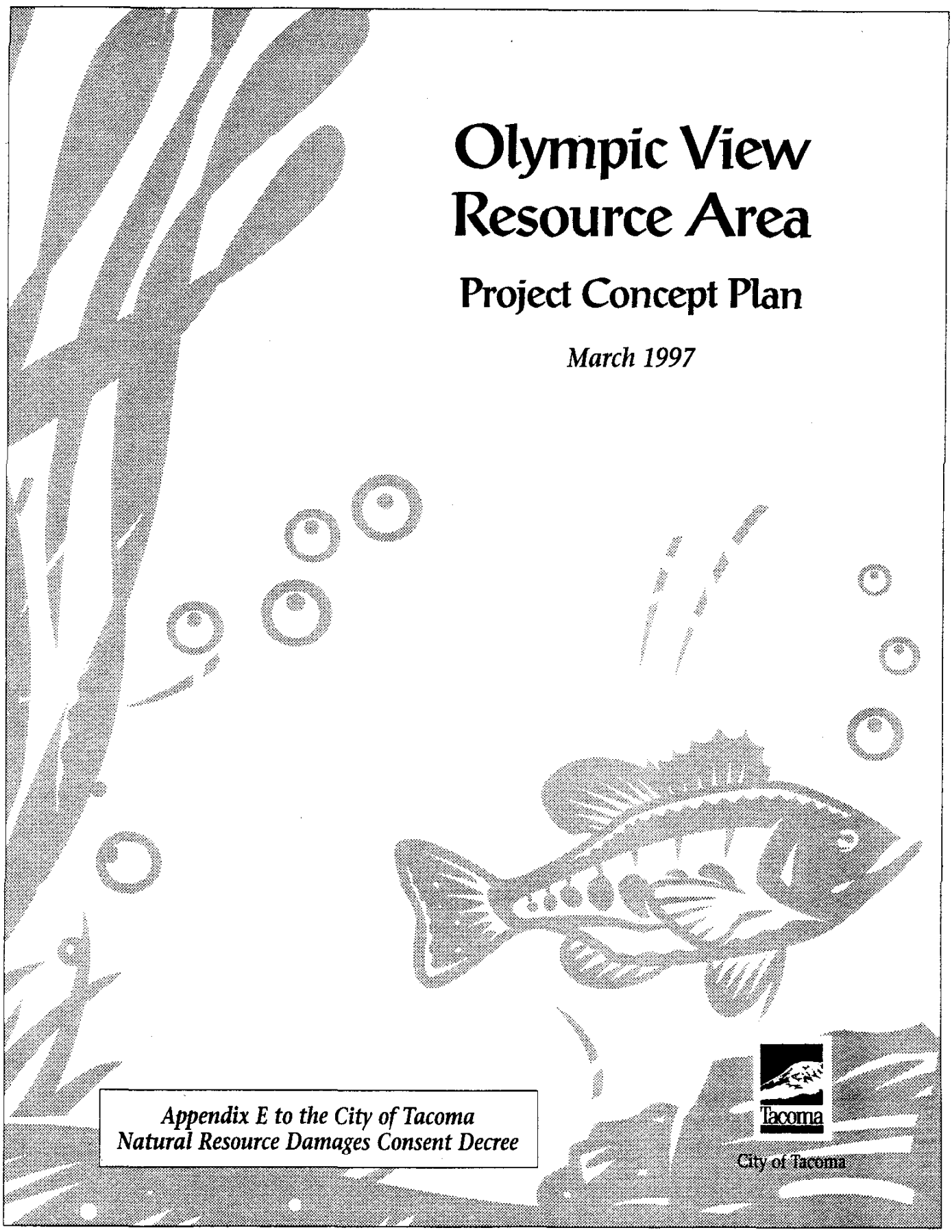
Olympic View Resource Area

Project Concept Plan

March 1997



Appendix E to the City of Tacoma
Natural Resource Damages Consent Decree

Tacoma

City of Tacoma

This document is a reprint of the October 1996 document of the same title. This document and the October 1996 document differ in the following manner:

1. ***The date on the initial title pages has been corrected (updated);***
2. ***Selected graphics have been reproduced (but not changed) to enhance readability;***
3. ***The project schedule has been modified to reflect the passage of time;***
4. ***The word "acqusition," as used in this Appendix, has been defined (page 1).***

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OLYMPIC VIEW RESOURCE AREA
PROJECT CONCEPT PLAN

CITY OF TACOMA
MARCH 1997

CITY OF TACOMA
OLYMPIC VIEW RESOURCE AREA
PROJECT CONCEPT PLAN

Table of Contents

CITY OF TACOMA
OLYMPIC VIEW RESOURCE AREA
PROJECT CONCEPT PLAN

I INTRODUCTION

The City of Tacoma is planning the development of the Olympic View Resource Area, to be located on the north end of the peninsula separating Thea Foss and Middle Waterways in Tacoma, Washington. (Figure Ov-1). The project would be located on lands owned by the State of Washington and on land which the City is acquiring[1] from a private party. The land owned by the State would be leased to the City and the City would be the primary entity responsible for developing and managing the resource area. The project area is 12.4 acres in size, of which approximately 10.9 acres is intertidal or shallow subtidal property.

There are four goals associated with the development of the resource area. Three of the goals are related to habitat protection and the fourth goal seeks to promote public access. The four project goals are:

1. Ensure the protection of aquatic habitat including locally significant eelgrass beds on state lands within the resource area.

