and held by the Fiscal Agent. The estimated bond retirement schedule and cash flow can be seen in Table 4-10.

ESTIMATED DEBT RETIREMENT SCHEDULE AND CASH FLOW FOR THE 1975 TAX ALLOCATION BONDS

Year Ending Sept. 1	Estimated Tax Revenue ¹	Bonds Outstanding ²	Interest Estimated @ 8%	Principal Retired	Premium for Redemption of Callable Bonds	Total Bond Service	Cumulative Balance in Special Fund ³
Serial Bonds:							
1976	\$570,000 ⁴	\$3,400,000	\$ 272,000 ⁵	\$		\$ 272,000	\$ 272,000
1977	580,000	3,400,000	272,000	70,000		342,000	570,000
1978	580,000	3,330,000	266,400	75,000		341,400	808,000
1979	651,000	3,255,000	260,400	85,000		345,400	1,046,600
1980	651,000	3,170,000	253,600	90,000		343,600	1,352,200
1981	651,000	3,080,000	246,400	100,000		346,400	1,659,600
1982	651,000	2,980,000	238,400	110,000		348,400	1,964,200
1983	651,000	2,870,000	229,600	120,000		349,600	2,266,800
1984	651,000	2,750,000	220,000	125,000		345,000	2,568,200
1985	651,000	2,625,000	210,000	140,000		350,000	2,874,200
1986	651,000	2,485,000	198,800	150,000		348,800	3,175,200
1987	651,000	2,335,000	186,800	160,000		346,800	3,477,400
1988	651,000	2,175,000	174,000	175,000		349,000	3,781,600
SUBTOTAL				\$1,400,000			4,083,600
Term Bonds:							
1989	651,000	2,000,000	160,000	2,000,000	\$70,000	2,230,000	2,504,600 ⁶
SUBTOTAL				\$2,000,000			
TOTALS			\$3,188,400	\$3,400,000	\$70,000	\$6,658,400	

¹ From Table 3. Tax Revenues applied to debt service payments in fiscal year following receipt.

² Prior to retirement of principal in year indicated.

³ Includes Bond proceeds allocated for payment of the first year's interest, and Tax Revenues carried over to following Bond Year.

⁴ Represents Tax Revenues capable of being generated from recorded increases in Project assessed valuations. Allocation of such Revenues actually commences in the 1975/76 fiscal year.

⁵ Paid from Bond proceeds on September 1, 1976.

⁶ Available for distribution to other taxing entities or for payment of Additional Bonds, if any. Pledge of Tax Revenues is irrevocable until Bonds of all series are retired or payment in full is provided for.

4.12.2.2 Mitigation

Whereas no adverse impact on the tax structure is expected from implementation of this initial phase of the redevelopment project, no specific mitigation is proposed. The entire redevelopment funding was subject to intense public scrutiny during the first phase of bond allocation and the CVRA's official statement on the 1975 Tax Allocation Bonds will provide greater detail on the procedures instituted to avoid adverse financial impact.

4.12.2.3 Analysis of Significance

No special financial significance can be placed on implementation of this part of the Bayfront redevelopment plan.

4.13 Community Resources

4.13.1 Police

4.13.1.1 Impact

As a result of the proposed development, additional law enforcement burdens can be anticipated. Direct contact with the City of Chula Vista Police Department has indicated that these additional burdens will result in an incremental increase in the need for law enforcement in the area. In particular, the proposed development would increase access to the area leading to increased traffic flows

and congestion in a previously vacant area. Vandalism and assaults in the area may increase as accessibility is increased.

While the City of Chula Vista Police Department and the San Diego Unified Port District Harbor Police do not anticipate that the project will place any undue burdens upon their law enforcement capabilities, it will however, eventually result in the need for increased patrols. This in turn leads to increased manpower and equipment requirements (Clark, 1976 and Lorillard, 1976).

4.13.1.2 Mitigation

Street and intersection design should be conducted with an eye toward crime and accident prevention. Several specific design measures include:

- Proper lighting of streets and parking areas.
- Adequate off-street parking.
- Identifying seasonal versus year-around traffic loads on the streets to allow for more effective police patrol.
- Provisions for sufficient separation between pedestrian, bicycle, and automobile uses, to ensure traffic safety.

4.13.1.3 Analysis of Significance

If proper phasing and inter-government communication is achieved, this increased need for services should not be of great significance.

4.13.2 Fire

4.13.2.1 Impact

The primary impact of the proposed development will be an incremental increase in demand for fire protection services. The additional population attracted to the area by the proposed project will incrementally increase the amount of service necessary.

The Chula Vista Fire Department does not anticipate any problems in serving the developed portions of the project site, given the adherence to City standards regarding fire hydrants and street widths, which ensure adequate turning radii. The proposed street configuration allows ready access to the project site by emergency vehicles. According to the Chula Vista Fire Department, the proposed water lines (Figure 2-9) should provide the water pressure needed to meet the fire demand (Stamer, 1976).

Because the project area is composed largely of marshlands, the only real fire threat would be the result of any structures built in the area. Because large numbers of people are expected in the area, their activities

may also increase the fire potential. Any structural or brush fires in upland areas may result in the removal of vegetation and the baring of soils to erosion. The Chula Vista Fire Department possesses limited off-road fire fighting capability, magnifying access problems in the event of a fire away from main access routes.

4.13.2.2 Mitigation

The following measures would not only serve to ease the burdens upon fire fighting authorities in the event of a fire episode but will also reduce the chance of its occurrence:

- Provision of fire hydrants which conform to City standards.
- Interior street widths which will accommodate fire fighting vehicles.
- Each development area should have two means of ingress and egress.
- Strict prohibition of the use of off-road vehicles in undeveloped open spaces within and adjacent to developed areas. Such a measure will not only reduce the chances of fire but would assist in retention of native biological species.

- Compliance with the standards and objectives of the Safety Element of the Chula Vista General Plan (City of Chula Vista, 1974).

4.13.2.3 Analysis of Significance

The project as proposed would improve fire fighting abilities and incrementally increase fire service demands. This is not considered to be of adverse significance.

4.13.3 Solid Waste Disposal

4.13.3.1 Impact

Property owners in the project site will be responsible for establishment of a contractual agreement with the City's franchised contractor in order to obtain solid waste disposal service.

An increase in solid waste production in the project area is expected more from developmental activities rather than the proposed project. As such, the magnitude of this increase can only be determined with a better definition of proposed land uses. The City's franchised contractor for solid waste removal does not foresee any difficulties in collecting and handling the increased amount of waste (Chula Vista Sanitary Service Company, 1976); but, any increase in solid waste generation would result in an incremental decrease

in the lifespan of the County landfill site to which the solid waste will be ultimately transported.

4.13.3.2 Mitigation

Any efforts aimed at the establishment of solid waste recycling programs, particularly for paper goods, aluminum, and glass would not only serve to show the expected increase in waste generation but would also reduce the depletion rate of these non-renewable resources.

4.13.3.3 Analysis of Significance

No significance can be attributed to this phase of development.

4.13.4 Energy/Utilities

4.13.4.1 Impact

The proposed project will represent an additional demand upon all energy and resources associated with urban development. This will be true during the construction phase and throughout the life of the project.

a. Electricity

It is anticipated that service to the fully developed project site will emanate from underground electrical lines along E and F Streets. The installation of the lines will follow the submission of detailed site plans. All distribution facilities will be underground along

existing and proposed roadways. In marshland areas, electric lines will be installed within the road right-of-way already designed for motor vehicle and/or pedestrian use so as to minimize an ecological disturbance. The principle electrical consumer associated with this project will be street lights situated along the proposed roadways. It is anticipated that approximately 53 lights will consume approximately 22.3 kilowatt hours on a daily basis.

The San Diego Gas & Electric Company does not foresee any problems in providing service to the area (Hollins, 1976). Increased use of the area will result in an incremental increase in the demand for electricity which may necessitate additional transformers at the currently operating Montgomery Substation.

b. Gas

It is anticipated that natural gas service to the project site will emanate from gas lines currently running along E and F Streets. Major distribution facilities will follow existing and proposed roadways; as with the other utilities. Although estimates of future gas consumption at the site must await a better definition of proposed land uses, the San Diego Gas & Electric Company anticipates no unusual problems in supplying natural gas

service to the project area (Hollins, 1976). Curtailment of service due to temporary shortages or heavy peak demands will initially affect low priority industrial customers (Hollins, 1976).

c. Water

The proposed water lines (Figure 2-9) are designed to meet a total average water consumption of 3,052,750 gallons per day (GPD) at the project site. This represents approximately 7.2 percent of the present water demand for the Sweetwater District (29,300 gpm). However, such an addition to current levels would not approach the District's total available supply of 104,556 gpm.

Water will be brought on-site through three 14-inch water mains connected to existing 12-inch mains at E, F and G Streets. An additional 12-inch main, proposed for the north side of the site, would connect to an existing 14-inch water line from National City. The transmission system within the project area will consist of two sets of loops which connect to a 14-inch water main that will run along Tideland Avenue. The northern loop in Sub-area C will consist of 12-inch and 10-inch pipes which will connect in three places to the Tideland Avenue water main. This loop will be designed to meet the expected average water consumption of 992,500 GPD as well as the necessary fire demand

for Subarea C. The second loop will provide water for Sub-areas A and B and will also connect to the Tidelands Avenue main in three places. It will consist of a network of 12-inch and 14-inch diameter pipes. Neither set of loops will have dead-end pipes. Subarea E will be served by existing distribution facilities. As with the other utilities, any water mains crossing marshland will be designed with facilities for motor vehicle and/or pedestrian use so as to minimize any ecological disturbance (Wilsey & Ham, 1976).

The California American Water Company does not foresee any problems in providing the water needed for the project through existing facilities (Wibles, 1976). However, a new 16-inch water line may be needed in the future along F Street from 5th Avenue to Bay Boulevard to ensure adequate water pressure to the site (Wilsey & Ham, 1976).

The proposed water distribution site, therefore, should result in an incremental increase in the use of water in the area. The looped system will provide an adequate amount of water in the event of a fire (Stamer, 1976) or in the event of a water stoppage at one end of the loop.

d. Sewers

The project is designed to provide service to the fully developed project on an average rate of 0.35 million gallons of sewage per day. This represents approximately 5.8% of the existing Chula Vista contribution to the Metropolitan treatment system flow (6 MGD). However, such an addition to current levels would not approach the City's capacity allocation for this system (22.1 MGD Lowrey and Associates, 1976).

The general route and size of the primary trunk sewers required to collect and transport sewage generated by the proposed project are described in Figure 2-10. The site will be served by a 10-inch line in Subarea C, a 10-inch and two 8-inch lines serving Subarea A, and a 10-inch and two 8-inch lines serving Subarea B. All lines will follow existing and proposed roadways. A pumping station will be required at the eastern end of Subarea C to move the sewage to a 12-inch interceptor at D Street. At the proposed intersection of D Street and Tideland Avenue, sewage lines from the project area will connect to a 12-inch interceptor which will route the sewage through a new metering station at the intersection of D Street and Bay Boulevard. The sewage will then enter the existing 72-inch

Metropolitan interceptor through a new access point at D Street for treatment at the San Diego Metropolitan Treatment Plant (Wilsey & Ham, 1976).

The proposed sewage lines are expected to adequately handle sewage flows from the project site. Because new sewage lines as well as new interceptor connection to the Metropolitan interceptor will be constructed, no significant impact is expected to existing collection lines in Chula Vista (Daoust, 1976). There will be an incremental increase in sewage flows to the San Diego Metropolitan Treatment Plant, as well as secondary impacts from effluent disposal at sea after treatment.

e. Telephone

The Pacific Telephone and Telegraph Company will provide telephone service to the project without any foreseeable difficulty. Installation of telephone lines will follow the submission of detailed site plans; service will emanate from underground facilities in E and F Streets. All distribution facilities will be in underground conduits beneath existing and proposed roadways (Wilsey & Ham, 1976).

The Pacific Telephone and Telegraph Company does not anticipate any problems in servicing the project with existing facilities (Moreno, 1976).

4.13.4.2 Mitigation

Measures should be proposed to minimize the initial commitment of raw materials and fuels required in the development process. A careful first outlay of such resources can yield considerable savings in subsequent years. However, all involved public utilities should be notified well in advance of any construction in order to coordinate efforts regarding installation of the on-and off-site public utility infrastructure. It is recommended that project planners and representative consulting engineers work together to ensure adequate interface between proposed and existing facilities.

The following specific measures are proposed to promote efficient use and distribution of resources during the development stages of the project:

- The utilization of solar energy should be encouraged wherever possible.
- Water saving devices, such as small reserve tank toilets (as mandated by State law) and low pressure water lines should be installed in all bathrooms and kitchens. These devices may increase the total dissolved solids

in sewage which will have to be compensated for in treatment facilities.

- Park and recreation centers should be centrally located to encourage visitors and residents to walk, rather than drive, to the recreation facilities.
- Printed materials on energy saving techniques should be obtained from the utility companies and distributed to all in the project.
- Street, walkway, and recreational lighting should be selected and situated in such a way as to minimize the cost of illumination without sacrificing safety factors.

All utility corridors have been planned along existing and proposed roadways so as to minimize any ecological disturbances. The proposed project's utility corridors, therefore, are not expected to significantly impact the adjacent marshlands. The proposed corridors are expected to effectively service the area with the needed utilities.

4.13.4.3 Analysis of Significance

The incremental increases in energy consumption and utility installation impacts are considered to be of minor significance for this specific project. However, impacts from induced growth associated with the project could be of some significance.

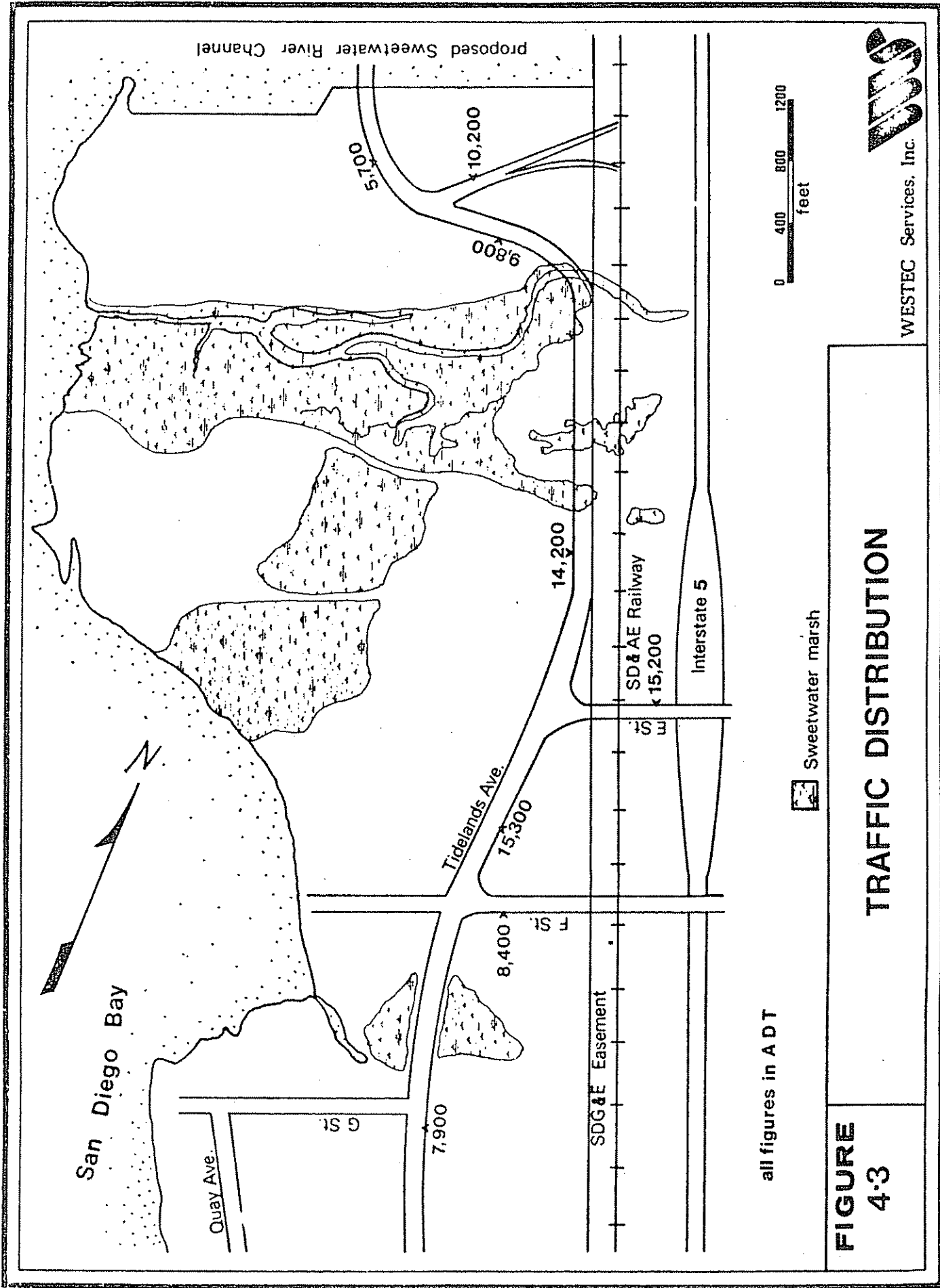
4.13.5 Transportation Access

4.13.5.1 Impact

The completion of this project will provide increased vehicular and pedestrian access. The projected increase in ADT and the possible distribution of the traffic can be seen in Figure 4-3. It should be noted that these are ultimate traffic projections based on the land uses described in Section 2 of the report. Any alteration of the land uses will affect traffic impacts. The new extensions and alignments of Tidelands Avenue and E and F Streets will likely improve traffic flow in the short term by providing better alignments and alternate routes for the daily business commuters located at the Rohr facility and other smaller businesses.

4.13.5.2 Mitigation


Because the analysis of the traffic characteristics is preliminary and based on assumed land uses,



all figures in A D T

FIGURE 4-3

TRAFFIC DISTRIBUTION

WESTEC Services, Inc. 

it is recommended that:

- Prior to initiation of master planning of land uses a second look at traffic characteristics be made to ensure that congestion is eliminated through provision of proper capacity.
- As each specific development is proposed, that a focused traffic analysis relate the individual project to the above master traffic study.
- Wherever possible, the use of mini-transit shuttle service should be provided to reduce total ADT and all area participants should be encouraged to walk or use bicycles for transportation. This encouragement will be aided by well planned and integrated bicycle/pedestrian walkways.

4.13.5.3 Analysis of Significance

The project as proposed will significantly alter the existing environment by increasing access

to a non-accessible area. In the short term, the roadway may provide an "alternate" travel route which would improve peak hour flow. Further, if a master traffic study is not provided prior to construction, long term impacts may be both significant and adverse.

4.13.6 Open Space

4.13.6.1 Impact

The project will reduce open land and marsh areas within the road right-of-way. The balance of the project area will remain in open space in the short term. The increased accessibility should improve the value of the open space in that more individuals will be able to use or, at least pass through the area.