2. Restore biological productivity in that part of the intertidal area now shaded by the Puget Sound Plywood building.

3. Provide an aquatic habitat linkage between the Thea Foss and Middle Waterways.

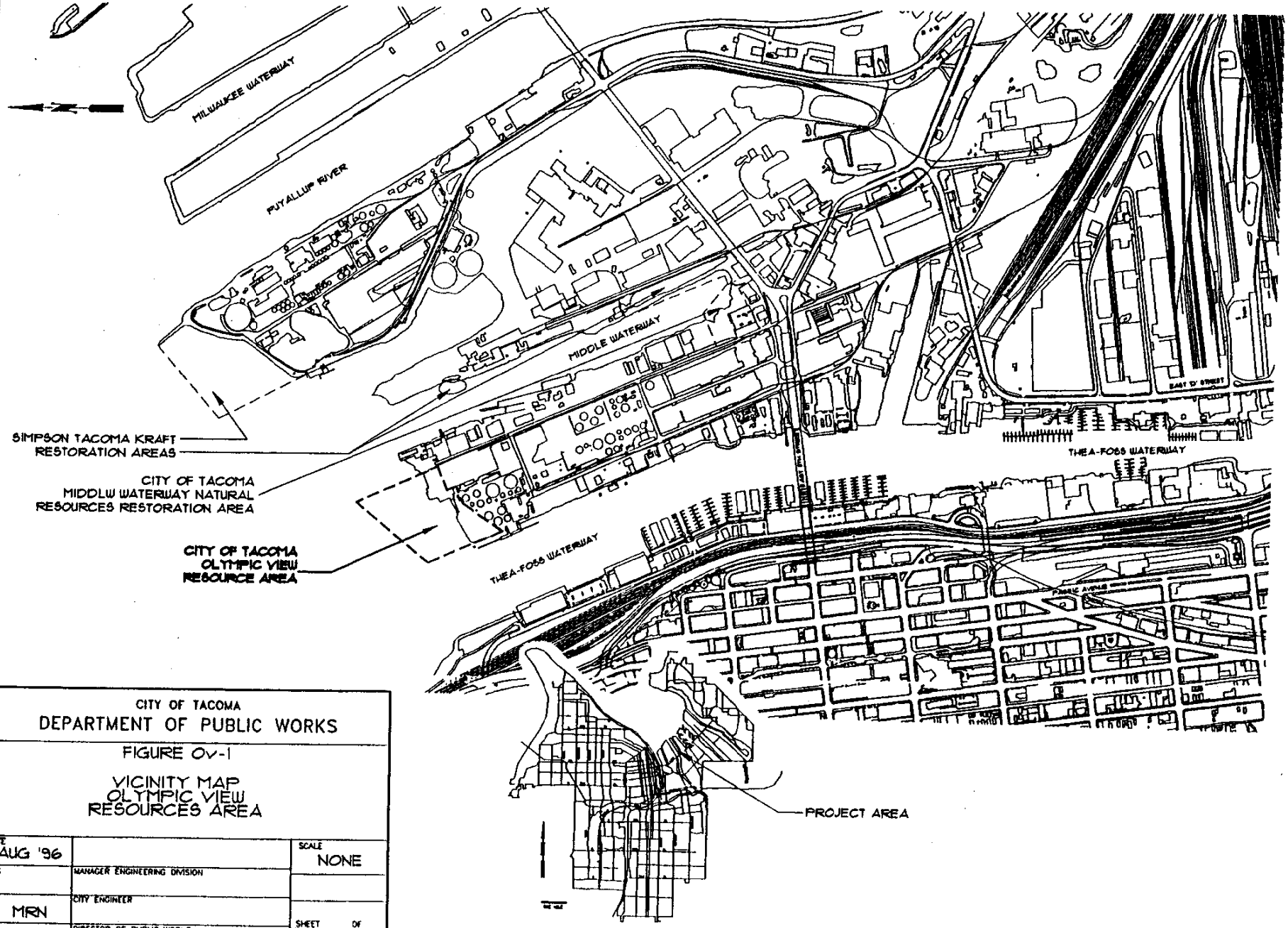
4. Develop public access to the area in a manner consistent with the protection and maintenance of intertidal habitat.

[1] "Acquire property," as used in this appendix, means acquire, permanently secure the right to use and preservation or permanently restrict the right of use of property. It is the goal of all the parties that the City obtain a fee simple interest in real property to ensure the success of the project.

To meet these goals, the City of Tacoma, in cooperation with the Washington State Department of Natural Resources, would assume through lease management authority over the State aquatic lands to ensure that the eelgrass beds and surrounding aquatic area are protected from actions that could compromise long-term habitat viability. The City would also acquire property adjacent to the DNR lease area and remove part of the former Puget Sound Plywood building presently located over-water on that property and DNR leased lands. The City would replace this portion of the building with a new wall located within what is now the building interior. This action would remove shading effects on approximately one acre of intertidal area and restore primary productivity now absent in this area. The City would also develop existing vacant and under-utilized upland property for public access, viewing, and recreation consistent with resource management objectives.

The protection of the eelgrass beds warrants special mention. Eelgrass tolerates a wide variety of salinities but is found generally in soft sediments in the lower intertidal zone of bays, estuaries and sloughs with overlying water of low turbidity. Its importance in the local ecosystem probably can not be overestimated and, except for this location, it is apparently absent from the intertidal areas within or near the improved waterways of Commencement Bay. An effusive celebration of eelgrass by Kruckeberg (1991) is quoted later in this plan but a more succinct description of the importance of eelgrass in the estuarine system is provided by Schultz (1990):

The strategy of rhizomatous reproduction can make eelgrass beds dense enough to influence the overall water circulation, sedimentation, and biology of an estuary. The leaves act as a baffle retarding currents and forcing them to drop their load of organic particles and fine sediments. The thick, interlacing mat of roots and rhizomes reduces erosion by binding the sediments. And the leaves themselves not only give off abundant oxygen but also offer a stable, three-dimensional surface where previously there was only shifting sediments. In short, eelgrass creates an environment that can satisfy the needs of a wide variety of animals, not to mention a few plants. ...(T)he eelgrass ecosystem is nearly self-contained, with its own abundant producers, consumers, and decomposers. In short, the eelgrass beds support a greater diversity of animal species than any other estuarine habitat. ... Without these lush meadow our estuaries would be truly destitute.



CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

FIGURE Ov-1

VICINITY MAP
OLYMPIC VIEW
RESOURCES AREA

DATE AUG '96		SCALE NONE
DES	MANAGER ENGINEERING DIVISION	
DR MRN	CITY ENGINEER	
CK	DIRECTOR OF PUBLIC WORKS	SHEET OF
		[illegible]

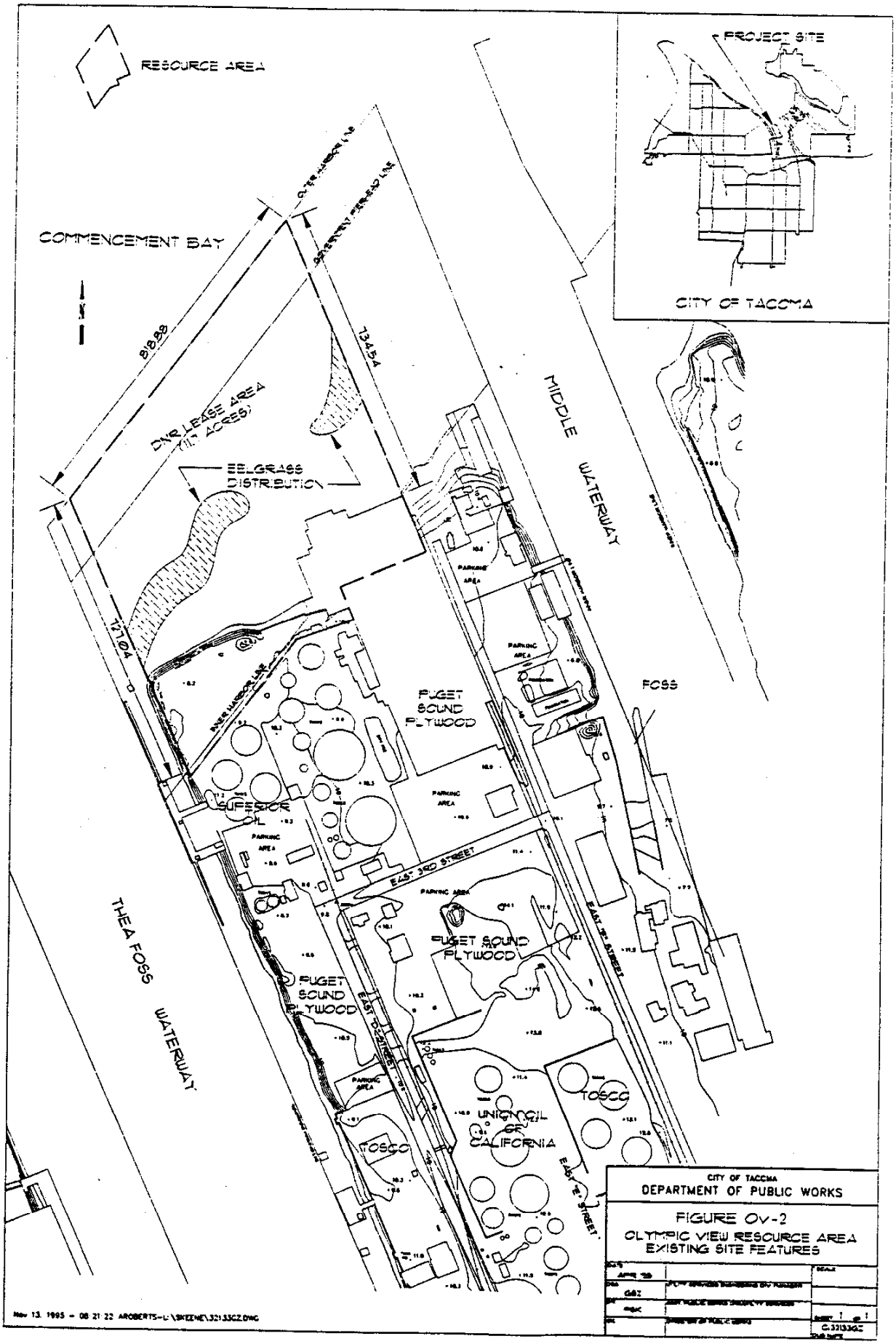
Aug 13, 1996 --15:07:28 mnorton3-C:\Projects\Greg Zarlinski\Figure Ov-1.DWG