4.13.6.2 Mitigation

Whereas, there would be no adverse impact on open space in the short term from this project, no specific mitigation is recommended. However, because this project may lead to other more intensive urbanization of the area it is recommended that careful design review be applied to all developmental projects. This will ensure that sufficient open space is maintained or designed into the area so that the existing openness and scenic value of the area is not destroyed.

4.13.6.2 Analysis of Significance

The short term impacts of this action are not considered to be of major significance.

5.0 ALTERNATIVES DEVELOPMENT/NON-DEVELOPMENT ANALYSIS

5.1 Land Use Alternative

Where as there are no specific land uses proposed with this project, discussion of specific alternatives is difficult. The project as proposed could, however, vary significantly if land use changes. For instance, if the entire area was to support passive recreation, the water, sewer, drainage and grading as well as roadway requirements would be significantly reduced from the requirements generated by the proposed urbanized uses. Further, variance in the mixture and location of the land uses within the site could substantially alter the project in both beneficial and detrimental ways.

In summary, land use alternatives are available, though, perhaps not economically feasible (see City of Chula Vista, MEIR). However, until such uses are specified, and studied in detail, a viable discussion of alternatives is not possible.

5.2 Design Alternatives

During the engineering/planning process, the project as described in Section 2 underwent several changes and alterations. Many of these, especially regarding sewer, water and utility corridors were mainly engineering variations of the same theme. Because these variations are of

relatively minor significance, they are not considered at this juncture to be true design alternatives. Therefore attention is focused on other design alternatives whose implementation might significantly alter the level of environmental impact.

5.2.1 Tidelands Avenue

During the planning process there were three different alignments proposed for Tidelands Avenue. The first, shown in Figure 5-1, crossed directly through the middle of the F-G Street Marsh and then continued on through the mid-section of the Sweetwater Marsh. While providing certain cost savings in terms of construction and engineering, this alternative route would destroy the F-G Street Marsh completely, reduce or eliminate Vener Pond, and bisect the Sweetwater Marsh in such a manner that overall marsh drainage would be substantially upset. This drainage imbalance would most likely lead to the loss of large sections of the Sweetwater Marsh.

This alternative is found to generate significant adverse environmental impacts and would be incompatible with the project objective of preserving marsh areas.

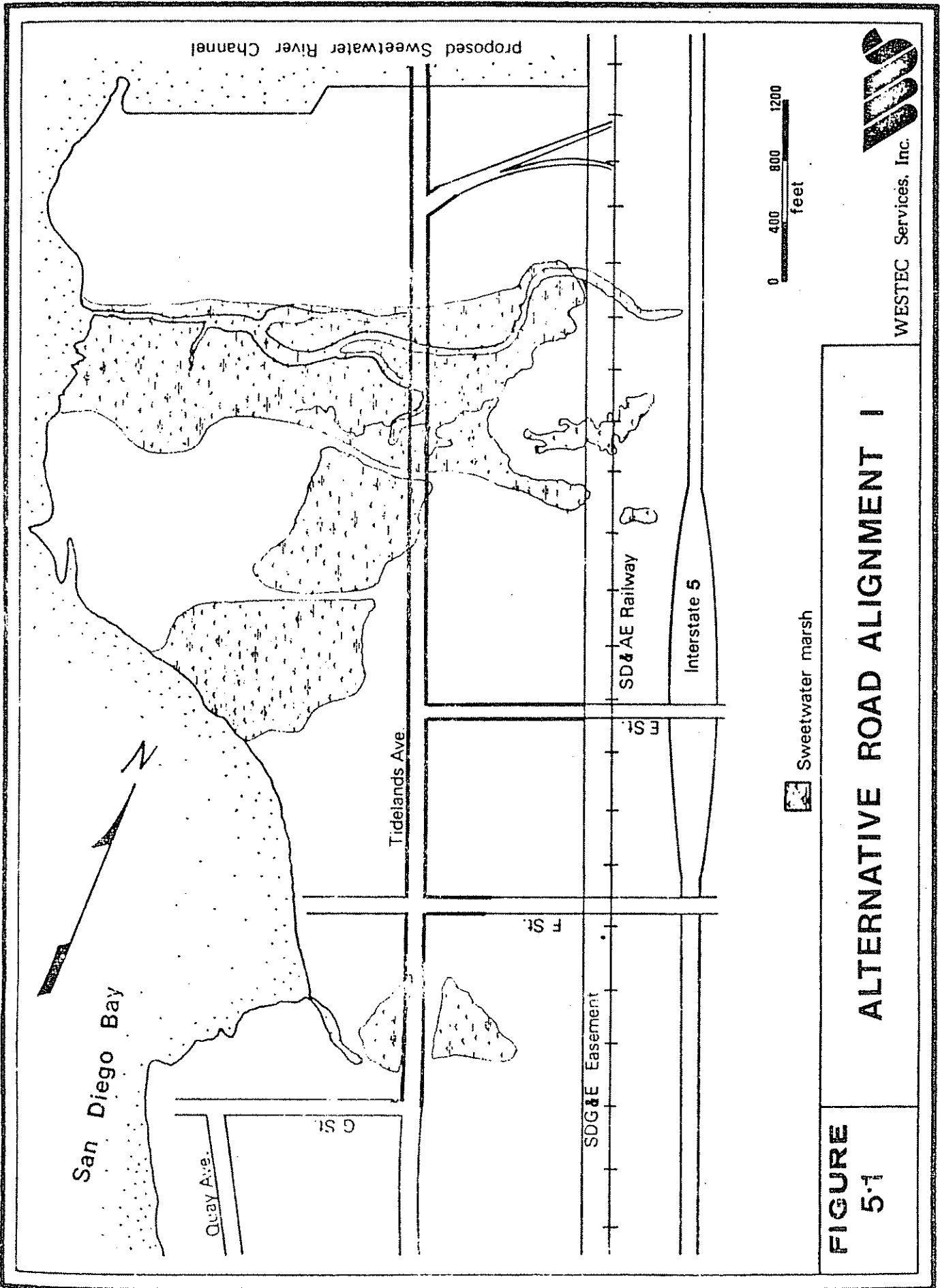
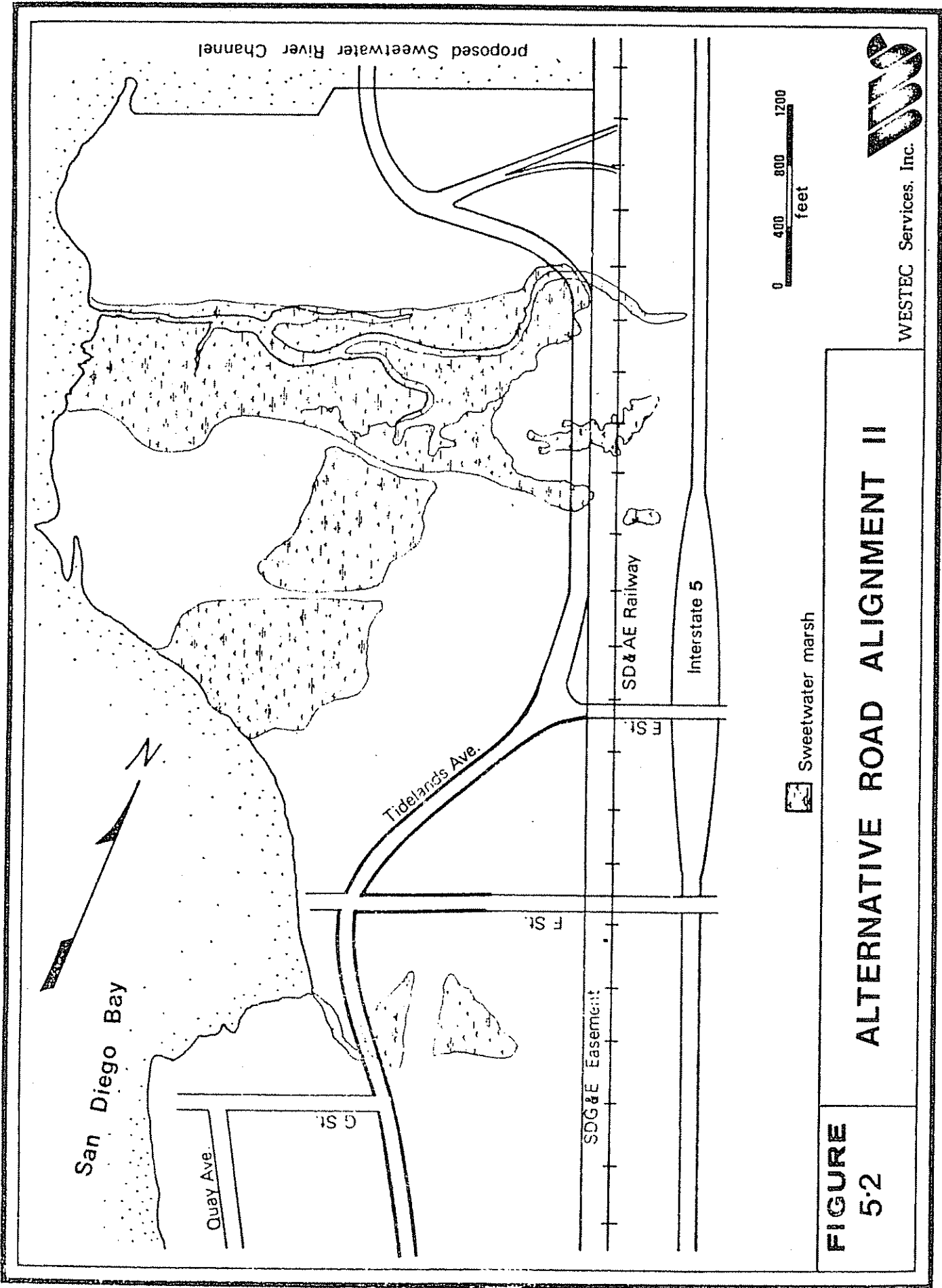


FIGURE 5.1 ALTERNATIVE ROAD ALIGNMENT I

A second alternative alignment is shown in Figure 5-2. This alignment was developed to preserve the F-G Street Marsh to as great a degree as possible. It does, however, impact the western boundary of the Marsh. The alternative also requires the installation of additional large culverts beneath the roadway to improve and augment existing flushing in the F-G Street Marsh. This alternative was also developed in response to a variety of review agency comments, that the Sweetwater Marsh crossing should be made as far easterly as possible to avoid bisecting the Marsh. This alternative was partially incorporated into the project (discussed in Section 2) in the sense that the alignment of Tidelands Avenue north of E Street was established to insure the crossing of the Marsh as far easterly as possible. The routing of the road west of the F-G Street Marsh would cause certain negative impacts, however, as the alignment would require immediate demolition of existing structures, create small pockets which would be difficult to use in land planning, require extensive modifications of G Street and Rohr parking facilities and raise certain traffic safety problems.

A third alternative design of Tidelands Avenue was developed after a review of the site's environmental constraints. The constraint study proposed that the road alignment shown in Figure 2-6 be considered as an alternative.



WESTEC Services, Inc.

ALTERNATIVE ROAD ALIGNMENT II

FIGURE

5-2

This alternative differs from others in that it proposes the use of pilings rather than landfill where the road crosses water bodies. It was felt that such a design could better maintain existing flushing systems and, in conjunction with a limited enhancement program, might provide sufficient interrelationships to improve the marsh area east of the proposed alignments. Further, if the alignment must, for engineering or cost reasons, cut directly through the F-G Street Marsh then pilings should be used to elevate the roadway.

In both of the piling crossing situations, it was determined that impacts of construction and maintenance costs, and the limited marsh improvement possibilities reduced the viability of this alternative alignment.

5.2.2 Proposed Grading Plan/Drainage Plan

Due to the interrelationship of these two plans, any discussion of alteration of design requires they be reviewed together. There are two alternate grading/drainage plans in addition to the one described in Section 2. The first, in response to the environmental sensitivity of the marsh areas and the Bay, was designed to increase elevations along the project boundaries of these areas so that surface drainage would be kept out of the marshes and Bay. This alternative required the importation of 2-3 million cubic yards of fill

plus substantial grading of the upland area near the proposed Tidelands Avenue. It also required an associated increase in the size and complexity of the drainage system. This alternative, while protective of the marshes and Bay on the one hand, would create impacts of its own such as heavy siltation during construction, visual impacts, poor site orientation and increased development costs. The second alternative is a derivative of the one above, where grading is done in such a manner as to prevent drainage into the marsh areas, while focusing runoff into the Bay. The problems with this design are the same as those above, with the main emphasis on site fragmentation due to elevation changes and use of numerous swales. Those areas that are more removed from the Bay such as the upland of Subarea A and the eastern half of the D Street fill are in particular adversely affected.

5.2.3 Enhancement and Buffers

Additional areas were proposed for enhancement during design review. However, as the project description fluxuated so did the need, and ability for enhancement. For instance, the area north and northeast of the F-G Street Marsh initially had some potential for enhancement. After review, however, it was felt that the alignment as proposed might create resource management problems for enhanced areas.

Another alternate area for enhancement is east of Tidelands Avenue in the Sweetwater Marsh. This saltflat

area was found to be severely disrupted, but it was felt that with enhancement the viable and valuable marsh area could be restored. However, the proposed Highway 54 interchange may restrain and/or destroy this enhancement program. As regards buffers, consideration was given to a 100 foot buffer (rather than 50 foot) where a buffer was called for, including areas along the bay. This would be in excess of Corps of Engineer purchase commitments and would reduce developable acreage in certain areas. Further, it would, in certain cases, restrain access in excess of what is realistically needed for preservation.

5.3 No Project

The no project alternative is still available to decision-makers. There would be certain benefits from a strict environmental point of view, in that, for at least the short-term, present uses and low accessibility would be maintained. This would protect marsh and bay areas and would specifically see the continuance of the F-G Street Marsh in its present form. Impacts on landforms, air quality, noise and water quality would all be deferred or avoided. The no project alternative, however, provides for several negative features. Further, it would, in certain cases, restrict access more than is realistically needed for preservation. The viewshed would be maintained in its degraded state and uncontrolled agricultural runoff would continue to influence water quality.

would continue to be denied. There would occur both negative and positive economic impacts from the no project. City revenues could be diverted to other projects with a correlative maintance of low service demands. On the negative side, the productivity of the land will remain below its capabilities which is economically detrimental to both the City and the various landowners.

In summary, the no project alternative would serve only short-term interests. In the long run, some type of development will most likely occur unless the marsh purchase program is extended and the entire site is preserved. Also the specific planning process involved with the project would be lost and individual developers would probably find it difficult to provide such integrated and cohesive planning. Therefore, in the long-term, the impacts would likely be more severe and numerous than those of other alternatives. Further, economic and environmental returns to the City and its citizenry would be lost or at best indefinitely postponed through denial of public access and loss of tax revenues.

5.4 Analyses of Project Selection

Review of the previous alternatives discussion shows that the alternative proposed in Section 2, is really a composite of several possibilities. The planning for this project has

attempted to balance several factors in an effort to preserve and protect the environment (realignment around and enhancement of the F-G Street Marsh, Vener Pond and the Sweetwater Marsh, extended buffer zones, siltation basins, roadway landscaping, and controlled drainage) while at the same time producing an economically viable plan (reduced roadway height across marsh, landfill road instead of pilings, some diversion of drainage to marsh and bay areas, maximum use of existing topography to reduce cut/fill actions, using dredge materials from nearby projects to reduce landfill importation costs, orienting grading to maximize gravity flow sewers and thus eliminate the need for pumping systems).

Further, it is important to note that the planning for the project has attempted to seek input from all responsible agencies such as the State and regional Coastal Commission, the Department of Fish and Game, the Department of Sport Fisheries and Wildlife, the National Marine Fisheries Service, the San Diego Unified Port District, the Army Corps of Engineers Department of Water Resources, and the California Department of Transportation. The selected project reflects the concerns and incorporates the ideas of these and other agencies, such as the extreme easterly crossing of the Sweetwater Marsh, buffer zones, enhancement programs and public/visual access improvements.

6.0 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

6.1 Earth Characteristics

6.1.1 Geology

The potential for significant seismic ground shaking at the subject property is both unavoidable and adverse. However, as stated in Section 4.1, this impact is not unique to the project site, but is typical of virtually all of southern California. Further, compliance to modern building code provisions can generally be expected to minimize structural damage.

6.1.2 Soils

A conservative approach to analysis, design and construction should effectively eliminate technical and economic problems involved with this development. Thus, no unavoidable adverse impacts should be realized.

6.1.3 Groundwater

No unavoidable adverse groundwater impacts are foreseen.

6.1.4 Drainage

The unavoidable adverse drainage impacts would be localized on site. The impacts will be at the drainage

receptor points; the Sweetwater marsh and the San Diego Bay. The impacts will develop with ultimate urbanization of the site and drainage from approximately 75 acres. However, because 85 acres of the site already drain into the Marsh and Bay the impact will be more in terms of quality rather than quantity.

6.1.5 Mineral Resources

No unavoidable adverse impact on mineral resources is foreseen.

6.1.6 Land Form

Grading to create safe, viable building foundations, roads and drainage facilities will significantly alter the existing land form, with limited adverse aesthetic effects and unavoidable impacts associated with the importation of fill materials.

6.2 Climate

No unavoidable adverse climate impacts will occur.

6.3 Air Quality

Chula Vista has traditionally suffered photochemical oxidant problems, along with the majority of the San Diego Basin. The Air Quality Planning team has developed strategies to achieve Federal standards. However, whether this is

implemented or not, the Bayfront Project will contribute to total basin emissions and will thereby constitute an incremental degradation to the regional air cell. This unavoidable impact is a function however of ultimate land use plans for the site. The incremental addition during this first phase will be minor and limited to primarily construction emissions and fugitive dust during grading.

6.4 Water Quality

The water quality of the Sweetwater Marsh areas will be adversely affected by the proposed drainage plan. The degree to which this impact is significant will depend on the land uses finally designated for the upland areas. If parking lot and service station drainage is allowed into the Marsh the effects will be more adverse than impacts from current agricultural drainage.

6.5 Noise

Construction noise will be periodically generated throughout the development phases of the project.

Noise levels in the area will be increased from the existing, somewhat pastoral acoustic environment to those typical of an urbanized setting.

Noise emanating from Tidelands Avenue and other future roadways on or adjoining the project site will also impact

the area. This noise will require careful siting of any residential uses.

6.6 Biology

6.6.1 Terrestrial Biology

There will be the unavoidable loss of some terrestrial flora and displacement of terrestrial fauna. Further, if compliance with mitigation, detailed in Section 4.6, is not achieved, adverse impacts on highly significant resources of rare and endangered status will be sustained.

6.6.2 Wetlands Biology

If the stipulations, in Section 4.6.2.3 are met, the adverse impacts are felt to be outweighed by the overall benefit of marsh preservation and enhancement. However, if one of those stipulations is not achieved then the unavoidable adverse impacts will be considered to overrule any benefits achieved.