II RESTORATION STUDY AREA: HISTORY AND SITE CONDITIONS

The project site is located at the northern tip of the peninsula separating Thea Foss and Middle Waterways (Figure Ov-2). The site is approximately 12.4 acres in size and includes 11.7 acres of state-owned land and approximately 0.7 acre of private property being acquired by the City of Tacoma. State-owned lands include approximately 10.6 acres of intertidal property and 1.1 acre of upland property. Land to be acquired by the City includes approximately 0.4 acres of upland property and 0.3 acres of intertidal land. The restoration project site is bordered by Superior Oil and the Puget Sound Plywood property on the south, Foss Maritime properties to the east, the Thea Foss Waterway to the west, and Commencement Bay and state aquatic lands to the north.

The proposed management area is located at the water-ward boundary of a century of Puyallup River watershed development which has had resulting effects on habitat conditions at the site and the surrounding area. Fill of aquatic lands in the proposed management area as recently as (approximately) 1970 has converted aquatic habitat to upland property. Log storage on aquatic lands at the site has likely decreased the amount of light reaching the aquatic bed (shading) with resulting reductions in primary productivity, and modified bed substrate composition as a result of bark sloughing. Associated changes in benthic community structure are likely similar to effects documented in similar areas elwewhere in the Pacific Northwest (Sedell, et. al., 1991). Overwater construction has likewise reduced incident light to the aquatic bed. Of special note, the diversion of the White River into the Puyallup and the diking of both rivers earlier in this century has changed the route and magnitude of water and sediment transport in the area. Both water and sediment are now delivered directly to the river mouth where it is distributed to nearshore areas via wave action and tidal currents, bypassing former overflow and distributary channels and the upstream floodplain lands.

The proposed management area also borders the Thea Foss and Middle Waterway Superfund Problem Areas. Source control activities associated with the Superfund area are ongoing and underlie concerns that land use has the potential to influence habitat quality and eventual project success. Northwest Marine Industries (NWMI), operating from Foss Maritime property, has been named by the Department of Ecology as the major existing source of contamination to the Middle Waterway Superfund Problem Area. NMWI has been issued an NPDES permit, which has been recently amended for increased stormwater control (Kourehadar, personal communication). Superior Oil, owners and operators of a bulk fuel facility, is engaged in groundwater remediation activities, also under an NPDES permit. Contamination is believed to be under hydraulic control and existing data suggests that groundwater contamination has not migrated to the study area. Puget Sound Plywood ceased operations in the early 1980's and the former


RESOURCE AREA
PROJECT SITE
CITY OF TACOMA
COMMENCEMENT BAY
8888
13454
DNR LEASE AREA
EELGRASS
DISTRIBUTION
MIDDLE WATERWAY
12704
PUGET SOUND PLYWOOD
SUPERIOR OIL
EAST 3RD STREET
FOSS
THEA FOSS WATERWAY
TOSCO
UNION OIL CO. OF CALIFORNIA
EAST "E" STREET
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
FIGURE OV-2
OLYMPIC VIEW RESOURCE AREA
EXISTING SITE FEATURES

mill building and plant site are now leased to three different businesses, the dominant being an auto repair facility.

Existing environmental data suggest that habitat and adjacent land uses are co-existing. Aquatic sediments data for the site and the surrounding vicinity are presented in Tables Ov-1 (site data) and Ov-2 (vicinity data). Data from the Superior Oil site (Landau, 1993) is on-file with the City and the Natural Resource Trustee agencies.[2] Sampling stations are depicted in Figure Ov-3. Site conditions, histories, and investigations are summarized below.

Puget Sound Plywood

Puget Sound Plywood is located on the Commencement Bay shoreline at the corner of East 3rd and East F Streets. The history of development in this area was investigated by Hart-Crowser (1991,1992). According to the Hart-Crowser reports, land development on the peninsula commenced early in the century and by 1906 the eastern bulkhead line of the Foss Waterway on the west side of the peninsula had been established. By 1912, most of the peninsula had been reclaimed. Development evidently accelerated in the vicinity after a bridge was constructed over the Foss Waterway at 11th St. in 1913. The property immediately east of Puget Sound Plywood now occupied by Foss Maritime was developed by the Sanborn Shipbuilding Co. in 1916. Peterson Boatbuilding developed property in this northwest corner of the peninsula (north of Foss) in 1941, where smaller boat building operations had evidently operated since 1925.

The Puget Sound Plywood site apparently remained undeveloped until the early 1940's (Hart-Crowser (1991). The company commenced mill and associated plywood operations at the project site in June 1942 and operated facilities until the early 1980s. The company filed a Chapter 11 reorganization under the U.S. Bankruptcy Code in November, 1985. In December, 1994, the case was converted to a Chapter 7 liquidation.

Existing improvements to the Puget Sound Plywood property include the former mill building, which dominates the site and extends over state and aquatic lands to the north; a parking area and small office on the south; and consolidated sanitary sewer connections. The part of the building extending over water, about one acre of floor area, is supported by several hundred wooden piers; in some cases these piers have been refurbished with concrete wrapping. At water's edge, the building appears to be supported by concrete sill, but this too may be pier supported. The sill may outline an original building footprint. A consolidated sewer connection is evidently a recent phenomenon; although the discharge of industrial wastewater to the sanitary sewer commenced

[2] National Oceanic and Atmospheric Administration (NOAA); U.S. Fish and Wildlife Service (USFWS); Muckleshoot Indian Tribe; Puyallup Indian Tribe, Washington State Department of Ecology (acting as State lead), and the Washington State Departments of Fish & Wildlife; and Natural Resources.

in the early 1980's, smaller periodic flows evidently still discharged to the Bay in 1987 (Hart-Crowser, 1992). Parts of the building are presently leased for automobile repair and boat construction. Although the plant property is for sale, a site-wide environmental assessment has not been performed.

Superior Oil

Superior Oil, located west of Puget Sound Plywood, has owned and operated the bulk petroleum fuel storage and transfer facility adjacent to the project site since 1976. Petroleum-related operations began at the site in the mid-1920's with construction of bulk facilities by the Associated Oil Company. Ownership was transferred to Tidewater Oil in 1936 and from Tidewater to Philips Petroleum in 1966. The following year, 1967, Philips merged with Getty Oil and in 1968 the facility was transferred to Puget Sound Plywood. The facility was operated by the Northwestern Petroleum Company under lease from Puget Sound Plywood until 1976, when the facility was transferred to Superior Oil (Landau, 1993).

Contaminated soil was first noted as such at the facility in 1980 during the drilling of geotechnical borings in the vicinity of the four tanks in the northwest corner of the facility, an area referred to as Compound 4. Monitoring wells were installed at the site in 1982 and a recovery well was drilled and placed in operation in 1984. Additional activity at the site has included the installation of a spill containment system; the installation of additional wells to investigate migration through sewer pipeline backfill along D St.; and the installation of 15 additional wells and abandonment of previously drilled wells in 1993 during a Phase I Remedial Investigation. In 1995, pilot recovery well testing was carried out in well S-7[3] to evaluate recovery rates from groundwater in the shoreline area adjacent to Foss Waterway.

Free product at a thickness equal to or greater than 0.01 feet has been documented in well S-11 on Superior Oil property in the vicinity of the southern boundary of the proposed resource area (Figure Ov-3). Free product is absent from both wells located within the boundaries of the resource area, S-21 and S-15. Dissolved contamination is likewise largely absent from wells S-21 and S-15 but present in S-11. Soil contamination is largely absent from wells S-11 (off-site) and S-15 (on-site) but present in well S-4 (off-site) near the Foss waterway (Landau, 1993).

[3] In separate technical reports, monitoring wells on the Superior Oil property and sample stations in the mouth of Middle Waterway have been named using the prefix "MW." In Figure Ov-3, Superior Oil wells have been renamed and given the prefix "S", so that well S-7 in Figure Ov-3 corresponds to MW-7 in Superior Oil Phase II Remedial Investigation Report.

State Lands

The area north of the Superior Oil and Puget Sound Plywood properties - that is, the area north of the Inner Harbor Line - is owned by the State of Washington and managed by the Washington State Department of Natural Resources. Until 1995 and for some years previous, the property within the proposed management area was leased by the State to Puget Sound Plywood and was used by that company for log storage. In (approximately) 1970, 1.1 acres of the lease area was filled by Puget Sound Plywood and the land converted to upland storage uses. This area is presently vacant; monitoring wells have been installed in this area by Superior Oil, discussed in a previous section of this report.

By 1994, Puget Sound Plywood had ceased utilizing the property and had initiated discussions with a third party interested in using the lease area for log storage. At the request of the then-Washington State Department of Fisheries, a dive survey was undertaken to documents site conditions prior to application for a permit under the state hydraulic code (Carmen, personal communication). The dive survey discovered the presence of two eelgrass beds approximately one to one-and-one-half acres in extent spanning most of the width of the property in a band slightly below mean lower low water. The eelgrass is divided into two beds by a deep area (the "hole") in the center of the lease area. The hole may have been created by scour resulting from log handing practices centered in that area.

Eelgrass provides spawning and rearing habitat for commercially important fish and crustacean species, is home to a highly diverse community of benthic invertebrates, and together with associated epibenthic flora provides the primary source of carbon and energy in the shallow coastal habitats where it occurs. The importance of eelgrass in the estuary stems in part from its ability to trap sediment in nearshore environments, thereby creating stability and structure in what would otherwise be continually shifting sand (Schultz, 1990). The importance of eelgrass has been widely reported. Kruckeberg (1991) describes the value of eelgrass in the following passage from *The Natural History of Puget Sound Country*:

> *A wide variety of sea life is harbored in the protective tangle of the eelgrass beds. The plant turns a monotonous stretch of mud and sand into a living landscape where potential microhabitats are vastly multiplied. New places to live are created: the surfaces of leaves, nooks, in the crotches of stems, crevices in the flowering stalks, and a labyrinth of holes and tiny cracks where the creeping rhizomes enter the mud. And even without settling down on some part of the eelgrass plant itself, swimming and floating life, from plankters to fish, hover and scuttle about in the elfin forest. Herein lies an oft-repeated ecological truth: the presence of plants (or animals) creates homes and ways of life for other animals and plants. In the case of eelgrass meadows in Puget Sound,*

Phillips found copious growth of diatoms and other algae on the eelgrass blades. The plant-on-plant existence, so widespread in the plant kingdom, on land as well as in the sea, is called epiphytism, and the tenant on the host plant is the epiphyte. Keeping company with the tiny piggy back algae (the epiphytes) is an array of animals: sea anemones, marine worms, snails, limpets, crabs, and fish. A monoculture it may be to the casual human observer, but for its tenants, the eelgrass pasture is a rich assemblage of many kinds of organisms, living, eating, and dying here.

The importance of any single eelgrass community in Commencement Bay may be due in part to its scarcity. While Padilla Bay near Anacortes in North Puget Sound is host to some 3500 hectares (7000 acres) of eelgrass (Simenstad, 1991), the Puget Sound Atlas indicates that very little eelgrass exists in the Commencement Bay Area with none mapped in the vicinity of the mouth of the Puyallup River (Washington State Department of Natural Resources, 1991). Such beds may have been filled during the expansion of the industrial area or impacted by the re-routed and magnified sediment and water discharges from the Puyallup River and may now be re-establishing on a new, pro-grading delta in conjunction with improved environmental conditions. Two important conditions that have presumably improved in the lease area since log storage ceased are ambient light and substrate conditions.[4]

The City of Tacoma sampled intertidal sediments on state-owned aquatic land adjacent to the Puget Sound Plywood property on three occasions in 1995. The City initially sampled in March at Stations 1, 2 and 3. Subsequent laboratory analysis indicated levels exceeding EPA sediment quality objectives for PCBs at Station 1 and copper at Station 2 (Table Ov-1).

The following month, April, the City sampled Stations 5 and 7 within 100 feet of Station 1, station 6 near a small outfall beneath the building, and station 4 on top of Station 1, in order to characterize PCB concentrations in the vicinity of Station 1 and near a possible discharge point. PCB concentrations at Station 1/4 were confirmed by the station 4 sample. PCBs were not detected at the other stations sampled, suggesting that the contaminant is isolated.

In May, the City established Stations 8 and 9 near Station 2 and sampled both stations for metals to characterize copper concentrations in the vicinity of station 2. Neither sample exceeded applicable metals criteria, suggesting that copper contamination at Station 2 is also isolated.

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[4] The importance of light on biological productivity is well established and Puget Sound itself has been described as a "solar-powered factory" (Strickland, 1983). The response of eelgrass to decreased levels of light was summarized by Philips (1984): "Shading experiments have shown that rapid reductions in density and standing stock occurred as a result of decreased irradiance... In California, eelgrass density decreased 18 days after the installation of shading canopies which resulted in a decrease in down-welling illuminance of 63%... After 9 months, shoot densities declined to 5% of the adjacent unshaded control. Flowering percentage was also reduced under the shading canopies."