6.7 Archaeology

Given adherence to previously described measures to mitigate the potential loss of the archaeological sites observed within the project boundaries, no unavoidable adverse impacts are foreseen. Failure to act upon these suggestions would lead to the destruction or impairment of

archaeological resources which would contribute to the understanding of the prehistory of Chula Vista.

6.8 Paleontological Resources

No unavoidable adverse paleontological resource impacts are foreseen.

6.9 Historical Resources

No unavoidable adverse historical resource impacts are foreseen.

6.10 Land Use/Public Access

No unavoidable adverse impacts are foreseen at this time. However, ultimate development will significantly alter land uses which will in turn affect public access.

6.11 Aesthetics

No unavoidable adverse impact is foreseen.

6.12 Socio-Economic

No unavoidable adverse impact is foreseen.

6.13 Community Resources

This initial phase of the redevelopment project will create minor incremental impacts on community resources. These increases in demand for services, could however become quite significant with completion of the total project. In

addition, there will be some vector control (mosquitoes) problems which will require continual supervision even at this early phase of development.

7.0 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The current use of the project area includes private open space, row crop and specialty agriculture, boat building, motel facilities and commercial water operations. If the project is implemented as described, there will be a resultant variety of short-term and long-term impacts on both a local and regional level.

Short-term impacts will see temporary losses in both terrestrial and wetland biological productivity, phased reduction in agricultural productivity as well as removal of existing commercial functions. In addition, construction activities will cause increased noise and air emissions, disruption of existing traffic flows, erosion and sedimentation problems and potential policing impacts related to increased public access. These latter disruptions are for the most part temporary and can be to a large degree mitigated.

The direct long-term impacts associated with this action, are the incremental impacts associated with construction of the roadway. These impacts, such as: increased public accessibility, improved traffic flow, minor increases in service demands, biological enhancements, acoustical impacts and water quality problems are either considered to be beneficial, or of such minor significance as to not be adverse.

While enhancement programs may increase marshland productivity, and the majority of the direct long-term impacts will have only marginal effects on the productivity of the area, added access could improve public interface with bayfront environs.

In addition to the above, however, there are several indirect considerations which affect long-term productivity of the site. The installation of the roadways and the approval of the grading, drainage and utility schemes commits this site to development with probably some mixture of the land uses shown on Figure 2-12. This growth inducing impact will serve to enhance productivity of the redevelopment area in an economic/civic/public access sense. However, the added urbanization may reduce marshland productivity through the introduction of urban runoff and encroachment through various human activities. Thus, as individual development proposals for the project area are considered, very thorough attention should be directed to their design so that these impacts can be eliminated whenever possible.

8.0 ANY IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WILL RESULT FROM THE PROPOSED PROJECT

Approval of the six distinct actions addressed in this phase of the redevelopment project (see 1.0 FINDINGS, pg. 3) would, by itself, cause no irreversible environmental changes in that the actions proposed could always be removed and/or restored. However, the approval would constitute a commitment to the levels and types of land use previously discussed in Section 2.5, Future Land Use Relationships, pgs. 31-34. Those secondary actions could cause the following irreversible changes:

- Semi-permanent commitment of portions of the land resource to access roads, home sites, recreational greenbelt areas and various other supportive facilities.
- Physical alteration of the land resource as a result of the grading/drainage plans and implementation of fill.
- Removal of portions of the existing biological cover to accommodate the development of project elements.
- Possible disruption of archaeological resources. Mitigation of any known disruption would likely result in salvage, study and preservation of these resources and artifacts.

- Alteration of the human environment as a consequence of the development process. The project will represent a commitment of the land to new urban land uses.
- Increased requirements for public services and utilities by the project's residents/facilities.
- Utilization of various raw materials such as lumber, sand and gravel. Some of these materials will represent resources that are currently being depleted world-wide.
- New requirements for energy to be consumed in developing and maintaining the site.

9.0 GROWTH INDUCEMENT

There are few, if any, projects which do not stimulate growth beyond the initial action. This is especially true when a preliminary phase of a project is designed to be compatible with later phases. In fact, by designing in this manner, the growth is almost assured. The growth will be able to occur because the first phase of the development was "sized" to accommodate future growth. For instance, the roadway design can handle an average daily trip (ADT) rate of 20-25,000, yet, the existing demand is estimated at 3-4,000 ADT. Further, the proposed project will generate no demand for sewers, television, gas or telephone and only minimum electrical and water demands. Yet, the project includes installation of utilities and conduits to handle heavy demand.

The type of growth expected, is reflected in the proposed land uses listed in Section 2.1.4. The emphasis is on residential, recreational, commercial, motel/hotel and support facilities for those four major uses. Minor industrial growth will also occur.

The impacts associated with these types of uses are listed below:

- Population increases of up to 2,125 permanent residents and 1,560 temporary residents.¹
- Increased traffic generation (27,000 ADT)² along with a correlated rise in noise.
- Incremental air quality degradation.
- Increased need for police and fire protection, estimated to be at least three new officers and correlated support facilities.²
- Generation of between 720-1,020² new school children.
- Continued contamination of surrounding water bodies from polluted urban runoff.
- Infringement on the natural horizon and viewshed from construction of multi-storied buildings.
- Increased demand for energy.
- Alteration of social characteristics of the Chula Vista community through introduction of recreation/commercial activities presently not in the City.

(1) Assumes average household population at 2.5 people/du and 2.0 tenants/hotel room with 56 percent occupancy.

(2) Based on factors developed by the City of Chula Vista and presented in their Environmental Review Policy Guidelines.

Introduction of residential development in the Bayfront which will, because of economics, be high priced homes. The characteristics of the homes and their owners will be very different from characteristics presently exhibited by the Census Tract.

- Vector control programs will be needed and therefore public health programs will be impacted.
- Increases in City revenues as well as municipal costs.
- Marsh/wildlife impacts as a result of increased interface with growing human and domestic pet population.

The project as defined and discussed earlier will pave the way for these land uses and growth levels. Further, as has been noted, each development will be subjected to individual EIR review. Further, while this project does not review or discuss the proposed land use in detail, it is recommended that they be at least a secondary consideration in this project approval, for any changes will affect the ultimate need, usefulness and cost of this project. In addition, while it would appear that the induced growth will not be adversely significant, there will be a need for careful phasing and

mitigation if streets, schools, utilities and municipal services are not to be overloaded. Thus, developmental phasing should be revealed at the earliest possible point and responsible agencies and utilities should be made aware of this information early in project development.

In summary, this project by its nature, will sustain growth in the Bayfront area. That growth will cause to occur a variety of typical developmental impacts. However, if proper planning and close agency relationships are pursued and maintained, the impacts should not be adverse.

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CERTIFICATION

I hereby affirm that to the best of my knowledge and belief, the statements and information herein contained are in all respects true and correct and that all known information concerning the potentially significant environmental effects of the project has been included and fully evaluated in this draft EIR.


Michael W. Wright
Principal Investigator
WESTEC Services, Inc.

Preparation Staff

This report was prepared by WESTEC Services, Inc. of Tustin, California. Members of the WESTEC Services' professional staff contributing to this report are listed below.

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Fay O. Round; B.A. Engineering

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Anthropology

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Elizabeth L. Rich; B.S. Environmental Analyst

David D. Smith; Ph.D. Geology

Joy Zedler; Ph.D. Ecology

SECTION 11.0 INPUT



CITY OF NATIONAL CITY, CALIFORNIA

1243 NATIONAL AVE. • NATIONAL CITY, CA 92050 • (714) 477-1181

MALCOLM C. GERSCHLER
Planning Director

March 25, 1977

RECEIVED
BY *[Signature]*

MAR 28 1977

PLANNING DEPARTMENT
CHULA VISTA, CALIFORNIA

Douglas Reid
Chula Vista Planning Department
276 Fourth Avenue
Chula Vista, California 92010

Re: Chula Vista Bayfront E.I.R. 77-4

We have reviewed the subject E.I.R. and found that the proposed project should not have an adverse impact on National City. The Tidelands Avenue bridge will contribute to increased use of National City's waterfront areas but this has been planned for.

The subject project is compatible with the National City General Plan and a 1973 Study discussing uses for National City lands abutting Chula Vista's bayfront area.

Respectfully,

NATIONAL CITY PLANNING DEPARTMENT

[Signature: Don L. Rose]
DON L. ROSE, ENVIRONMENTAL PLANNER

DLR:nm

APPROVED:

[Signature: Malcolm C. Gerschler]
MALCOLM C. GERSCHLER, DIRECTOR

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

6154 MISSION GORGE ROAD, SUITE 205
SAN DIEGO, CALIFORNIA 92120
TELEPHONE: (714) 236-5114



RECEIVED

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MAR 28 1977

PLANNING DEPARTMENT
CHULA VISTA, CALIFORNIA

MARCH 25, 1977

CITY OF CHULA VISTA
276 FOURTH AVENUE
CHULA VISTA, CALIFORNIA 92010

ATTENTION: CITY MANAGER

GENTLEMEN:

SUBJECT: CHULA VISTA BAYFRONT DRAFT EIR 77-4

WE HAVE REVIEWED THE ABOVE SUBJECT MATERIAL AND HAVE NO COMMENT
AT THIS TIME.

YOURS VERY TRULY,

FOR: LADIN H. DELANEY
SUPERVISING ENGINEER



**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

National Marine Fisheries Service
Southwest Region
300 South Ferry Street
Terminal Island, California 90731

April 13, 1977

FSW33/JJS

RECEIVED

APR 14 1977

U.S. DEPARTMENT OF COMMERCE
CHULA VISTA, CALIFORNIA

Mr. Douglas D. Reid
Environmental Review Coordinator
Department of Planning
276 Fourth Avenue
Chula Vista, California 92010

Dear Mr. Reid:

Subject: Review of Chula Vista Bayfront EIR-77-4

We appreciate this opportunity to review the subject EIR and have the following comments:

Page 7, Land Use - Throughout the EIR the assumption is made that the Sweetwater Marsh complex will somehow be acquired and preserved in its natural state. Until this becomes a reality the most significant secondary impact of the project might be the increased pressure to develop the marsh areas in the vicinity of the proposed Tidelands Avenue.

Figure 2-5, Schematic Street Sections - The diagram of "Tidelands Avenue through marsh" indicates that there will be both an 8-foot bike lane and a 10-foot bike path along the roadway. In addition there will be a 16-foot median as well as a 9-foot landscaping strip.

With the exception of the proposed bike path, there seems little justification for making Tidelands Avenue any wider than absolutely necessary in those areas where marsh destruction will result. This aspect of the proposal should be carefully reviewed before a final decision is made.

Page 22, paragraph 1 - It is stated that there will be no drainage into Vener Pond or Vener Marsh once the proposed project is implemented. The significance of this situation should receive a thorough discussion in this EIR.

Page 23, paragraph 2 - The marsh enhancement program which will be a part of the overall project should be closely coordinated with representatives of the National Marine Fisheries Service as well as the California Department of Fish and Game. The EIR should reflect the importance of

obtaining the views of the various resource agencies in the early program planning stages.

Figure 2-12, Projected Land Use - This diagram should clearly indicate that the toe of the D-Street fill is not included under the "Commercial and Water Oriented Facilities" designation. That portion of the land fill as well as the adjacent mud flats would require preservation because of their inherent environmental values.

Page 33, Marsh Environments - The purchase of the Paradise Marsh is also an integral part of the proposed Corps of Engineers' Sweetwater River Flood Channelization/Highway 54 project.

Because the Sweetwater and Paradise Marshes share a common tidal entrance their interrelationship must be recognized in this EIR. Consideration has to be given to the impact of Tidelands Avenue on the entire complex and not just those areas within the Chula Vista city limits.

Page 34 - Reference is made to Desrochers, 1976 which states that if the Corps Sweetwater project does not come through, then alternate funding methods would be pursued. That citation does not appear in the bibliography.

Before the Chula Vista project proceeds, funding for marsh preservation will have to be assured, and not merely pursued. Without that assurance, it is doubtful that our organization or other involved resource agencies could favor the issuance of the required regulatory permits.

Page 70, Wetlands Biology - Despite the fact that the Paradise Marsh is outside the limits of the Chula Vista Redevelopment Project, it is not outside the limits of secondary impacts which may result from that project and therefore should be considered in this DEIR.

Page 80, Wetlands Fauna - There is a strong possibility that the Sweetwater Marsh and adjacent mudflats also serve as a nursery area for a commercially valuable fish species, the California halibut (Paralichthys californicus).

Page 81, paragraph 2 - The quotations presented here, taken from the referenced Corps of Engineers 1975 DEIS, discuss the Sweetwater-Paradise Marsh complex as a unit. We agree with this philosophy and question the wisdom of eliminating the Paradise Marsh from further discussion in this DEIR.

Page 141, paragraph 2 - It is unclear how the determination was made that the extension of Tidelands Avenue will not result in the generation of emissions from new vehicle trips. It seems logical that improved access would encourage development which, in turn, would increase new vehicle trips.

Page 143, paragraph 2 - A further discussion should be provided of the impacts which could result from the diversion of upland drainages away from the various marsh areas. The relative importance of those existing drainages to the overall nutrient load entering the marshes should be considered.

Page 162, final paragraph - The enhancement of bare saltflat areas would no doubt proceed much more quickly if a positive marsh re-establishment program were begun which involved more than just a modification of drainage patterns.

Page 163, paragraph 2 - Without some quantitative knowledge of the sediment/nutrient load from the agricultural runoff, no conclusion may be drawn that a reduction in that load would of necessity be beneficial.

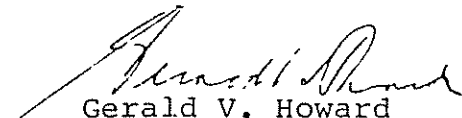
Page 164, paragraph 2 - The regeneration of marshlands by simply grading the area and waiting is not suitable mitigation. A program of restoration through positive action (i.e. planting, channelizing, etc.) should be implemented.

Page 169, Analysis of Significance - Until a formal acquisition package has been consummated it will be impossible to state that preservations of the Sweetwater Marsh complex will adequately mitigate the negative impacts which will result from the Chula Vista Bayfront project.

Page 179, paragraph 2 - The referenced study on the significance of the loss of agricultural land use should be incorporated as a supplement to this DEIR so that it can be subjected to the public review process.

Page 210, paragraph 2 - The data to support the conclusion that crossing marsh areas with piling supported bridges is not justifiable should be presented as an Appendix to this DEIR. In that way it will be possible for the reviewer to determine whether the method is feasible on his own.

Sincerely,


Gerald V. Howard
Regional Director

cc: James McKevitt, USFWS, Laguna Niguel



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
CALIFORNIA DIVISION
P. O. Box 1915
Sacramento, California 95809

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

April 15, 1977

IN REPLY REFER TO
95DD

Reference:
Chula Vista Bayfront
EIR-77-4

City of Chula Vista
Department of Planning
276 Fourth Avenue
Chula Vista, California 92010

Attention: Douglas O. Reid

Dear Sir:

Your letter of March 23, 1977 transmitted to us the Draft Environmental Impact Report for public improvements within the Bayfront Redevelopment Project. We understand that you are in the process of developing a separate EIS for the proposed extension of Tidelands Avenue; therefore the following comments on the subject EIR are of a general nature.

1. Section 1.0, Findings, should include a summary of all significant impacts. For example, page 7 (Land Use) states that increased public access is considered beneficial while page 177 (Public Access) states that it could be considered extremely detrimental.
2. Section 4.3, Air Quality, states that the project will not generate new motor vehicle trips while page 177 (Public Access) states that there will be increased vehicular use of the area. One of the objectives of the project, as listed in Section 2.3, is to provide convenient vehicular access to the Bayfront.
3. Section 4.3.1, Air Quality Impact, states that the major impacts on air quality are secondary and are not considered to be part of this project. However, secondary impacts may often be more substantial than primary impacts and they should be assessed and discussed.

Thank you for the opportunity to review and comment on this environmental document.

Sincerely yours,

C. G. Clinton RECEIVED

For
Omar L. Homme BY *OR*
Division Administrator

APR 19 1977

PLANNING DEPARTMENT
CHULA VISTA, CALIFORNIA



PORT OF SAN DIEGO
AND LINDBERGH FIELD AIR TERMINAL

(714) 291-3900 • P.O. Box 488, San Diego 92112

26 April 1977

Mr. Douglas Reid
Environmental Coordinator
City of Chula Vista
276 Fourth Avenue
Chula Vista, CA 92010

Dear Doug:

Our Environmental Coordinator, Tom Firle, suggested that I convey my remarks pertaining to review of the draft EIR/EIS Chula Vista Bayfront Redevelopment Project to you. I would like to call the following items to your attention.

Page 9, Section 2.1, Project Location

It is suggested that a clear delineation be made between the redevelopment area under control of the City of Chula Vista and the tidelands under the jurisdiction of the San Diego Unified Port District. One means of doing this may be to designate the historic mean high tide line of San Diego Bay as the Port District boundary and to ensure that it is understood that the reference is not to the mean high tide line of San Diego Bay.

Page 15, Section 2.2.1, Tidelands Avenue

Again clarification of the cited mean high tide line is needed. Rewording is suggested in that portion of the paragraph that discusses the Port District's role in the construction of a bridge over the proposed Sweetwater Flood Control Channel, not as is stated in the report, the construction of a bridge by the Port District over the Sweetwater Marsh.

Page 27, Figure 2.11

It is suggested that the delineation of proposed enhancement buffer areas on tidelands be deleted as this is outside of the project area.

Page 103, Section 3.13.1, Police

The main station for the Harbor Police is located on Shelter Island, not at the foot of Broadway in San Diego.

RECEIVED

BY D. Reid

APR 28 1977

PLANNING DEPARTMENT
CHULA VISTA, CALIFORNIA

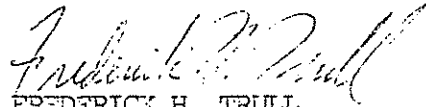
Mr. Douglas Reid
City of Chula Vista
26 April 1977
Page 2

Page 158, Section 4.6.1.2, Mitigation

Recommend deletion of the paragraph pertaining to the mitigation of the eventual loss of California least tern nesting sites in the Sweetwater Marsh to a project that the Port District is involved in in the J Street Marina boat basin and the creation of the South Bay Wildlife Island.

I am pleased to have the opportunity to respond to the document. If there are any questions, please do not hesitate to contact me.

Very truly yours,


FREDERICK H. TRULL
Planning Director

FHT:ri



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2711
LOS ANGELES, CALIFORNIA 90053

SPLED-E

26 April 1977

Mr. Douglas D. Reid
Environmental Review Coordinator
Department of Planning
City of Chula Vista
276 Fourth Avenue
Chula Vista, California 92010

Dear Mr. Reid:

This is in response to a letter from your office dated 23 March 1977 which requested review and comments on the draft environmental impact report, Chula Vista Bayfront EIR-77-4, for the Chula Vista Bayfront Redevelopment Project.