Thea Foss Waterway

Thea Foss Waterway, formerly City Waterway, is part of the larger Commencement Bay Nearshore/Tideflats Superfund Site. The site was placed on the first interim site list in 1981 and then on the National Priority List in 1983. A Remedial Investigation Report, Feasibility Study, and Record of Decision for the site were published in 1985, 1988, and 1989, respectively (United States Environmental Protection Agency Region X, 1989). In 1994, the City of Tacoma entered into an Administrative Order on Consent for site remedial action design.

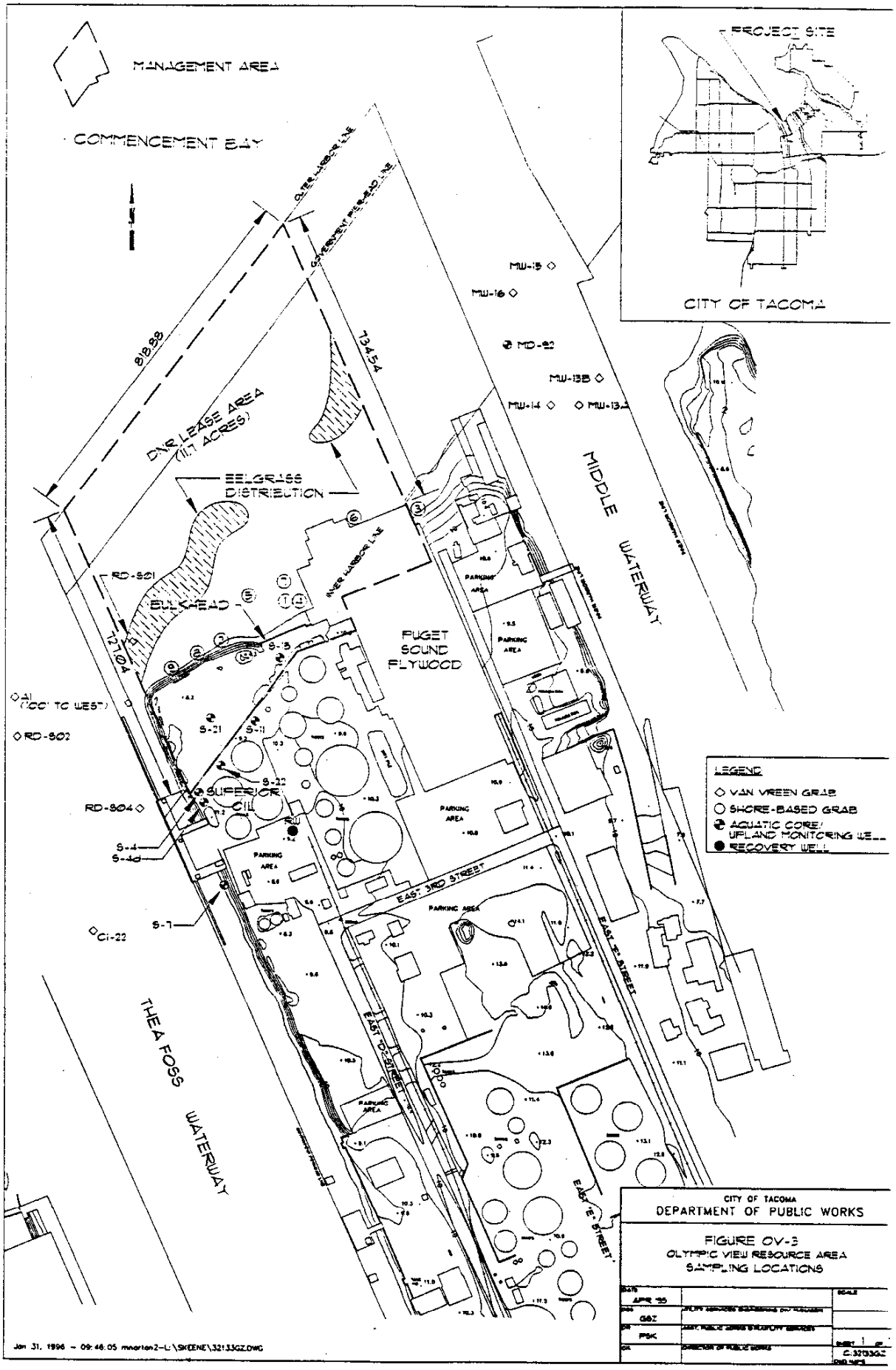
Sediments at the mouth of Thea Foss Waterway were sampled in 1984 and 1987 as part of Superfund remedial investigation studies. Sample A1 exceeded EPA Sediment Quality Objectives for lead and zinc; while Sample C-22 exceeded the EPA fluorene objective and was reported at the objective for phenanthrene and anthracene. No other exceedences were noted (Hart-Crowser, 1994).

The City of Tacoma sampled sediments at the mouth of Foss Waterway in August, 1994 as part of Round I sampling for the CERCLA Remedial Design Study. Sample RD-S04, located adjacent to the Superior Oil terminal, generally contained the highest constituent concentrations of the three samples in or adjacent to the proposed management area, but samples did not exceed sediment standards for any constituent in any sample . Sample notes for station RD-SO1, located within or adjacent to the eelgrass bed, state that the sample contained "substantial worms and shell fragments," conditions not noted for the other three samples examined for this report (Hart-Crowser, 1995).

Middle Waterway

Middle Waterway, like the Foss Waterway, is also part of the Commencement Bay Superfund Site. Work on remedial design has not yet been initiated although source control actions are scheduled to be complete by the end of 1996 (Mercuri, personal communication).

Sediments at the mouth of Middle Waterway were sampled as part of Superfund remedial investigation studies and the Simpson / St. Paul Waterway remediation and habitat restoration project. Sample exceedences of standards for arsenic, mercury and copper were noted in surface samples 13A and 13B; mercury in MW-14; and arsenic, lead and PCB in the core sample MW-92. Arsenic and copper exceedences in the core were limited to a depth of roughly 10cm. PCB exceedences were noted in the core to a depth of approximately 1 foot. The core was sampled to a depth of approximately 13 feet.