With respect to the draft EIR, we offer the following comments:

a. Page 23, paragraph 2.2.6: The name of the Corps of Engineers' project should be changed to "Sweetwater River Flood Control Channel."

b. Page 33, paragraph 2.5.1: It should be noted that what is denoted as "Vener Marsh" is called "E-Street Marsh" by the Los Angeles Engineer District.

c. Page 145, paragraph 4.4.2: The paragraph does not make it clear what will be done to protect water quality of runoff entering marsh areas. This should be clarified.

d. Page 169, paragraph 4.6.2.3: This paragraph suggests that marsh acquisition would mitigate impacts of the proposed project. This is misleading since the marsh acquisition, which is a federal action, already serves two purposes: 1) acquisition of land for rare and endangered species, and 2) mitigation for effects of the Corps of Engineers' project. Specific mitigation measures to be taken by the City of Chula Vista for the proposed development should be clarified.

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PLANNING DEPARTMENT
CHULA VISTA, CALIFORNIA

SPLED-E

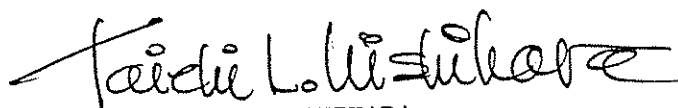
26 April 1977

Mr. Douglas D. Reid

e. A construction permit from the Corps of Engineers will be required before any filling can occur in the marsh or wetland areas. This could especially affect the alignment of Tideland Avenue and any mitigation requirements. The Chula Vista Redevelopment Agency should not take the position that filling, as described in the EIR, will automatically be permitted. Coordination with the Navigation Branch of the Los Angeles Engineer District is recommended to more fully comprehend the Corps of Engineers' position relative to filling in marshes and wetlands. We suggest that Mr. Charles M. Holt, Chief, Navigation Branch, telephone (213) 688-4933, be contacted regarding requirements for filing permit applications.

Thank you for the opportunity to review and comment on this draft report.

Sincerely yours,



TAICHI L. NISHIHARA
Acting Chief, Engineering Division

Memorandum

To : 1) L. Frank Goodson
Projects Coordinator
Resources Agency

2) City of Chula Vista
P.O. Box 1087
Chula Vista, CA 92012

Date : April 19, 1977

Subject: Bayfront Redevelopment
Project - San Diego County
SCH No. 77032255

From : Air Resources Board

This proposed project constitutes the first phase of development of the Chula Vista Bayfront Redevelopment Plan. It involves the extension and alignment of Tidelines Avenue, F and G Streets and utility corridors, a proposed drainage plan, a preliminary grading plan, and enhancement of marsh land and upland areas.

The primary purpose of the project is the development of approximately 288 acres for residential, commercial, industrial, and recreational uses. However, we are unable to ascertain the air quality effects from the DEIR data. If the above uses have a significant environmental effect, i.e., a significant impact on air quality based on an air quality investigation, the final environmental impact report (EIR) needs to be prepared pursuant to Section 15069 of the State Guidelines, Multiple and Phased Projects, which states in part:

"Where an individual project is a necessary precedent for action on a larger project, or commits the Lead Agency to a larger project, with significant environmental effect, an EIR must address itself to the scope of the larger project."

We are concerned that step-by-step development can lead to irreversible commitments to projects which may have a potential adverse impact on air quality.


William C. Lockett, Chief
Planning Division

cc: W. Lewis
M. Nichols
S. Trenck

Memorandum

To : 1. L. Frank Goodson, Project Coordinator
Resources Agency

2. City of Chula Vista
P. O. Box 1037
Chula Vista, CA 92010

Date: May 3, 1977

From : Department of Fish and Game

Subject: SCH 77032255 - Bayfront Redevelopment Project

We have received the draft EIR for the Chula Vista Bayfront Redevelopment Project, and find that phases of this project may cause adverse impacts to the marine resources of Sweetwater Marsh.

Our comments, including recommendations, are outlined below.

1. The extension of Tidelands Avenue will impact tidal marshlands within Sweetwater Marsh and the F-G Street Marsh.

We recommend that losses of tidal marshlands be compensated on an acre-for-acre basis. We refer to the loss of seven acres of marsh at the F-G Street Marsh, and loss of four acres of marsh at Sweetwater Marsh.

2. The grading plan as presented in the EIR indicates there will be extensive landfill necessary for construction of the project. It is recommended that an investigation be undertaken to determine the impact on adjacent marine organisms at the D Street fill site due to the proposal to compact underlying soil by vibratory methods.

Additionally, it is recommended that earth moving equipment not be allowed to impact tidal marshlands, or other open space, outside the construction zone.

3. We recommend that the drainage plan provide for a greater number of collecting and discharge facilities from the project. This will result in a greater dispersal of urban discharge through the marsh which will have less hazards than concentrating the discharge to a few locations.

In addition, discharge to the marsh prior to entering the waters of the bay will help protect bay waters through the "filtering action" of the marsh.

It is recommended that the possible gasoline station alluded to in the draft EIR be relocated to where petrochemicals and related urban surface runoff will not be discharged into the marine ecosystem.

4. We concur that a system of temporary and permanent facilities should be included to minimize the amount of project oriented sediment and suspended matter reaching the marine environment. These facilities should be maintained in an effective condition.

1. L. Frank Goodson
2. City of Chula Vista

-2-

May 3, 1977

5. The Rohr storm drain should be allowed to discharge into the F-G Street Marsh through a sediment catchment basin.
6. An area of several acres should be set aside in the D Street landfill for a potential least tern nesting site. The identification and management of this site should be as discussed in the draft plans for the U.S. Army Corps of Engineers and coordinated with the California Least Tern Recovery Team.
7. We recommend that the relationship of the Paradise Marsh and Sweetwater Marsh marine ecosystems be incorporated into the EIR. We believe these two coastal marshes provide an important corridor for aquatic organisms, and should be discussed together as one biological unit.

The protection of the Sweetwater Marsh ecosystem has relied upon the proposed acquisition by the U.S. Army Corps of Engineers. If this acquisition is not accomplished we recommend that planning for the proposed redevelopment project be revised and another EIR be prepared.

In addition we wish to alert you to a section of the California Coastal Act of 1976 which would appear to have the potential of prohibiting construction of Tidelands Avenue across the Sweetwater and F-G Street Marshes. Section 30233 (c) of that act states in part, "...Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, 'Acquisition Priorities for the Coastal Wetlands of California' shall be limited to very minor incidental,...." Both the Sweetwater Marsh and the F-G Street Marsh are "identified" in that publication. We do not believe new road construction qualifies as "very minor" and believe, even though the impacts might be fully mitigable, this act prohibits such construction.

The project sponsor will be required to notify the Department of Fish and Game pursuant to Section 1601 of the Fish and Game Code if this project would result in alteration within the high water mark of any streambed. This notification and subsequent agreement must be accomplished prior to commencement of the streambed alteration.

If you have any questions, please contact Mr. Robert D. Montgomery, Regional Manager of Region 5, at 350 Golden Shore, Long Beach, California 90802. The telephone number is (213) 590-5113.

Thank you for the opportunity to review this document.

Jack R. Burr
UCG Director



United States Department of the Interior

FISH AND WILDLIFE SERVICE
U.S. FISH AND WILDLIFE SERVICE
EDUCATIONAL SERVICES
2000 LAGUNA AVENUE
LAGUNA HILLS, CALIF. 92653

May 23, 1977

City of Chula Vista
Civic Center
276 Fourth Avenue
Chula Vista, CA 92010

Attention: Mr. D. Reid,
Environmental Review Coordinator

Dear Sirs:

This letter provides comment on the Chula Vista Bayfront EIR-77-4. Our comments on this environmental report draft do not in any way preclude an additional and separate analysis which will be made since eventual project development may require application by the sponsoring agency to the Corps of Engineers for a permit to work in navigable waters of the United States as required by Section 10 of the Rivers and Harbors Act of 1899 or Section 404 of the Federal Water Pollution Control Act Amendment of 1972. All such permit applications are subject to separate review by the Service under existing statutes, Executive Order, Memorandum of Agreement and other authorities. In this procedure, the Service may approve, with or without stipulations, or object to the proposed work, depending on the project's effects on fish and wildlife resources.

These comments constitute the official review of the Fish and Wildlife Service, but do not necessarily represent the views of the U. S. Department of Interior.

Most of the following comments were expressed to the city during a meeting on 28 April 1977 in Chula Vista. At this meeting, we stated the report was generally adequate, but specific aspects required revision or further clarification. Following are our comments:

- 1) The mitigation anticipated from the Corps of Engineers Interstate 54-Flood Control Project is not mitigation for the Bayfront development. These two projects are separate and distinct entities, each requiring its own set of plans for mitigation and compensation.



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BY *D. Reid*

MAY 25 1977

PLANNING DEPARTMENT
CHULA VISTA, CALIFORNIA

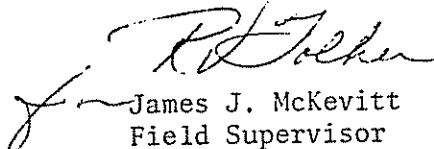
- 2) Page 65 - Ferocactus (Echinocactus) viridescens, San Diego Barrel cactus, is a proposed endangered species (refer to Federal Register 41(117), 6 June 1976) and it should be so stated.
- 3) Page 145 - Any runoff from auto service stations should be diverted away from direct drainage into the marsh complex. While surface water drainage into the marsh can be beneficial, because of the large amounts of petrochemical pollution that would be expected to emanate from a service station facility, drainage from this source should be prohibited. It has been our past experience that restaurants near bodies of water often clean their kitchen facilities by washing with a water jet, permitting the waste to drain directly into the adjacent water or marsh. The report should indicate that activities of this nature would not be permitted.
- 4) Page 156 - The California least tern is also listed as endangered by the U. S. Department of Interior and, therefore, warrants protection as stipulated in the Endangered Species Act of 1973.
- 5) Page 158 - The possible development of artificial nesting sites for the least tern on the South Bay Wildlife Island is not a mitigation plan specifically associated with this project and the report should make this clear. Also remarks about "future enhancement considerations" are quite vague and makes a total evaluation of adverse impacts and mitigation difficult. The report should state specifically what mitigative and compensatory plans are contemplated.
- 6) Page 162-3-a(1) - Diverting drainage into marsh is a very questionable beneficial impact. We suggest that proper enhancement would include grading the 33 acres of bare saltflat along the railroad right-of-way in Sweetwater Marsh to a lower tidal elevation and opening tidal channels into the area so that salt marsh vegetation would develop throughout the 33 acres.
- 7) Table 4-9 shows total net loss of 8.5 or 9.5 acres from the presently proposed project. We do not regard this as acceptable compensation. Compensation should be of equal or preferably of greater acreage replacement of viable saltmarsh. Greater acreage replacement is desirable to mitigate for indirect impacts expected from the project as well as direct impacts resulting from construction.

- 8) Page 223-4 - This section should mention the irreversible loss of 8.5 - 9.5 acres of marsh. As we have indicated before, Section 7 of the Endangered Species Act of 1973 will apply to this project because three endangered species are known to occur within the project site and federal funding is anticipated for the Tideland Avenue extension. Section 7 requires any federal agency that authorizes, funds or constructs a project involving impacts on an endangered species will consult with the Secretary of the Interior, or his representative, to assure that the project will not jeopardize "critical habitat" or the continued existence of the species.

The mudflat that interfaces the bayward side of the project shoreline is another area of concern. We believe the individual developers along the Gunpowder Point shorelines, such as the hotel owners, may develop these sites fully expecting to construct boat docks and channels to deeper water. The Service would have strong reservations about the issuance by the Corps of Engineers, of a Section 10 permit for this type of activity. We would hope that Chula Vista would inform potential developers and property owners of this impediment so that they will not, in good faith, develop or buy property expecting to construct boat docks and channels through these mudflats.

Thank you for the opportunity to review this report. We will be glad to assist the City of Chula Vista in planning any mitigative and compensatory measures for the anticipated impacts resulting from the completion of the Bayfront project.

Sincerely,


James J. McKeivitt
Field Supervisor

RVF/WSW:gr

cc: CDFG, Region 5, Att: Bruce Eliason, Long Beach, CA
NMFS, Terminal Island, CA
AM, Sacramento, CA

RECEIVED

BY Reid

May 23, 1977

MAY 24 1977

TO: Planning Commission
 FROM: Environmental Control Commission
 SUBJECT: REVISED COMMENTS...EIR-77-4 (Bayfront Redevelopment Project)

PLANNING DEPARTMENT
 CHULA VISTA, CALIFORNIA

The potential environmental impact of the proposed Chula Vista Bayfront Redevelopment Project is somewhat difficult to assess. The Coastal Zone Act of 1976 has established a policy of favoring wetland and estuarine preservation, increased public access and retention of agricultural land use within the coastal zone. Additionally, and obviously, the City of Chula Vista is desirous of producing an economically viable commercial, residential and recreational area in this ecologically sensitive area. Whether or not these four major goals can be simultaneously accomplished is open to serious question. The possibility that one or more of the four will be sacrificed is a real one. This report addresses itself to the major environmental problems discussed in the EIR.

To the issue of agricultural land conversion, the Draft EIR states that the ultimate impact will be unavoidably adverse (p. 177). As to the subject of public access, it points out that while increased public access is felt to be beneficial, the results of that increase could prove to be extremely detrimental to the wetlands community. The statement on page 179 illustrates this dilemma:

"The increase of public access to the site is also significant in that if proper mitigation is not instituted, the increased access may substantially degrade the very resource for which access is being sought."

The measure of the adverse impact to the biological community itself is assessed in terms of the percentage of remaining habitat that the area represents in the San Diego Bay. For the high marsh area, that total is 95%, making it extremely important, with low marsh estimated at 40%, and mudflats at 37%. Extensive use is made of previous biological surveys here, and a summary statement concludes that the relatively undeveloped tidal and estuarine habitat has become "critically important" and that "the regional ecological importance of the undeveloped area in the South Bay is clear cut" (p. 72).

What seems to be the crux of the issue then is for the Coastal Commission and the City of Chula Vista to resolve conflicting goals without irreparable damage to a significant portion of the biological community -- either directly through the destruction of healthy marshland for the realignment and construction of Tidelands Avenue (felt to be necessary to the economic success of the project), or secondarily through altered drainage substances and patterns, and increased public access.

An "enhancement" program is proposed as a mitigation measure, and some new marshland will be created to replace that which is filled in. The short term success of enhancement, and particularly of re-establishment, like that planned for the F Street marsh will require an effort to accomplish. Little successful precedent exists in replanting in this area. The result may quite conceivably be a short term loss of habitat which will lead

Continued on supplemental page

REVISED COMMENTS...EIR-77-4 (BAYFRONT REDEVELOPMENT PROJECT)
PAGE TWO

directly to the local extinction or exclusion of important wetland communities at that particular location. Even the long term success is subject to some dispute. While such losses may often be thought of as being of little significance in the long run, it should be noted, as the EIR does, that many important game and bait fish spent a substantial portion of their life cycle in that rapidly vanishing portion of our coastline known as marshland and estuary.

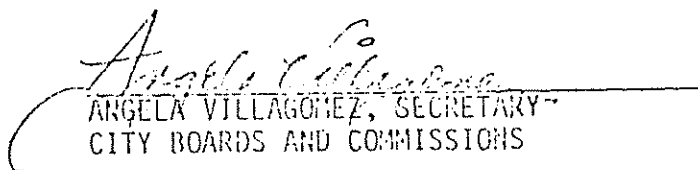
In summary, we of the Environmental Control Commission wish to emphasize these major environmental concerns to this project because of its role as one of the last remaining salt-water marshes in the San Diego Bay. We would hope that careful planning will be done for the entire project in light of the strain on a delicate ecosystem that its successful completion will represent. Just as the people of Chula Vista have expressed their concern about full scale development of unique open space like Rice Canyon, we feel that concern is also warranted by the prospect of compromising development along the Bay.

The ECC feels that the Bayfront Development Project is basically a good plan and that continued careful planning and adherence to schedules will lead to successful completion. We feel that the needs of the residents of Chula Vista have first priority. The major intent of the plan should be to provide for the economic and recreational needs of the city. Attracting out-of-town tourists, who add to incremental air and water pollution, should be of less importance. The major environmental problems of the project (as outlined in the EIR and this paper), including the problems of water shortages, sewage treatment, too much access, and air pollution, must always be considered.

REVISED WRITTEN COMMENTS APPROVED AT SPECIAL ENVIRONMENTAL CONTROL COMMISSION MEETING OF MAY 23, 1977, BY THE FOLLOWING VOTE, TO-WIT (with the notation that Commissioner Roeder's original written comments, forwarded to the Planning Commission on May 10, 1977, and attached to the ECC minutes of May 9, 1977, were edited by Chairman George Gillow of the Environmental Control Commission):

AYES: Commissioners Gillow, Roeder, Donovan and Klein.
 Noes: None.
 Absent: Commissioners McCandliss, Skartvedt and Hastings.
 Abstain: None.

ATTEST:


 ANGELA VILLAGOMEZ, SECRETARY
 CITY BOARDS AND COMMISSIONS

Section 12.0 RESPONSE TO INPUT

12.1 National City

No response to any environmental issues is necessary.

12.2 California Regional Water Quality Control Board, San Diego Region

No response to any environmental issues is necessary.

12.3 U.S. Dept. of Commerce
National Oceanic & Atmospheric Admin.
National Marine Fisheries Service

Pg. 7, Land Use

It is the adopted policy of the City of Chula Vista (Policy 4b & c of the Conservation Element of the General Plan) that: "Any marshlands determined to be of high ecological value should be preserved in their natural state and all new development whether roadways, buildings, or other structures, should be carefully located and designed to promote this end. Where it can be determined that some filling and dredging is required to accommodate a viable plan, it will be considered."

"Areas of San Diego Bay housing unique forms of life, some of which is currently considered rare or endangered as a species should be preserved, protected and restored. Such areas include: open bay waters, small areas of salt marshes, and the pond/dike network of the salt evaporation ponds."

In January of 1974 the General Plan of the City of Chula Vista was amended to designate the Sweetwater Marsh as "Salt Marsh" and the adjoining uplands as "open space". The General Plan text was also amended so that the first policy regarding the form and appearance of the Bayfront area read:

"Preserve existing marshlands in a healthy state to ensure the aesthetic enjoyment of marshes and the wildlife which inhabit them."

Another policy states:

"Ensure a harmonious relationship between the Bay, the marshlands and new development."

Subsequently this area was designated as a Redevelopment District and the same policies as noted above were adopted as part of the Redevelopment plan.

The primary non-transportation objectives of this phase of the Bayfront Redevelopment Plan is the preservation of the marshlands and the wildlife which inhabits them. To this end all projects are being and will be reviewed for conformance to these policies and objectives. Any proposed project which included the development of a major area of marshland would not be in conformance with either the General Plan or the Redevelopment Plan. Such non-conformance would lead to the denial of any such project.