MANAGEMENT AREA
COMMENCEMENT BAY
OUTER HARBOR LINE
CONVENTIONAL PIPELINE
818.88
734.54
DNR LEASE AREA (11.7 ACRES)
EELGRASS DISTRIBUTION
INNER HARBOR LINE
BULKHEAD
RD-901
RD-902
RD-904
A1 (100' TO WEST)
S-1
S-2
S-3
S-4
S-4d
S-7
S-11
S-21
S-22
SUPERIOR OIL
C1-22
MW-15
MW-16
MW-13B
MW-14
MW-13A
MD-82
PUGET SOUND PLYWOOD
MIDDLE WATERWAY
THEA FOSS WATERWAY
EAST 3RD STREET
EAST 'D' STREET
EAST 'E' STREET
PARKING AREA
PROJECT SITE
CITY OF TACOMA
LEGEND
VAN VREEN GRAB
SHORE-BASED GRAB
AQUATIC CORE/ UPLAND MONITORING WELL
RECOVERY WELL
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
FIGURE OV-3
OLYMPIC VIEW RESOURCE AREA
SAMPLING LOCATIONS
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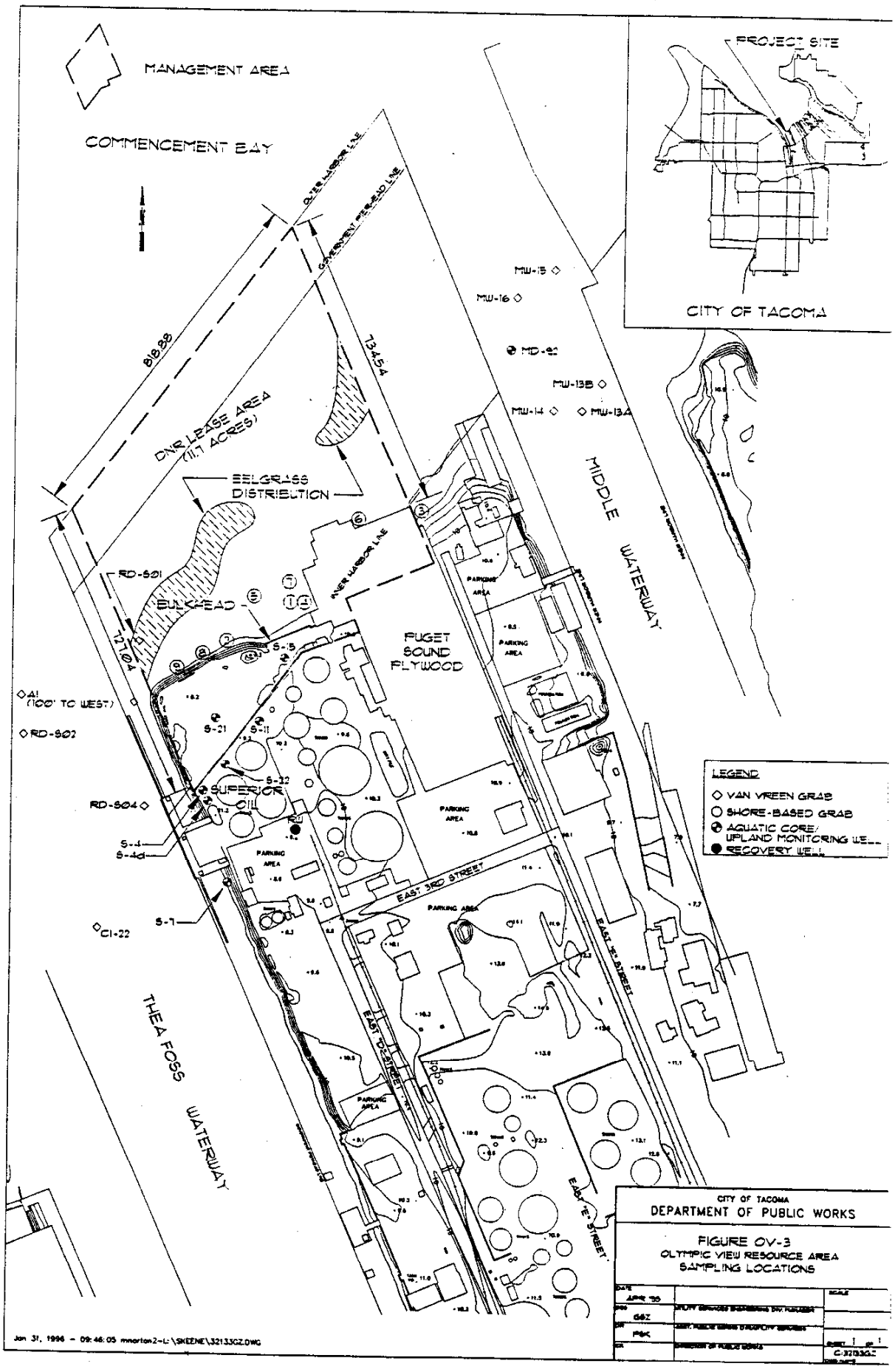
MANAGEMENT AREA
COMMENCEMENT BAY
OUTER HARBOR LINE
CONSTRUCTED PIERHEAD LINE
1888
1345.4
DNR LEASE AREA (11.7 ACRES)
EELGRASS DISTRIBUTION
RD-501
BULKHEAD
INNER HARBOR LINE
1270.4
S-15
S-21
S-11
S-22
SUPERIOR OIL
RD-504
S-4
S-4d
S-7
CI-22
A1 (100' TO WEST)
RD-502
PUGET SOUND PLYWOOD
MIDDLE WATERWAY
MW-15
MW-16
MD-01
MW-13B
MW-14
MW-13A
PARKING AREA
EAST 3RD STREET
EAST 'E' STREET
THEA FOSS WATERWAY
PROJECT SITE
CITY OF TACOMA
LEGEND
VAN VREEN GRAB
SHORE-BASED GRAB
AQUATIC CORE/ UPLAND MONITORING WELL
RECOVERY WELL
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
FIGURE OV-3
OLYMPIC VIEW RESOURCE AREA
SAMPLING LOCATIONS
DATE
APR '96
DRN
GBZ
CHK
PBK
SCALE
SHEET 1 OF 1
C-32133G
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Table Ov-1