This type of regulatory control could also lead to the dedication of the marshlands in return for development permits on other portions of the ownership.

The City of Chula Vista is committed to the preservation of the Sweetwater Marsh. If the City is unable to acquire the marshland through its regulatory control and no other agency proceeds with acquisition of the marshlands then the City of Chula Vista will acquire the property.

Figure 2.5 Schematic of Street Sections

The proposed cross section of Tidelands Avenue has been substantially reduced and a new Fig. 2.5 substituted in the EIR.

Page 22, paragraph 1.

This section of the EIR contains the project description. An analysis of the change in drainage patterns and land use is provided in section 4.4 in the report beginning on page 143.

Page 22, paragraph 2.

It is the intent of the City to coordinate all aspects of the project with any affected agency including, but not limited to the wildlife agencies, Coastal Commission and the Port District. The initial contacts with agencies such as Calif. Dept. of Fish & Game were made in 1970, prior to the planning activities which led to the current land use/transportation plan.

Figure 2.12 Projected land use

The toe of the "D" Street fill and the adjacent mud flat is under the jurisdiction of the San Diego Unified Port District.

It should be noted that these land use designations are very general and no precise boundries between land use areas has been finalized at this time.

Page 33, Marsh environments

The Paradise Creek marsh has been added to the list of proposed purchases by the Corps of Engineers.

See comments below and revisions to the EIR text which reflect the existing interrelationship between the Sweetwater Marsh and Paradise Creek Marsh.

Page 34,

The noted reference has been added to the bibliography section of the report and greater assurance that the marsh will be preserved has been added to the text of the EIR.

Page 70, Wetlands Biology

This section of the report has been changed to provide a description of the entire Sweetwater-Paradise Marsh. Other sections of the report have also been changed to reflect this modification.

Page 80, Wetlands Fauna

The potential for a nursery area in the Sweetwater Marsh for the California Halibut has been identified in the EIR.

Page 81, paragraph 2.

This aspect of the EIR has been changed to reflect the interrelationship of the Sweetwater & Paradise Creek Marsh.

Page 141, paragraph 2.

The air quality calculations were based on the assumption that all vehicle trips indirectly associated with the project due to land use changes would all be new trips. This section of the EIR has been modified more accurately to reflect this approach.

Page 143, paragraph 2.

There are varying opinions among several State and Federal agencies concerning how the runoff near the marshes should be conveyed and what effect it has on the marsh. It is therefore proposed that prior to the development of final detailed plans, the Redevelopment Agency meet with the representatives of the National Marine Fisheries Service, the Dept. of Fish and Game, and the Fish & Wildlife Service of the U.S. Dept. of the Interior, to create a mutually acceptable design that will insure the long term viability of the marsh.

Generally the design would involve the following elements:

1. The major auto related facilities such as parking lots, roadways and auto related land uses which could have a high concentration of petrochemicals and related urban surface runoff, should not discharge into the marshlands.

2. Runoff from other areas be allowed to filter through the marsh before entering the bay.

3. Discharge into the marsh should be through an adequate number of discharge facilities to attain greater dispersal of any potentially hazardous material.

4. The existing surface runoff entering the marsh probably has a high nutrient and pesticide content due to the adjacent agricultural uses. The primary goal of the design of the drainage system should be to provide an adequate nutrient load to maintain the marsh in a healthy condition and to minimize the amount of hazardous materials which enter the marsh.

It should also be noted that the marsh area and adjacent buffer areas will be under the management of the Dept. of Fish & Game. The Dept. will be able to monitor the condition of the marsh and make any changes in nutrient load and other factors to assure the long term viability of the marshland.

Page 162, final paragraph

The areas of marsh enhancement, replacement and modification of the salt flats will involve a re-planting program to insure the establishment of the marsh. This fact has been more clearly noted in the EIR.

Page 163, paragraph 2.

This paragraph has been omitted from the EIR.

Page 164, paragraph 2.

See note relative to page 162 above.

Page 169, Analysis of Significance

See the response to the first comment in the input from the National Marine Fisheries Service.

Page 179, paragraph 2.

The report on the conversion of agricultural land is currently being prepared and is not therefore available for review. When complete it will be forwarded to concerned agencies.

Page 210, paragraph 2.

See attached memo from the Engineering Dept.

12.4 U.S. Department of Transportation
Federal Highway Admin.

1.0 Findings

The comment regarding the detrimental aspects of public access on page 177 is in a section of the EIR identifying potential adverse impacts. The following page notes that the proposed buffer zones will mitigate the adverse impacts of increased public access into the Bayfront area. Therefore the finding in Section 1.0 is correct.

4.3 Air Quality

This section of the EIR notes that there will be new vehicular trips due to the proposed land use changes. This increase will range from 18,186 to 25,546 new trips or up to an increase of 191,595 vehicle miles per day.

4.3.1 Air Quality

The EIR does provide an analysis of the secondary impacts as noted above. Therefore this section of the EIR has been changed to reflect this fact.

12.5 Port of San Diego

All of the suggested revisions to text have been included in the final EIR.

12.6 Dept. of the Army, Corps of Engineers

- a. pg. 23, paragraph 2.2.6
- b. pg. 33, paragraph 2.5.1

These suggested revisions have been made in the text of the EIR.

- c. pg. 145, paragraph 4.4.2

This paragraph has been changed to indicate that drainage from the vehicle related facilities will not drain into swales that lead to the marsh.

- d. pg. 169, paragraph 4.6.2.3

The preservation of the Sweetwater-Paradise Marsh complex is discussed in this section of the EIR so that the significance of the impact can be evaluated. The previous section is on mitigation and the purchase of the entire salt marsh complex is not discussed. A note has been added on page 169 to clarify this approach.

June 2, 1977
File No. JY038

To: Doug Reid, Environmental Review Coordinator
From: Engineering Division
Subject: Response to comments on Draft EIR 77-4 (Bayfront
Redevelopment)

As discussed with you we have prepared responses to specific comments submitted by the California Department of Fish and Game and the National Marine Fisheries Service. These responses are stated below:

1. Response to comment no. 1, Department of Fish and Game memorandum dated May 3, 1977.

This comment discusses losses of tidal marshlands because of the extension of Tidelands Avenue, and recommends that compensation be made on an acre per acre basis.

A separate EIS for Tidelands Avenue is being prepared. The preliminary draft of this document is nearing completion and discusses marshland impacts in more detail. The replacement of marshland on an acre for acre basis is stated as a proposed mitigation measure for Tidelands Avenue construction.

2. Response to comment no. 2 of the United States Department of Commerce, National Marine Fisheries Service letter dated April 13, 1977.

This comment discusses the apparent excessive width of the Tidelands Avenue street section as it crosses the Sweetwater Marsh, and cautions that careful consideration should be given to this aspect of the project before a final decision is made.

In response to this comment and other input the proposed typical section for this portion of Tidelands Avenue has been revised to reflect the minimum facility we believe to be appropriate for the uses expected to ultimately occur at this location. A modified figure 2.5 is submitted herewith for substitution in this EIR.

RLD/rl

RECEIVED

NY

JUN 06 1977

PLANNING DEPARTMENT
CULVER VISTA, CALIFORNIA

12.7 Air Resources Board

Although the specific project which is proposed at this time involves the installation of public facilities, grading of the site and marsh enhancement, the consequences of development of this site with the proposed land uses is addressed. Section 4.3 (page 127) of the EIR evaluates the air quality impacts of street extensions but also of the proposed land uses identified in Table 4.3 (page 129). Thus all phases of the project are evaluated at an appropriate level of specificity in this document. As more specific development proposals are prepared, they will be given additional evaluation. Some sections of the DEIR inferred that the analysis would only involve the public improvements. These statements have been modified so that they indicate that primary and secondary consequences are evaluated.

12.8 The Resources Agency Dept. of Fish & Game

Comment #1

The recommended mitigation by replacement of lost marshlands on an acre for acre basis will be carried out and changes in the EIR have been made to reflect this commitment.

Comment #2

A study of the impact of the vibrator compaction equipment on marine organisms will be undertaken prior to this operation taking place. The results of this study will be forwarded to the Dept. of Fish & Game. Page 168 provides that penalty clauses should be included in the grading contract to prevent encroachment into the retained marsh and natural open space areas. It is the intent of the City through design, construction and operation of the facility to minimize any adverse effects on the marshlands.

Comment #3

See the response to the comment from the National Marine Fisheries Service identified as "page 143, para. 2." The reference to a gasoline service station has been deleted from the EIR and no such station will be permitted in an area that could impact the marine ecosystem.

Comment #4

The catch basins will be maintained in an effective manner so that a minimum amount of sediment and suspended material will reach the marine environment.

Comment #5

See response to Comment #3.

Comment #6

Various portions of the D St. fill are under the jurisdiction of the City of Chula Vista and the Port District (see Fig. 3.7). The most logical location for the Least Tern nesting site would be at the western end of the fill with development occurring at the eastern end adjacent to Tidelands Ave. The western end of the D St. fill is under the jurisdiction of the Port District.

Comment #7

The EIR has been changed to describe the Sweetwater-Paradise Marsh as one biological unit.

12.9 U.S. Dept. of the Interior
Fish & Wildlife Service

Comment #1

This change has been made throughout the EIR. References to elements of the Corps project and the southbay wildlife island are made to describe the project setting and to provide a background for an analysis of the significance of the projects impact.

Comment #2

This note has been added to the EIR.

Comment #3

All references to an auto service station have been deleted from the EIR and they will not be permitted in areas which drain to the marsh. The comments relative to restaurant cleaning techniques have been noted and consideration of this problem will be given on a project level analysis.

Comment #4

This notation has also been made in the EIR.

Comment #5

As was previously noted the reference to the Southbay Wildlife Island has been removed from this section. The enhancement description for the marshes has been referenced to provide a description of the grading and planting which is to be accomplished. In the case

of the salt flats in the Sweetwater Marsh, a portion of the 33 acres may be left at a higher elevation to provide a potential Least Tern nesting site. The amount of area and design of this area will be coordinated with the appropriate state and federal agencies.

Comment #6

The diversion of runoff into the marsh is not listed as a beneficial impact. The conversion of the salt flat to marsh as described in the comment is noted as beneficial.

Comment #7

This table has been modified to note the conversion of the saltflat to marsh as mitigation. There will be at least one acre of replacement marsh to mitigate the loss of each acre of marsh removed by the project.

Comment #8

Due to the modification of the report, there will not be a loss of 8.3-9.5 acres of marsh land.

This comment letter closes with a discussion of the area bayward of Gunpowder Point. That area is under the jurisdiction of the Port District not the City of Chula Vista.

12.10 Environmental Control Commission

1. Access

This quote states that the impact will be significant if proper mitigation is not carried out. On the preceding page the proposed mitigation is outlined, which will preclude a significant impact.

2. Marsh Enhancement

Much research has been done on proposals to establish marsh lands in San Diego Bay. Of particular interest is the work done to determine the feasibility of the South Bay Wildlife Island. It was concluded that such projects would likely be successful and the wildlife island dredging is now underway. The research, technology and experience gained through these experiences will be used to increase the probability of success with the proposed enhancement program in the Bayfront project.

APPENDIX 1
LEGAL DESCRIPTION - REDEVELOPMENT PROJECT

LEGAL DESCRIPTION - REDEVELOPMENT PROJECT

Those portions of Quarter Sections 160, 161, 162, 163, 164, 165, 169, 170, 171, 172, 174, 179, 180 and all of 173 of Rancho de la Nacion according to Map thereof No. 166, filed in the office of the County Recorder, San Diego County, State of California on May 11, 1869, described as follows:

Beginning at the intersection of the northerly boundary line of the City of Chula Vista with the westerly right of way of I-5 Freeway as shown on the State Division of Highways right of way Map L.O.-2532; thence along said boundary line South $72^{\circ}14'13''$ West a distance of 832.74 feet to an intersection with the Ordinary High Water Mark per Misc. Map No. 399 filed in said County Recorder's Office on September 12, 1960; thence southerly along said Ordinary High Water Mark, per said Misc. Map No. 399, the following courses,

South $10^{\circ}16'44''$ West a distance of 204.88 feet;
South $28^{\circ}14'44''$ West, a distance of 305.05 feet;
South $8^{\circ}29'44''$ West, a distance of 201.97 feet;
South $35^{\circ}06'44''$ West, a distance of 419.14 feet;
South $78^{\circ}59'44''$ West, a distance of 225.53 feet;
North $80^{\circ}53'16''$ West, a distance of 802.05 feet;
South $61^{\circ}40'44''$ West, a distance of 200.92 feet;
South $11^{\circ}05'44''$ West, a distance of 277.74 feet;
South $55^{\circ}54'44''$ West, a distance of 140.91 feet;
North $64^{\circ}51'16''$ West, a distance of 132.01 feet;
South $81^{\circ}52'44''$ West, a distance of 146.66 feet;
South $00^{\circ}54'16''$ East, a distance of 203.07 feet;
South $32^{\circ}47'16''$ East, a distance of 227.40 feet;
South $12^{\circ}00'16''$ East, a distance of 701.70 feet;
South $30^{\circ}42'44''$ West, a distance of 769.45 feet;
South $2^{\circ}23'07''$ East, a distance of 271.42 feet;
South $8^{\circ}12'34''$ East, a distance of 140.15 feet;
South $19^{\circ}46'24''$ East, a distance of 132.28 feet;
South $43^{\circ}00'53''$ East, a distance of 300.28 feet;
South $34^{\circ}43'23''$ East, a distance of 312.67 feet;
South $28^{\circ}46'13''$ East, a distance of 297.16 feet;
South $79^{\circ}21'43''$ East, a distance of 213.97 feet;
South $60^{\circ}35'53''$ East, a distance of 176.18 feet;
South $80^{\circ}28'33''$ East, a distance of 340.97 feet;
South $68^{\circ}40'03''$ East, a distance of 587.67 feet;
South $59^{\circ}04'43''$ East, a distance of 155.72 feet;
South $39^{\circ}39'13''$ East, a distance of 266.82 feet;
South $31^{\circ}15'03''$ East, a distance of 368.98 feet;
South $34^{\circ}45'03''$ East, a distance of 351.40 feet;
South $25^{\circ}58'03''$ East, a distance of 221.17 feet;
South $19^{\circ}07'33''$ East, a distance of 234.36 feet;
South $31^{\circ}19'33''$ East, a distance of 291.81 feet;
South $38^{\circ}00'03''$ East, a distance of 328.06 feet;
North $84^{\circ}47'57''$ East, a distance of 339.65 feet;
South $67^{\circ}00'03''$ East, a distance of 228.93 feet;
South $38^{\circ}07'39''$ East, a distance of 182.42 feet;
South $58^{\circ}28'01''$ East, a distance of 297.87 feet;
South $40^{\circ}32'01''$ East, a distance of 525.67 feet;

South 38°43'31" East, a distance of 344.37 feet;
 South 30°19'01" East, a distance of 392.81 feet;
 South 24°18'01" East, a distance of 233.29 feet;
 South 20°56'01" East, a distance of 453.59 feet;
 South 57°45'01" East, a distance of 230.78 feet;
 South 22°27'01" East, a distance of 184.92 feet;
 South 14°12'01" East, a distance of 489.75 feet;
 South 04°01'31" East, a distance of 568.83 feet;
 South 07°03'31" East, a distance of 578.95 feet;
 South 03°39'44" West, a distance of 731.02 feet;
 South 12°36'46" East, a distance of 323.50 feet;
 South 08°35'44" West, a distance of 440.99 feet;
 South 12°41'44" West, a distance of 496.12 feet;
 South 10°03'14" West, a distance of 717.25 feet;
 South 06°47'14" West, a distance of 201.63 feet to the southwesterly
 boundary line of the City of Chula Vista;
 thence leaving the Ordinary High Water Mark, North 72°10'54" East
 (North 72°11'13" East per State Division of Highways right of way
 Map L.O.-2524) a distance of 2082.30 feet along said southwesterly
 boundary line of the City of Chula Vista and its easterly pro-
 longation to a point on the westerly access control line of the
 I-5 Freeway per said right of way Map L.O.-2524, North 02°17'09"
 West along said right of way and westerly access control line a
 distance of 88.29 feet; thence
 North 49°58'39" West, a distance of 100.55 feet; thence
 North 05°25'48" West, a distance of 115.00 feet; thence
 North 07°43'00" West, a distance of 300.17 feet to a point on the
 arc of a non-tangent curve, concave easterly, having a radius of
 2,982.00 feet and whose center bears North 84°47'40" East from said
 point; thence northerly along the arc of said curve, through a
 central angle of 03°53'11", a distance of 202.27 feet, thence
 North 01°19'09" West, tangent to said curve, a distance of 399.37
 feet to the beginning of a tangent curve, concave westerly, having
 a radius of 1120 feet, thence northerly along the arc of said curve,
 through a central angle of 16°12'44", a distance of 316.91 feet,
 thence North 20°57'22" West, a distance of 425.72 feet to the
 beginning of a tangent curve, concave westerly, having a radius of
 443.00 feet, thence along the arc of said curve, through a central
 angle of 09°47'22", a distance of 75.69 feet; thence North 30°44'44"
 West, tangent to said curve, a distance of 144.60 feet; thence
 North 21°24'10" West, a distance of 203.03 feet; thence North
 19°08'16" West, a distance of 269.28 feet; thence
 North 48°55'38" West, a distance of 50.25 feet; thence
 North 05°15'11" West, a distance of 122.92 feet; thence
 North 12°29'48" West, a distance of 1,096.45 feet; thence
 South 77°30'12" West, a distance of 52.17 feet; thence
 North 12°30'35" West, a distance of 464.96 feet to the beginning of
 a tangent curve, concave northwesterly having a radius of 1,718.00
 feet; thence northerly, along the arc of said curve, through a
 central angle of 14°20'29", a distance of 430.02 feet; thence North
 26°51'04" West, tangent to said curve, a distance of 499.24 feet;
 North 14°40'05" West, a distance of 261.47 feet to a point on the
 arc of a non-tangent curve, concave westerly, having a radius of

APPENDIX 2

DEVELOPERS REPORT

CHULA VISTA BAYFRONT REDEVELOPMENT

DEVELOPERS REPORT

August 1976

REDEVELOPMENT AGENCY OF THE CITY OF CHULA VISTA

By: **Wilsey & Ham**
Project Design Consultants
WESTEC Services
Southern California Testing
Wimmer, Yamada & Associates

I. THE PROJECT

PROJECT LOCATION

The project is the first stage of development of the Chula Vista Bayfront Redevelopment Plan. That plan was developed for an area encompassing 1,436 acres known as the Chula Vista Bayfront (Figures I-1, and I-2). Of that total, approximately 651 acres are in upland areas, 566 acres are submerged lands (of which 231 acres are mudflats) and the remaining 209 acres is tidelands. This latter area is under the jurisdiction of the San Diego Unified Port District. The total redevelopment area is bounded on the West by Mean High Tide Line near San Diego Bay, on the East by Interstate 5, on the North by Mean High Tide Line near the proposed Sweetwater Flood Control Channel and on the South by the San Diego Gas and Electric Facility.