Aquatic Sediments Sampling Data - Olympic View Resource Area

Constituents	EPA SQO	State SQS	State MCUL & CSL	Station Name/Sample Depth/Sample Date: 1 0-10cm Mar-94	2 0-10cm Mar-94	3 0-10cm Mar-94	4 0-10cm Apr-94	5 0-10cm Apr-94	6 0-10cm Apr-94	7 0-10cm Apr-94	8 0-10cm May-94	9 0-10cm May-94
Metals (mg/kg)												
Antimony	150											
Arsenic	57	57	93	7.53	26.2	58.8					16	10
Cadmium	5.1	5.1	6.7	0.5 U	0.5 U	0.69					0.4 U	0.4 U
Chromium				19.2	17.9	21.3					22	18.8
Copper	390	390	390	84.4	516	330					51.9	44.7
Lead	450	450	530	54.7	42.9	67.4					55	20
Mercury	0.59	0.41	0.59	0.187	0.024	0.338					0.08	0.05 U
Nickel	140			15.5	15.6	16.5					8.7	17
Silver	6.1	6.1	6.1	1 U	1 U	1 U					1 U	0.9 U
Zinc	410	410	960	92.8	163	274					72.9	64.5
Organics (ug/kg dry wt.)												
LPAH												
Naphthalene	2100			100 U	100 U	100 U						
Acenaphthylene	1300			100 U	100 U	100 U						
Acenaphthene	500			100 U	100 U	100 U						
Fluorene	540			100 U	100 U	100 U						
Phenanthrene	1500			240	100	260						
Anthracene	960			110	100 U	100 U						
2-Methylnapthalene	670			100 U	100 U	100 U						
Total LPAH	5200											
HPAH												
Flouranthene	2500			670	140	400						
Pyrene	3300			1100	160	520						
Benzo(a)anthracene	1600			370	110	200						
Chrysene	2800			440	230	200						
Benzo(b)fluoranthenes												
Benzo(k)fluoranthenes												
Benzofluoranthenes	3600			880	240	370						
Benzo(a)pyrene	1600			430	120	170						
Indeno(...)pyrene	690			300	100 U	100 U						
Dibenzo(a,h)anthracene	230			100	100 U	100 U						
Benzo(g,h,i)perylene	720			360	100 U	120						
Total HPAH	17,000											
PCBs												
PCB 1016				80 U	80 U	80 U	80 U	80 U	80 U	80 U		
PCB 1221				80 U	80 U	80 U	80 U	80 U	80 U	80 U		
PCB 1231				80 U	80 U	80 U	80 U	80 U	80 U	80 U		
PCB 1248				80 U	80 U	80 U	80 U	80 U	80 U	80 U		
PCB 1254				5400	80 U	80	18400	80 U	80 U	80 U		
PCB 1260				1200	80 U	80 U	Present	80 U	80 U	80 U		
Total PCBs	150			6700			18400					
Chlorinated Hydrocarbons												
1,2-Dichlorobenzene	50			10 U	10 U	10 U						
1,3-Dichlorobenzene	170			10 U	10 U	10 U						
1,4-Dichlorobenzene	110			10 U	10 U	10 U						
1,2,4-Trichlorobenzene	51											
Hexachlorobenzene	22											
Phthalates												
Dimehtyl phthalate	160			100 U	100 U	100 U						
Diethyl phthalate	200			100 U	100 U	100 U						
Di-n-Butyl phthalate	1400			180	100 U	220						
Butylbenzyl phthalate	900			100 U	100 U	100 U						
bis(2-Ethylhexyl) phthalate	1300			240 J	110 J	310 J						
Di-n-Octyl phthalate	6200			100 U	100 U	100 U						
Phenols												
Phenol	420	420	1200	100 U	100 U	100 U						
2-Methylphenol	63	63	63	100 U	100 U	100 U						
4-Methylphenol	670	670	670	100 U	100 U	100 U						
2,4-Dimethylphenol	29	29	29	100 U	100 U	100 U						
Pentachlorphenol	360	360	690	500 U	500 U	500 U						
Volatile Organics												
Trichlorethene				10 U	10 U	10 U						
Tetrachloethene	57			10 U	10 U	10 U						
Ethyl Benzene	10			10 U	10 U	10 U						
Xylenes	40			10 U	10 U	10 U						

Note: Sample # 4 was obtained from the same location as Sample # 1. PCB 1260 is present in Sample # 4 but can not be quantified due to (its) very low concentration compared to PCB 1254.

The SQO for Total PCBs is based upon human health/ bioaccumulation considerations.

The Sediment Quality Value corresponding to protection of the aquatic enviornment is 1000 ppb.

Table Ov-1

Aquatic Sediments Sampling Data - Olympic View Resource Area

Constituents	EPA SQO	State SQS	State MCUL & CSL	Station Name/Sample Depth/Sample Date: 1 0-10cm Mar-94	2 0-10cm Mar-94	3 0-10cm Mar-94	4 0-10cm Apr-94	5 0-10cm Apr-94	6 0-10cm Apr-94	7 0-10cm Apr-94	8 0-10cm May-94	9 0-10cm May-94
Miscellaneous Compounds												
Benzyl Alcohol	73	57	73	100 U	100 U	100 U						
Benzoic Acid	650	650	650	500 U	500 U	500 U						
Dibenzonfuran	540			100 U	100 U	100 U						
Hexachlorobutadiene	11			100 U	100 U	100 U						
N-Nitrisodiphenylamine	28			100 U	100 U	100 U						
Hexachloroethane												
Pesticides												
Total DDT												
DDD	16			8 U	8 U	8 U						
DDE	9			8 U	8 U	8 U						
DDT	34			8 U	8 U	8 U						
Aldrin				8 U	8 U	8 U						
Chlordane				8 U	8 U	8 U						
Dieldrin				8 U	8 U	8 U						
Heptachlor				8 U	8 U	8 U						
Lindane				8 U	8 U	8 U						
Conventionals												
Total solids (%)												
Total Vol. Solids (%)												
TOC. (% dry wt.)				1.86	3.53	1.47						
Ammonia (mg/kg)				15.1	21.3	10						
Sulfide				807	971	200						
Fines (%)												
pH in CaCl2				7.6	7.9	7.7						
pH in CaCl2				8	8.2	8.3						
Organics (mg/kg total organic carbon)												
LPAH												
Naphthalene		99	170	5 U	3 U	7 U						
Acenaphthylene		66	66	5 U	3 U	7 U						
Acenaphthene		16	57	5 U	3 U	7 U						
Fluorene		23	79	5 U	3 U	7 U						
Phenanthrene		100	480	13	3	18						
Anthracene		220	1200	6	5 U	5 U						
2-Methylnapthalene		38	64	5 U	3 U	7 U						
Total LPAH		370	780									
HPAH												
Flouranthene		160	1200	36	4	27						
Pyrene		1000	1400	59	5	35						
Benzo(a)anthracene		110	270	20	3	14						
Chrysene		110	460	24	7	14						
Benzo(b)fluoranthenes												
Benzo(k)fluoranthenes												
Benzofluoranthenes		230	450	47	7	25						
Benzo(a)pyrene		99	210	23	3	12						
Indeno(...)pyrene		34	88	16	3 U	7 U						
Dibenzo(a,h)anthracene		12	33	5	3 U	7 U						
Benzo(g,h,i)perylene		31	78	19	3	8						
Total HPAH		960	5300									
PCBs												
PCB 1016				4 U	2 U	5 U						
PCB 1221				4 U	2 U	5 U						
PCB 1231				4 U	2 U	5 U						
PCB 1248				4 U	2 U	5 U						
PCB 1254				290	2 U	5						
PCB 1260				65	2 U	5 U						
Total PCBs		12	65	355								

Exceeds applicable EPA Sediment Quality Objective or State Sediment Quality Standard

Not detected at a level above applicable EPA Sediment Quality Objective or State Sediment Quality Standard

U = The analyte was not detected at or above the reported value.

J = The associated numerical result is an estimated quantity.

UJ = The analyte was not detected at or above the estimated value.

N = There is evidence that the analyte is present.

NJ or JN = There is evidence that the analyte is present. The associated numeric value is an estimate.

P = The analyte was detected above the instrument detection limit but below the established minimum quantification limit.

K = Quantitative Value above calibration curve. Sample was diluted, resulting values are reported.