The specific project under consideration would occur within the northern section of the redevelopment area (approximately 288.4 acres). The project area has the same West and North boundaries as described above, but is bounded on the South by "G" Street and on the East by the San Diego Gas and Electric Company right of way. To facilitate understanding, the project area has been broken into five subareas. These subareas are important in terms of the land development and grading plans and are depicted in Figure I-2.

PROJECT DESCRIPTION

The purpose of this report is to establish parameters for development of the major public and quasi public facilities that will be required for the ultimate development of the project area. Specifically, the proposed development includes:

- Tidelands Avenue
- Preliminary Grading Plan
- Preliminary Drainage Plan
- Utility Trunk Plans
- Protection of Marsh and Mudflat Areas

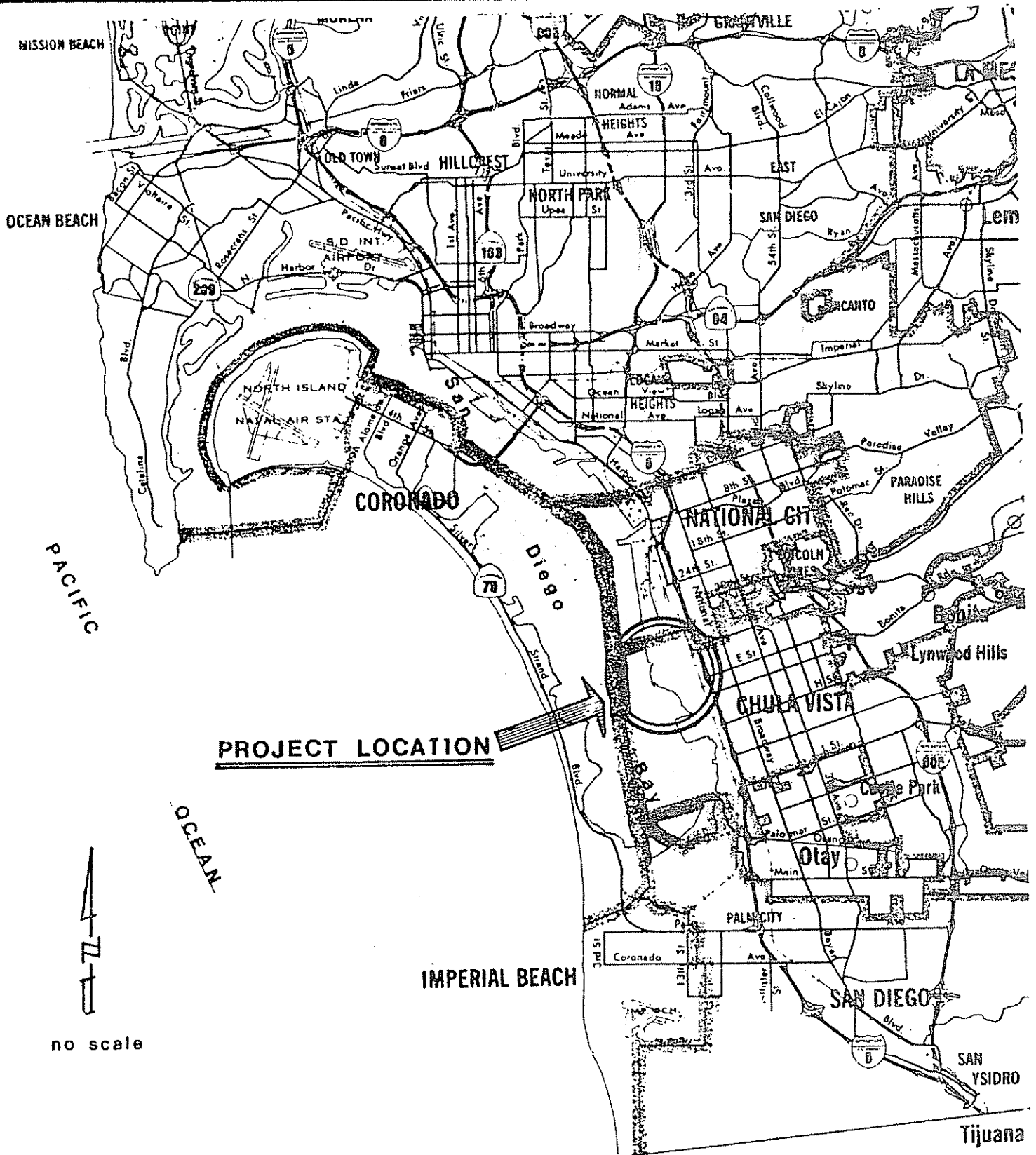


FIGURE I-1

Vicinity Map

prepared by
WILSEY & HAM
 san diego, california

Chula Vista Bayfront Redevelopment Project
 Redevelopment Agency of the City of Chula Vista

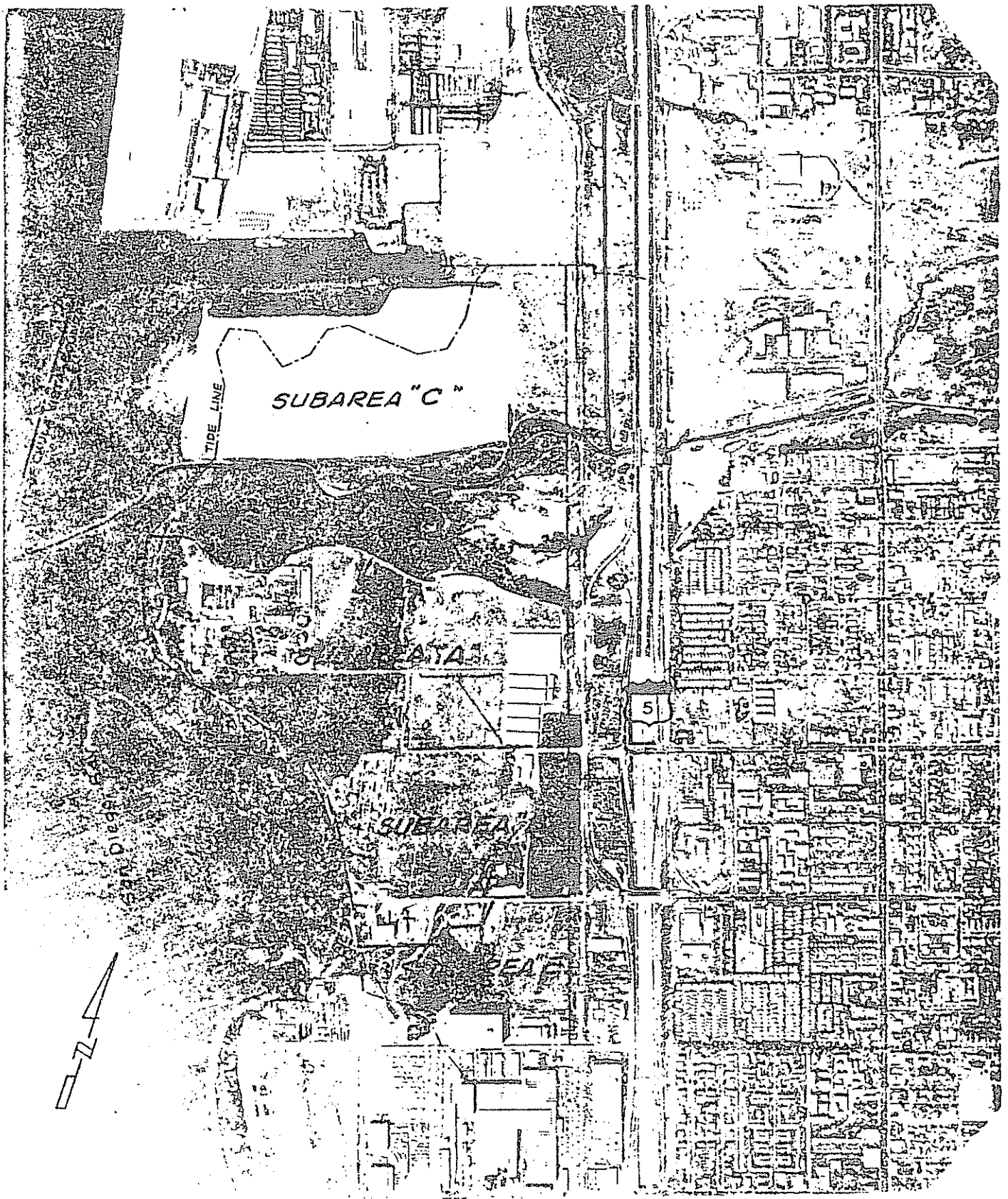


FIGURE I-2

prepared by
WILSEY & HAM
 san diego, california

Project Location Map
 Chula Vista Bayfront Redevelopment Project
 Redevelopment Agency of the City of Chula Vista

Tidelands Avenue

Tidelands Avenue would be extended 1.57 miles from G Street across the uplands area, through both the F-G Street Marsh and the Sweetwater Marsh, intersect with E Street and end at the proposed Sweetwater Flood Control Channel. This will provide circulation and public access to the project and will physically connect the D Street landfill area (Subarea C) to the rest of the development area. The road would be 113 feet wide, with four travel lanes (of 12 feet each), two eight-foot bikelanes, and a 16-foot median (see Figure I-3). As currently proposed, Tidelands Avenue would cross the F-G Street Marsh on landfill and will be aligned as far easterly in the marsh as possible. Landfill would also be used in crossing the Sweetwater Marsh, although culverts will be installed at existing water bodies. The main channel of the Sweetwater River would be spanned with a bridge. The remainder of the road will be on existing ground or fill.

Grading Plan

The preliminary grading plan, as shown in Figure III-1, will generally raise the existing site elevations. The site would generally trend from a high elevation (20 feet) at the eastern edge of the project to a low elevation (5 feet) along the bay shore. The grading plan would require importing of approximately a million cubic yards of material. It has not been determined where the fill material would come from as several options are available. These options include:

- Dredge materials from related projects
- Excavated materials from the Corps of Engineer's flood control project
- Other construction areas in the Sweetwater Valley
- Active Conditional Use Permits for Borrow Pits in the City of Chula Vista

Drainage Plan

The drainage plan seen in Figure III-1 indicates that the site has been graded so that it would drain either into the Sweetwater Marsh or into the bay. Generally, Gunpowder Point (the western part of Subarea A) would discharge into the Sweetwater Marsh along its northern boundary. Swales would direct the balance of the point drainage towards the bay. In addition, the eastern part of Subarea A will also drain along its northern boundary into the Sweetwater Marsh. Subarea B, through the use of swales would drain towards and into the bay. The surface drainage from areas upstream of the F and G Street Marsh would be gathered in a swale and diverted around the north side of the marsh and into the Bay. In addition, the

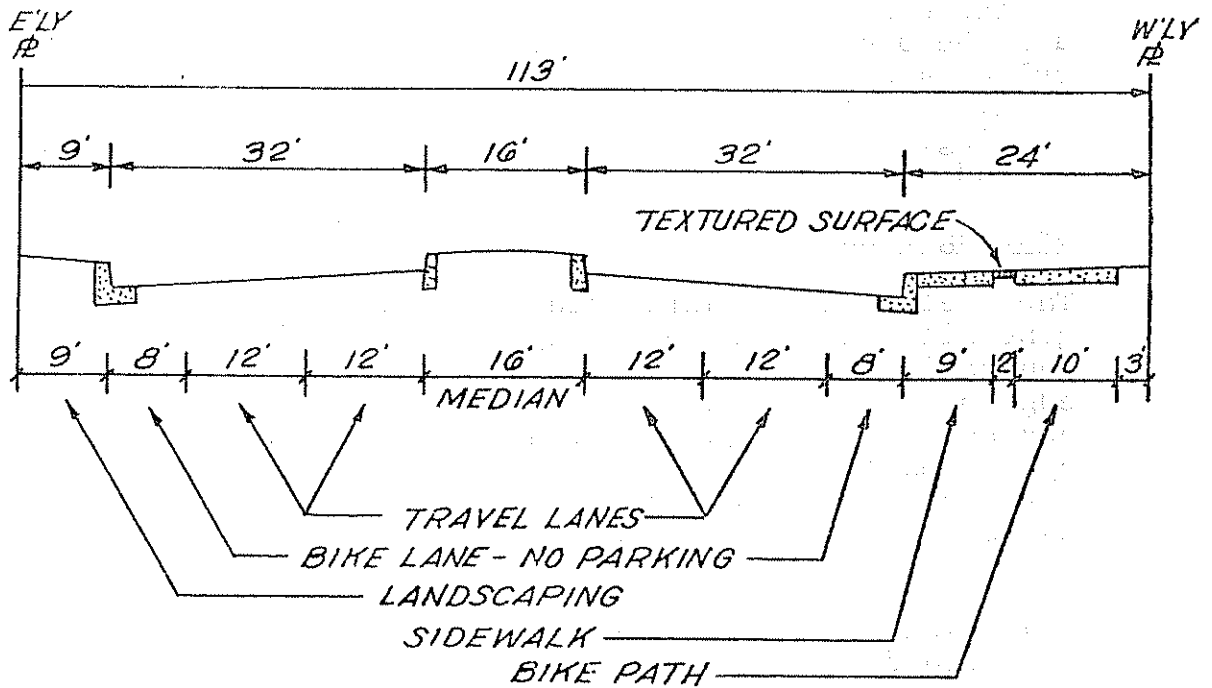


FIGURE I-3

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 san diego, california

Tidelands Avenue
 through marsh
 Chula Vista Bayfront Redevelopment Project
 Redevelopment Agency of the City of Chula Vista

Rohr storm drain that formerly discharged into the F and G Street Marsh would be diverted directly to the Bay. The northern half of the D Street Fill Area (Subarea C) would drain to the Sweetwater Flood Control Channel, with the southern half draining into the main body of the Sweetwater Marsh. In total, approximately 188-228 acres of the northern section would drain to the bay and 60-90 acres into the marshes. There would be no drainage into Vener Pond or Vener Marsh. Development of subareas will normally require underground conduits to supplement street capacity for drainage.

Utility Trunk Plans

The installation of utilities would be for water, sewage, gas, telephone and electric services. The demand for these utilities has been projected using proposed land use configurations allowed under the redevelopment plan. The installation of gas, water and sewer utilities would require trenching and laying of pipe to serve those estimated projected demands. The initial telephone and electric installation will consist of conduit which will later receive appropriate equipment and cable to provide adequate service.

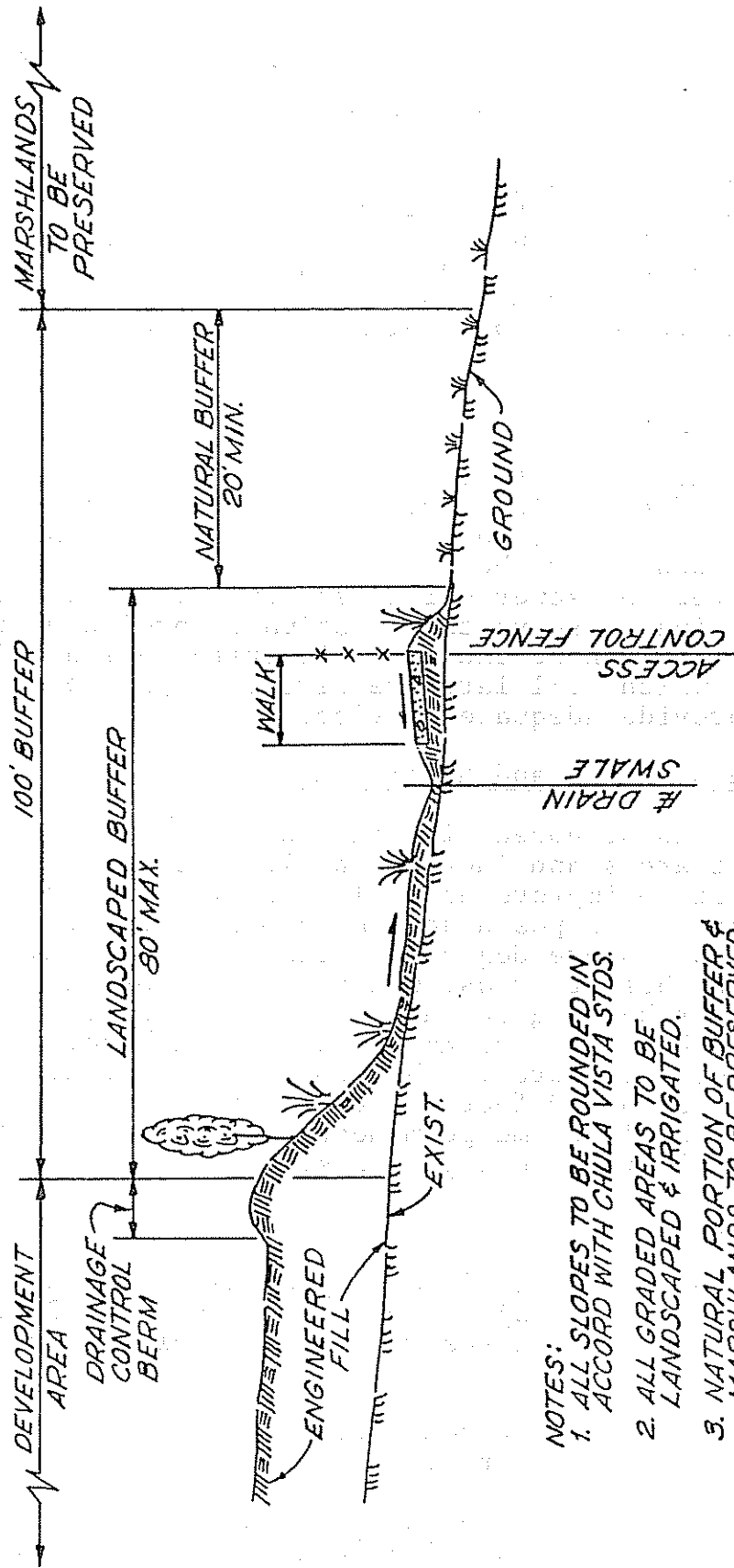
Protection of Marsh and Mudflat Areas

The project as proposed will infringe on existing salt marsh and mudflat areas and increase public accessibility. Thus, in an effort to improve as well as protect all the marsh areas, there is proposed an enhancement program designed to clean-up and restore degraded areas within the marsh. Further, the buffer areas, which are part of the Corps of Engineers purchase agreement, would be erected on at least a temporary basis to prevent human encroachment on what is a very fragile resource. The proposed buffer areas vary in width from 50 to 100 feet and can be seen on Figures I-4 & I-5. The buffers will become permanent, landscaped areas with initiation of development projects.

PROJECT OBJECTIVES

This phase of the redevelopment program would seek to achieve some of the objectives stated in the CVRA plan of June 1974. The objectives relevant to this action would be to:

- Provide convenient pedestrian, bicycle, and vehicular access to the Bayfront from areas east of I-5.
- Route and design roadways in a manner which minimizes adverse effects on valuable marshlands, protects land with high recreational value and avoids fragmentation of developable lands.

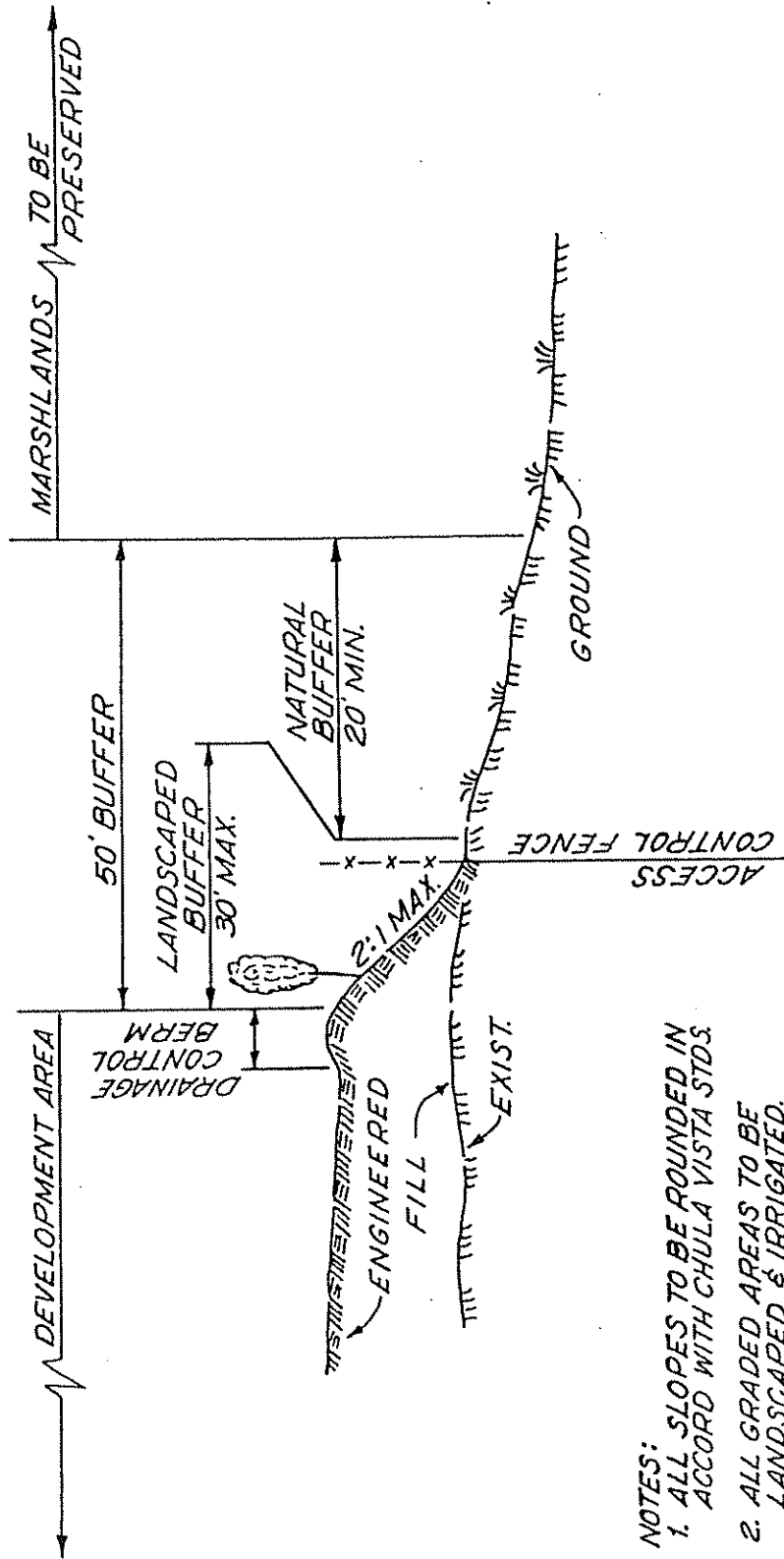


- NOTES:
1. ALL SLOPES TO BE ROUNDED IN ACCORD WITH CHULA VISTA STDS.
 2. ALL GRADED AREAS TO BE LANDSCAPED & IRRIGATED.
 3. NATURAL PORTION OF BUFFER & MARSHLANDS TO BE PRESERVED IN EXISTING STATE.
 4. DRAIN SWALE WALK AND ACCESS CONTROL FENCE TO MEANDER W/IN THE LANDSCAPED PORTION OF THE BUFFER.

FIGURE I-4

prepared by
WILSEY & HAM
 san diego, california

Buffer Zone &
 Typical Sections
 Chula Vista Bayfront Redevelopment Project
 Redevelopment Agency of the City of Chula Vista



- NOTES:
1. ALL SLOPES TO BE ROUNDED IN ACCORD WITH CHULA VISTA STDS.
 2. ALL GRADED AREAS TO BE LANDSCAPED & IRRIGATED.
 3. NATURAL PORTION OF BUFFER & MARSHLANDS TO BE PRESERVED IN EXISTING STATE.

FIGURE I-5

prepared by
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 san diego, california

Buffer Zone &
 Typical Sections
 Chula Vista Bayfront Redevelopment Project
 Redevelopment Agency of the City of Chula Vista

- Reduce dependence upon the private automobile by providing complementary public transit service.
- Provide enjoyable scenic experiences for motorists.
- Provide sufficient separation between pedestrian, bicycle and automobile uses to ensure traffic safety and reduce noise, functional disruption and visual intrusion.
- Develop a system whereby there is an easy transfer from one transportation mode to another.

In addition to the above objectives, which relate primarily to the transportation facilities of this project, there are several additional general policies which are affected by the grading, drainage, and utility plans of this project. These include:

- Preservation of existing marshlands and the wildlife which inhabits them.
- Changing the existing industrial image of the Bayfront.
- Improvement of the visual quality of the shoreline by providing public and private uses which have proper landscaping and maintenance of shoreline areas.
- Removal or mitigation through landscaping of structures or conditions which have a blighting influence.
- Tie the Bayfront, adjoining areas of Chula Vista, and the freeway and arterial approaches to the Bayfront.

COSTS/FUNDING

Funding

The funding for the project is provided by various methods. The CVRA indicates that the following sources are currently under consideration and use:

- Tax allocation bond sales
- Direct tax increments
- Federal aid - urban
- Various funding sources associated with the Corps of Engineers Flood Control project.

- Local funding through an assessment district, C.I.P. or general City funds.
- Gas tax highway improvement funds

Costs

The costs of the project will vary with the finalized phasing as well as with ultimate determination of land uses. However, Table I-1 reflects the estimated costs associated with the project and a breakdown of those costs into the various improvement components.

FUTURE LAND RELATIONSHIPS

To clarify project parameters, it is important initially to discuss what is not (in a direct sense) part of this project. They are the variety of land uses proposed for the project area. The preliminary plans herein have utilized those land uses as a maximum base to determine road alignments and width, utility demands, traffic generation, public costs and impacts. It is quite possible that the future land uses will be different than used for this study. Any proposed change can be evaluated in the future to determine whether any previous construction based on this report would limit the proposed change. Based on the wide range of planned uses and the relative flexibility of the proposed street and utility system, most conceivable land use changes would not be restricted by the planned improvements. The following is a list, by Subarea, which shows the land uses considered and the estimated level of development parameters.

1. Subarea A

A. Gunpowder Point:

Hotel - 500 to 750 rooms
 Restaurant/Commercial - 20,000 square feet
 Park - 7 to 15 acres

B. Area east of Vener Pond

Motel - 150 to 300 rooms
 Restaurant/Commercial - 7,500 to 15,000 square feet
 Parking - 900 to 1,200 cars
 Park - 3 to 7 acres
 Golf course or recreation - 10 acres

TABLE I-1
ESTIMATED LAND IMPROVEMENT COSTS

	<u>SUBAREA</u>					<u>TOTAL</u>
	<u>A-Gunpowder</u>	<u>A-Support</u>	<u>B-Bayshore</u>	<u>C-"D" Street</u>	<u>E-Tidelands</u>	
GRADING	\$ 270,800	\$ 168,600	\$ 403,600	\$ 1,303,600	\$ 443,200	\$2,589,800
STORM DRAINS	60,000	62,200	111,300	90,000	78,300	401,800
SANITARY SEWER	59,600	172,300	53,200	127,300	37,200	449,600
WATER	157,800	138,700	154,500	500,500	81,900	1,033,400
STREETS		131,400	244,200	2,344,200	211,200	2,931,000
UTILITIES	90,500	183,900	401,100	399,000	406,000	1,480,500
LANDSCAPE	614,200	937,500	548,800	964,600	333,600	3,398,700
TOTAL	<u>\$1,252,900</u>	<u>\$1,794,600</u>	<u>\$1,916,700</u>	<u>\$5,729,200</u>	<u>\$1,591,400</u>	<u>\$12,284,800</u>

Source: Project Design Consultants
 1976 Cost Estimates

2. Subarea B

Residential units - 250 to 350
Park (golf) - 30 acres

3. Subarea C

Motel - 100 to 150 rooms
Residential Units - 350 to 500
Commercial - 20,000 to 50,000 square feet
Park - 20 acres
Alternate use - 300 space campground
10,000 to 15,000 square feet commercial

4. Subarea E

300,000 to 500,000 square feet light industrial

MARSH ENVIRONMENTS

It has been assumed for the purpose of this report that the proposed Corps of Engineers Sweetwater River Flood Channelization/Highway 54 project will become reality. This assumption is made because an integral part of that project is the purchase of the following for the purpose of preservation:

- The Sweetwater Marsh
- Vener Pond
- Vener Marsh
- 50 foot buffer surrounding the above areas

However, if the Corps' project does not come to fruition, it has been stated that other methods of Federal, State or local purchase will be pursued. (Desrochers, 1976).

DESIGN CRITERIA

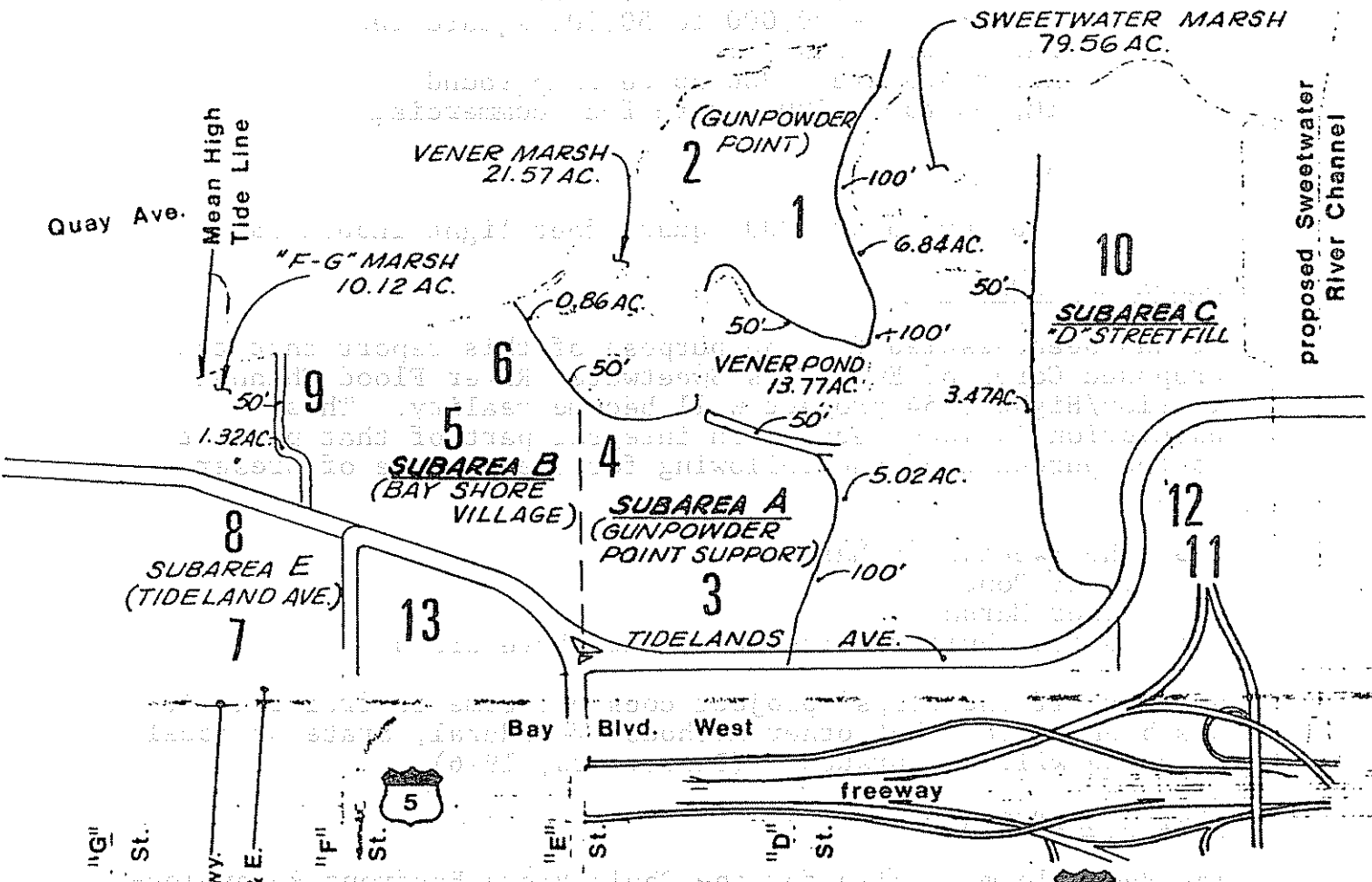
The Redevelopment Plan for the Chula Vista Bayfront Redevelopment Project, as developed by the Redevelopment Agency of the City of Chula Vista in June, 1974, includes land uses and approximate residential densities proposed by the City's urban planning consultants. These uses, densities and approximate acreages are as shown on Figure I-6 and summarized above.

The development plan shown has been referred to as Alternate A, hereinbefore, and summarizes the land use objectives

City of Chula Vista boundary

scale 1" = 1000'

San Diego Bay



PROJECTED LAND USES

proposed 5/54 interchange

- | | |
|---|---------------------------------|
| 1 CONVENTION RESORT COMPLEX 25.4 AC. | 7 INDUSTRIAL PARK 22.32 AC. |
| 2 PARK 10 AC. | 8 LOW RISE OFFICE 5.58 AC. |
| 3 COMMERCIAL (HOTEL, MOTEL, RESTR.) 18.26 AC. | 9 GOLF COURSE & PARK 4.55 AC. |
| 4 GOLF COURSE & PARK 24.78 AC. | 10 RESIDENTIAL/RETAIL 47.47 AC. |
| 5 RESIDENTIAL 18.7 AC. | 11 PARK & PRESERVE 14.54 AC. |
| 6 GOLF COURSE & PARK 24.83 AC. | 12 RESERVE AREA 3.3 AC. |
| | 13 RESERVE AREA 14.28 AC. |

FIGURE I-6

prepared by
WILSEY & HAM
san diego, california

Projected Land Use Plan
Chula Vista Bayfront Redevelopment Project
Redevelopment Agency of the City of Chula Vista

of the Agency. However, additional land use patterns will be developed to provide alternatives to the basic plan. These alternative plans will 1) reduce adverse environmental impacts; 2) reduce development costs of the earthwork and/or public improvements; and 3) improve the overall phasing of the project.

The preparation of the site for either its projected use or for any alternative use, other than agricultural, requires an extensive investment in both earthwork operations and the construction of public improvements and utilities. Accordingly, in order to establish a basin from which to prepare preliminary engineering design and drawings, the design criteria summarized below was established.

General Design Criteria

The site improvements required to transform the existing lowlands, salt water marshes, hydraulic fills and agricultural land into desirable, developable property for parks, industrial, commercial and residential uses include earthwork, storm drainage and flood control protection facilities, sanitary sewerage, potable water transmission and distribution systems, primary arterial and secondary access roadways and the utility support systems of natural gas, telephone, electricity and, where appropriate, a cable television distribution system.

Due to the preliminary design nature and scope of the contract under which this study is being performed, preliminary design and, therefore, basis for design, is limited to rough grading, roadway criteria for Tidelands Avenue and E Street, a primary drainage system, a trunk sewerage system, and primary water transmission and distribution system. Preliminary criteria for natural gas, electrical, cable television, and telephone services will be included as the information is developed and provided to us.

The general design criteria requirements and procedures, followed in the preliminary design of the various improvements are as outlined in the City of Chula Vista's Subdivision Manual, except as modified otherwise herein, and other publications referenced hereafter and as summarized in Appendix

APPENDIX 3

AIR QUALITY ANALYSIS

AIR QUALITY ANALYSIS

The following statements, assumptions and rationale underlie this analysis:

1. A Gaussian diffusion Model was used.
2. Carbon monoxide was used as the tracer gas for the computations.
3. The analysis was based on a target year of 1980. Additionally, AP-42, Supplement 5 CO emission factors for light duty vehicles for that year were used, due to the fact that the actual motor vehicle mix that will exist at that time is quite uncertain. It was felt that application of worst case conditions throughout the analysis would serve to offset this assumption.
4. Projected CO levels were composed of:
 - Background levels.
 - I-5 as a line source.
 - The extended Tidelands Avenue as a line source.
5. Worst case conditions were used. These included:
 - Peak hour traffic.
 - Low traffic speeds, representing congested periods (25 mph).

- Stability Class F.
 - Wind speed of 2 miles per hour (0.89 meter/second).
 - Wind direction which would produce the highest CO concentrations at each receptor point.
6. Although not used in the analysis, more prevalent conditions would likely include:
- Non-peak hour traffic.
 - Average traffic speeds (45-55 mph on I-5; 25-35 mph on Tidelands Avenue).
 - Stability Class B to C.
 - Wind speed of 7 miles per hour (3.13 meters/second).
 - Westerly wind direction.
7. Receptor points selected include the following:
- Chula Vista Community Hospital
 - Chula Vista Junior High School
 - May L. Feaster Elementary School
 - A typical receptor 200 meters downwind from I-5.
8. Based on conversations with Caltrans (Baker, 1976) regarding future traffic volumes through 1995 on Interstate Highway 5, a maximum ADT of 110,000 and a peak hour volume of 9,900 (9 percent of ADT) were used.

9. Traffic volumes used for Tidelands Avenue represent the maximums expected at total build-out of the project, and are shown in Figure 4-3 of the EIR.

10. The Sweetwater River Flood Control Channel Environmental Statement (USACE, 1975) indicated that CO monitoring was conducted near Edgemere Avenue and Highway 54, and near National City Maritime Park between November 1973 and October 1974. This monitoring activity recorded 5 ppm as the highest 1 hour average, well below the national standard of 35 ppm. (The Chula Vista Air Quality Monitoring Station on J Street does not record CO data.) The more recent San Diego Bayroute Bikeway Environmental Study (USACE, 1975) prepared by Caltrans, used a background CO level of 8 ppm for 1975 and 1 ppm for 1995. Therefore, to remain consistent with our utilization of worst case conditions in this analysis, 8 ppm has been used as the background level.

Receptor Points

Chula Vista Elementary School

	<u>Downwind Distance (meters)</u>	<u>1980 CO Contribution (ppm)</u>	<u>Federal Standard (ppm)</u>
I-5	800	1.28	
Tidelands Ave.	1024	0.15	
Background	----	<u>8</u>	
Total		9.43	35

Chula Vista Junior High School

	<u>Downwind Distance (meters)</u>	<u>1980 CO Contribution (ppm)</u>	<u>Federal Standard (ppm)</u>
I-5	1088	1.02	
Tidelands Ave.	1600	0.11	
Background	----	<u>8</u>	
Total		9.13	35

May L. Feaster Elementary School

	<u>Downwind Distance (meters)</u>	<u>1980 CO Contribution (ppm)</u>	<u>Federal Standard (ppm)</u>
I-5	368	2.36	
Tidelands Ave.	576	0.24	
Background	---	<u>8</u>	
Total		10.6	35

Receptor Points (continued)

Typical Receptor 200 Meters Downwind of I-5

	<u>Downwind Distance (meters)</u>	<u>1980 CO Contribution (ppm)</u>	<u>Federal Standard (ppm)</u>
I-5	200	3.84	
Tidelands Ave.	440	0.27	
Background	---	<u>8</u>	
Total		12.11	35

APPENDIX 4
ARCHAEOLOGY SURVEYS AND CRITERIA

SAN DIEGO MUSEUM OF MAN

1350 El Prado, Balboa Park, San Diego, California 92101, Telephone (714) 239-2001

Page 1 of 1

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: WESTEC Services Inc. - Richard L. Carrico

Date of Request: 25 January 1976 (X) Letter () Telephone () In Person

Date Request Received: 28 January 1976 (X) Map Received (X) Map Returned

Name of Project: Chula Vista Bay Front

(X) The Museum of Man files show no recorded sites for the project area.

() The Museum of Man files show the following sites () within () in the vicinity of the project area.

Site No. _____ Culture(s): _____

Description: _____

Site No. _____ Culture(s): _____

Description: _____

Site No. _____ Culture(s): _____

Description: _____

Site No. _____ Culture(s): _____

Description: _____

Site No. _____ Culture(s): _____

Description: _____

Site No. _____ Culture(s): _____

Description: _____

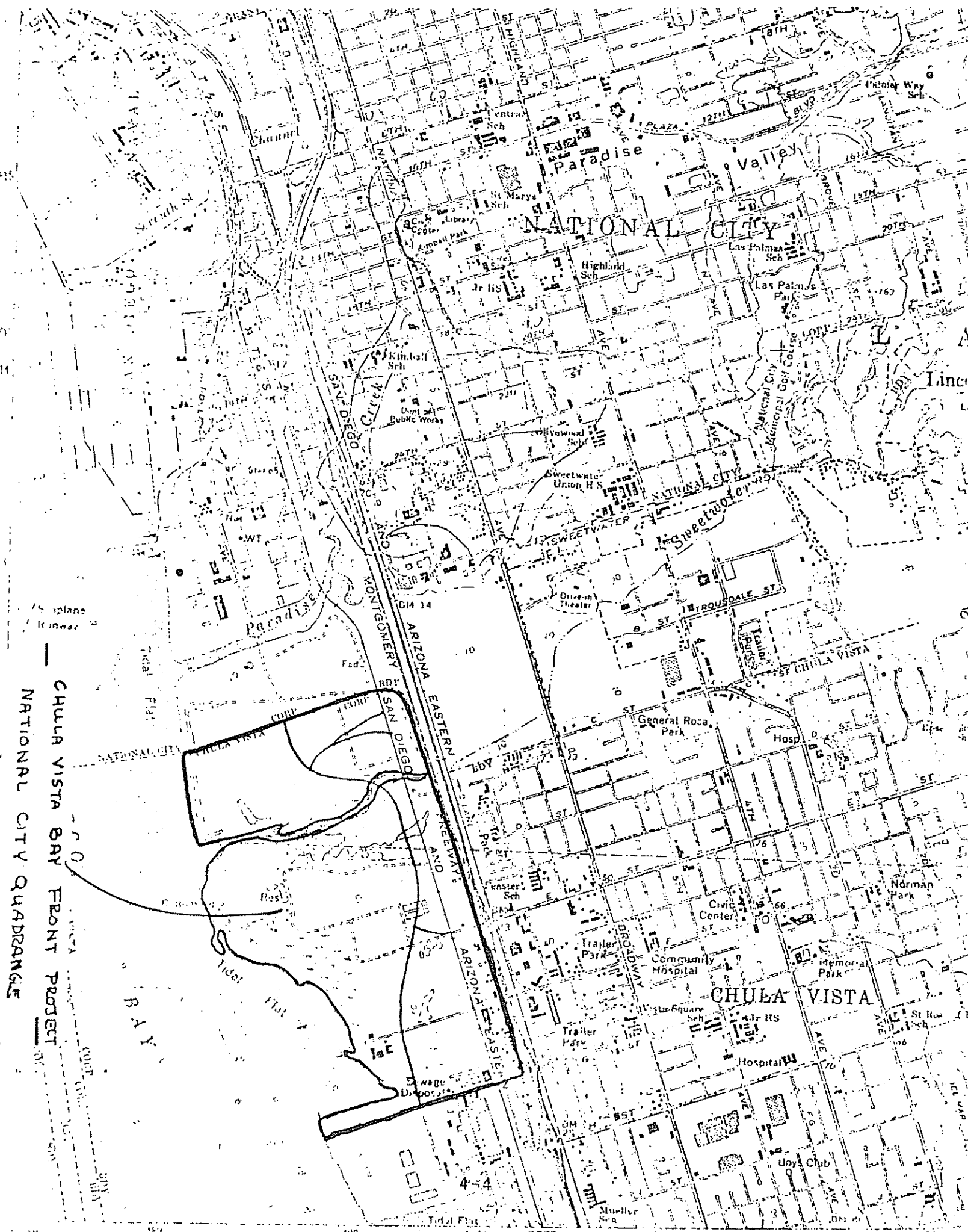
Please note: The project area may contain archaeological resources in addition to those noted above. This report is made from San Diego Museum of Man files only and may not include data pertaining to localities other than those covered in previous Museum of Man surveys or gathered by other institutions or by individuals.

Record check by: Grace Johnson

Date: 28 January 1976

4-3

Signed: Lowell E. English



CHULA VISTA BAY FRONT PROJECT
 NATIONAL CITY QUADRANGLE

1/8" = 1 mile
 1/4" = 1/2 mile

SAN DIEGO STATE UNIVERSITY

Department of Anthropology 5402 College Avenue/ San Diego, California 92182

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: TRM Services, Inc.

Date of Request: 1/17/76 (X) Letter () Telephone () In Person

Date Request Received: 1/19/76 () Map Received (X) Map Returned

Name of Project: Chula Vista Bay Front Project

() The San Diego State University files show no recorded sites for the project area.

(X) The San Diego State University files show the following sites () within (X) in the vicinity of the project area.

Site No. NDI-3 Culture(s): unknown

Description: no description but referenced to Carter, G.F. 'Inter-glacial artifacts from the San Diego Area.' SDA, V. 8 no. 4, 1952.

Site No. NDI-767 Culture(s): probably La Jollan

Description: 1/2 acre site 2' shell midden: referenced to Geo. Carter's Pleistocene Now of San Diego County: site mostly gone

Site No. Cal:E:8:13 Culture(s): probably proto-historic & Early Historic

Description: 300yd. x 150yd. surface scatter flakes and core, small amount of shell

Site No. Cal:E:8:15 Culture(s): Historic, Proto-historic, possibly earlier

Description: Handyman Site: large area, central portion seems under a building & road: shell and dark midden: see Excavation Report

Site No. ////////// Culture(s): done by SDSU Foundation (Dr. Leach-Mike

Description: Baksh: 1975-6) for Army Corps of Engineers: wide range of artifacts, including Mexican & Chinese laborers material from

Site No. ////////// Culture(s): 19th. Century National Ranch, Anglo water-

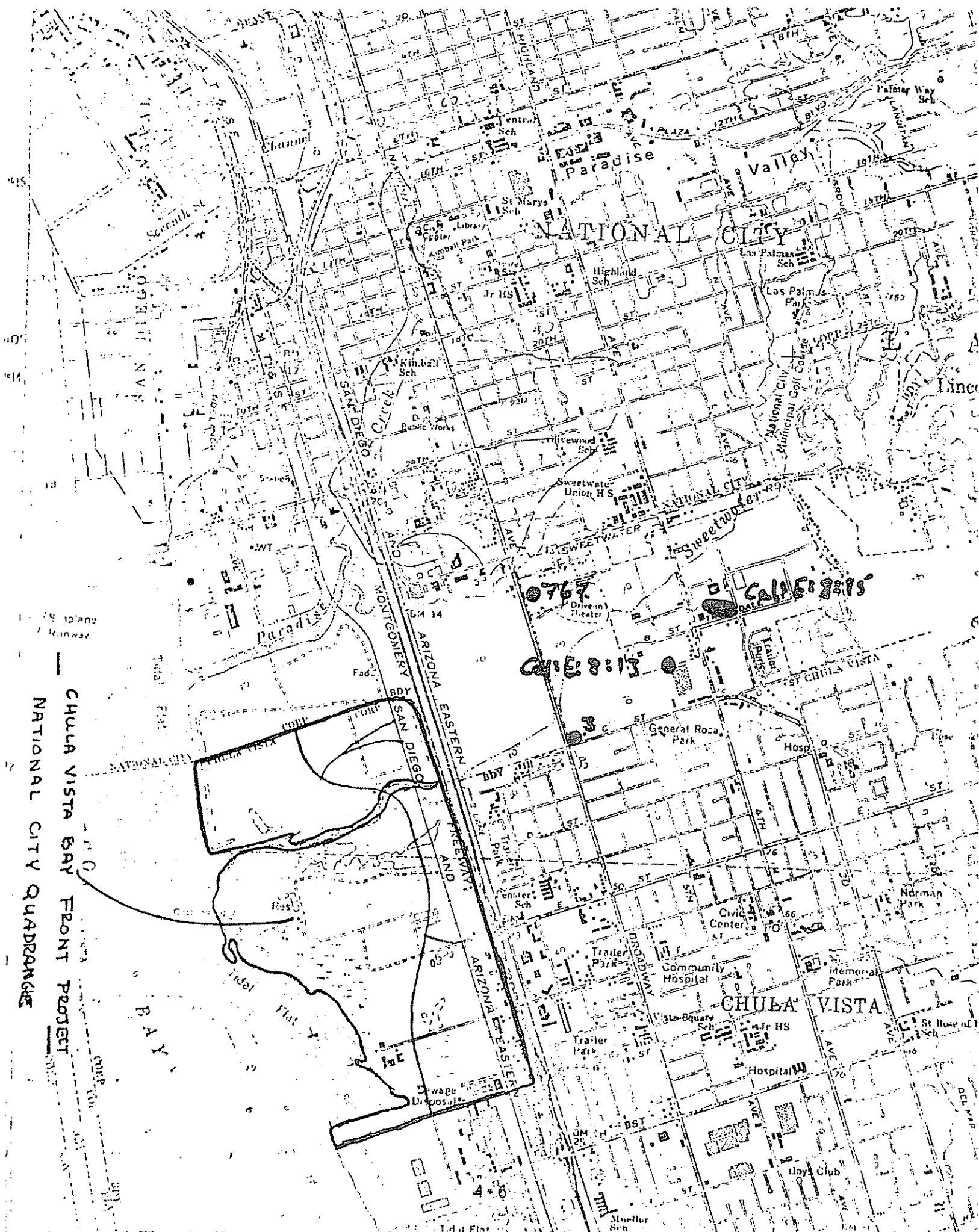
Description: ials from same period; lithic tools as well

NOTE: This report includes only that information available from the San Diego State University files and may not include data on file at other institutions. A lack of sites recorded in our files cannot be taken as assurance of the absence of archaeological materials. If it should occur that any cultural remains are encountered during the course of construction, a qualified archaeologist should be notified:

Record check by: Larry L. Leach

Date: Jan 30 1976

Signed: Larry L. Leach



CHULA VISTA BAY FRONT PROJECT
NATIONAL CITY QUADRANGLE

0767
CALIFORNIA

NATIONAL CITY

CHULA VISTA

SWEETWATER

PARADISE

VALLEY

SAN DIEGO

ARIZONA EASTERN
AND
MONTGOMERY

General Roca Park

Community Hospital

Hospital

Las Palmas Sch

Las Palmas Park

National City Municipal Golf Course

National City Municipal Golf Course

Sweetwater Union HS

SWEETWATER

SWEETWATER

Drive-in Theater

Drive-in Theater

Drive-in Theater

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Removal of
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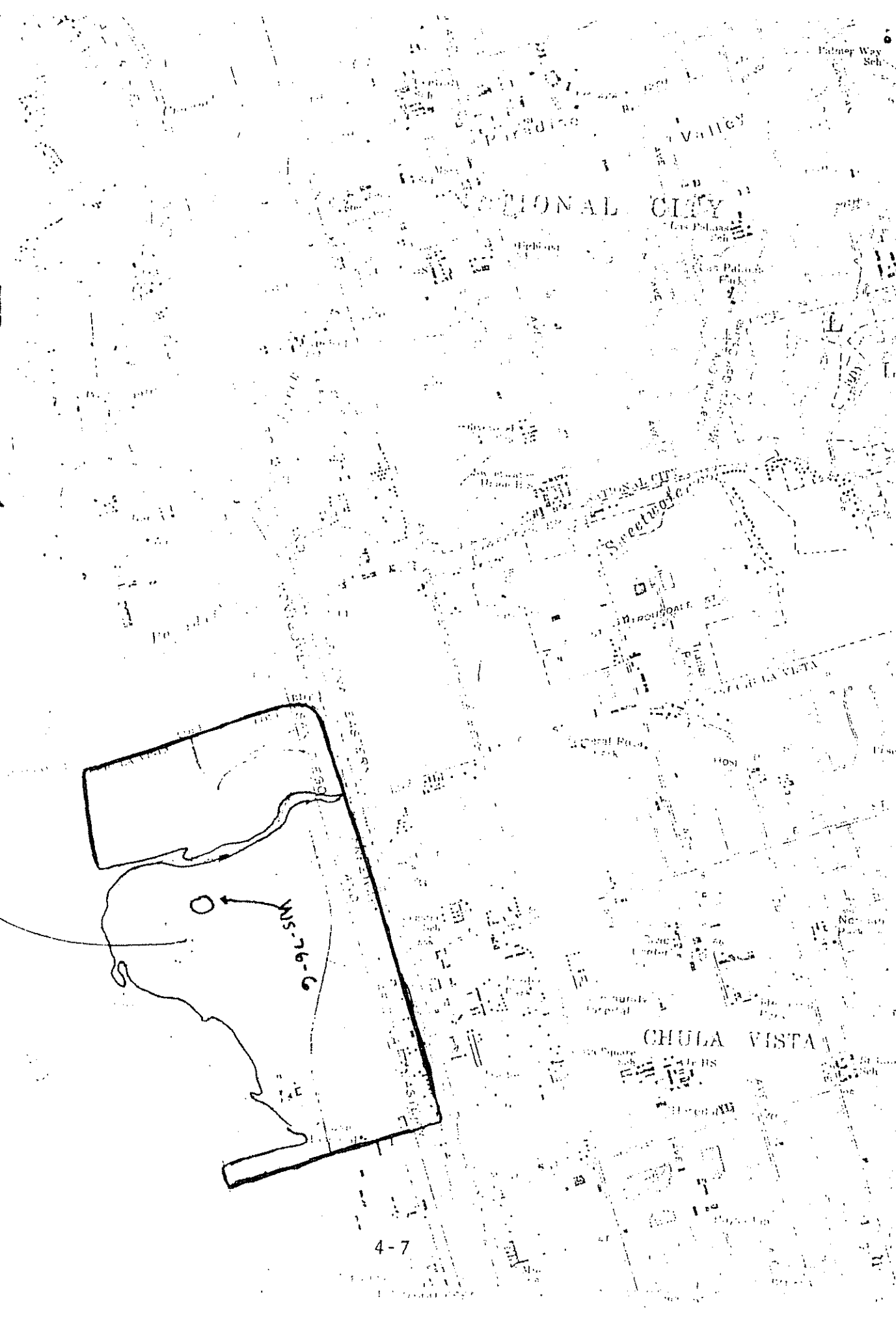
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FIGURE 1

— CHULA VISTA BAY FRONT PROJECT
NATIONAL CITY QUADRANGLE



Evaluation of Archaeological Resources

The criteria for establishing the scientific importance of archaeological resources are defined as follows:

Critical: Site possesses large quantities of irreplaceable and valuable archaeological resources. Site itself or the material therein is rare or regionally unique. Destruction or loss of such a site would create potential gaps in the prehistory of the area or serve to obscure a particular phase of prehistoric culture. Mitigation can include total preservation, partial preservation, salvage, or intensive testing prior to any of the above. Mitigation may combine any or all of the above measures dependent upon the site and the magnitude of the impact.

Major: Site has a high potential for scientific research or resource analysis. Site itself or the material therein is unique either regionally or contextually. Destruction or loss of such a site without adequate research could create gaps in the prehistory of the area or serve to partially obscure a particular phase of a prehistoric culture. Mitigation can include total preservation, partial preservation, intensive testing, micro-mapping and surface collecting, or a combination of the above.

Moderate: Site possesses limited potential for scientific research or resource analysis. Site contains material which is valuable though not necessarily unique or rare. Destruction or loss would adversely affect segments of the archaeological picture or make certain

valuable data inaccessible. Mitigation can usually be met by micro-mapping, surface collection, trenching, analysis or a combination of the above.

Minor: Site possesses very limited scientific potential. Natural forces and/or man has previously impacted the site or the site may lack any quantity of significant archaeological resources. Loss of site would be a minor loss of data. Mitigation can include surface collection and analysis.

Trivial: Site possesses little or no scientific value. Quantity of artifacts, size of site, location, non-uniqueness of the site and previous impact are variables which can constitute a trivial site. Usually the sheer act of surface collection and analysis can exhaust the potential of this type of site if, in fact, the site has any potential at all. Destruction or loss of a trivial site would not, in most cases, constitute a serious loss of either data or resources, though surface collection and analysis may be recommended.