D = Sample Dilution Required

RI: 1985 Remedial Investigation, Tetra Tech, Inc. for EPA

Table Ov-2

Aquatic Sediments Sampling Data - Olympic View Resource Area Vicinity

Constituents	EPA SQO	State SQS	State MCUL & CSL	*Station Name/Sample Depth/Sample Date* C1-22 0.07ft 1/1/84	A1 2ft 2/1/89	RD-S01 0-10cm 8/20/94	RD-S02 0-10cm 8/20/94	RD-S04 0-10cm 8/22/94	MD13-A 0-0.07ft 1985	MW13-B 0-1ft 1988	MW-14 0-1ft 1988
Metals (mg/kg)											
Antimony	150			0.22	3.8	6.6 R	14.7 J	25.5 J	1.9		
Arsenic	57	57	93	8	19.1	4.7	7.1	10.2	67	94	31
Cadmium	5.1	5.1	6.7	1.5	2.9	0.26 U	0.32	0.73	3.5		
Chromium				8.4	106	13.1 J	16.8 J	23.9 J	14		
Copper	390	390	390	40	203	28.6	45	80.4	554	547	349
Lead	450	450	530	49	854	23.4 J	33.1 J	58.4 J	190	443	107
Mercury	0.59	0.41	0.59	0.22	0.15	0.1	0.16	0.26	3.4	2.48	2.46
Nickel	140			9	65	9.6 J	12.8 J	17.7 J	12		
Silver	6.1	6.1	6.1	0.4	1.78	0.49 U	0.49 U	0.83	0.26		
Zinc	410	410	960	44	426	35.6	48.7	90.6	158	298	105
Organics (ug/kg dry wt.)											
LPAH											
Naphthalene	2100			1200	93 U	39 J	130	310	1200		
Acenaphthylene	1300			330	93 U	25 J	210	210 J	600		
Acenaphthene	500			190	93 U	91 U	83 J	140 J	190		
Fluorene	540			820	93 U	91 U	120	210 J	230		
Phenanthrene	1500			1500	370	130	1100	940	830		
Anthracene	960			960	110	74 J	720	510	380		
2-Methylnapthalene	670			460	93 U	16 J	50 J	120 J	320		
Total LPAH	5200			4920	712.5	375	2413	2440	3430		
HPAH											
Flouranthene	2500			1500	710	250	1200	1600	1300		
Pyrene	3300			2600	640	240	1400	1900	1600		
Benzo(a)anthracene	1600			1300	260	110	740	800	530		
Chrysene	2800			1300	360	140	810	1200	530		
Benzo(b)fluoranthenes					220	240	990	1600			
Benzo(k)fluoranthenes					220	240	990	1600			
Benzofluoranthenes	3600			2800	440	480	1980	3200	940		
Benzo(a)pyrene	1600			1200	250	120	760	910	770		
Indeno(...)pyrene	690			410	95	48 J	270	450	360		
Dibenzo(a,h)anthracene	230			150	96	20 J	100	160 J	110		
Benzo(g,h,i)perylene	720			380	110	46 J	220	440	340		
Total HPAH	17,000			11640	2961	1454	7480	10660	6480		
PCBs											
PCB 1016											
PCB 1221											
PCB 1231											
PCB 1248											
PCB 1254											
PCB 1260											
Total PCBs	150			80	382	28 J	48 U	37 J	38		
Chlorinated Hydrocarbons											
1,2-Dichlorobenzene	50			5 U	93 U	91 U	96 U	240 U	14		
1,3-Dichlorobenzene	170			5 U	93 U	91 U	96 U	240 U	5 U		
1,4-Dichlorobenzene	110			27	340	91 U	96 U	240 U	40		
1,2,4-Trichlorobenzene	51			5 U	190 U	91 U	96 U	240 U	5 U		
Hexachlorobenzene	22			10 U	93 U	2.3 U	2.5 U	3.1 U	10 U		
Phthalates											
Dimehtyl phthalate	160			50 U	93 U	91 U	96 U	240 U	50 U		
Diethyl phthalate	200			10 U	93 U	91 U	96 U	240 U	10 U		
Di-n-Butyl phthalate	1400			20	93 U	22 J	24 J	240 U	350 Z		
Butylbenzyl phthalate	900			25	93 U	91 U	14 J	240 U	25 U		
bis(2-Ethylhexyl) phthalate	1300			430		94 U	170 U	680	300		
Di-n-Octyl phthalate	6200			25 U		460 U	480 U	1200 U	25 U		
Phenols											
Phenol	420	420	1200	30	190 U	91 U	96 UJ	240 U	200 Z		
2-Methylphenol	63	63	63	38	93 U	91 U	96 UJ	240 UJ	36		
4-Methylphenol	670	670	670	150	93 U	91 UJ	96 UJ	240 UJ	450		
2,4-Dimethylphenol	29	29	29	10 U	190 U	91 U	96 U	240 U	10 U		
Pentachlorphenol	360	360	690	50 U	470 U	91 UJ	96 U	240 UJ	49		
Volatile Organics											
Trichlorethene					2.8 U	4 U	NA	5 U			
Tetrachloethene	57				2.4 U	4 U	NA	5 U			
Ethyl Benzene	10				7.8	4 U	NA	5 U			
Xylenes	40				14	4 U	NA	5 U			
Miscellaneous Compounds											
Benzyl Alcohol	73	57	73	29	470 U	91 U	96 U	240 U	23		
Benzoic Acid	650	650	650	25 U	930 U	460 U	480 U	1200 U	25 U		
Dibenzonfuran	540			170	93 U	91 U	36 J	120 J	190		

Table Ov-2
Aquatic Sediments Sampling Data - Olympic View Resource Area Vicinity

Constituents	EPA SQO	State SQS	State MCUL & CSL	*Station Name/Sample Depth/Sample Date* CI-22 0.07ft 1/1/84	A1 2ft 2/1/89	RD-S01 0-10cm 8/20/94	RD-S02 0-10cm 8/20/94	RD-S04 0-10cm 8/22/94	MD13-A 0-0.07ft 1985	MW13-B 0-1ft 1988	MW-14 0-1ft 1988
Hexachlorobutadiene	11			25 U	190 U	1.3 J	1.7 J	3.1 U	25 U		
N-Nitrisodiphenylamine	28			5 U	93 U	91 U	96 U	240 U	5 U		
Hexachloroethane				50 U	190 U						
Pesticides											
Total DDT											
DDD	16			25 U		4.5 U	4.8 U	6 U			
DDE	9			25 U		4.5 U	4.8 U	6 U			
DDT	34			25 U		4.5 U	4.8 U	6 U			
Aldrin				25 U	4 U	2.3 U	2.5 U	3.1 U			
Alpha Chlordane						2.3 U	2.5 U	3.1 U			
Gamma Chlordane						1.2 J	2.5 U	3.1 U			
Chlordane				25 U	14 U						
Dieldrin				25 U	13 U	4.5 U	4.8 U	6 U			
Heptachlor				25 U	2 U	2.3 U	2.5 U	3.1 U			
Lindane				25 U	2 U	2.3 U	2.5 U	3.1 U			
Conventionals											
Total solids (%)				70.4	81.5	71.53	66.68	53.48	63	44.8	59.8
Total Vol. Solids (%)				3.2	2.48	2.47	3.26	6.87			
TOC. (% dry wt.)				1.21	0.813	0.9	1.3	3.5	7.26	5.78	3.54
Gravel (%)									35.4	N/M	N/M
Sand (%)									40.1	N/M	N/M
Silt (%)									17.5	N/M	N/M
Clay(%)									7.1	N/M	N/M
Fines (%)											
Ammonia as N (ppm)					50.6	25.7	31.5	103			
Sulfide (ppm)				1.6	171.8	21.5 J	109 J	586 J			
pH						7.43	7.41	7.91			
Organics (mg/kg total organic carbon)											
LPAH											
Naphthalene	99	170		99	11 U	4 J	10	9	17		
Acenaphthylene	66	66		27	11 U	3 J	16	6 J	8		
Acenaphthene	16	57		16	11 U	10 U	6 J	4 J	3		
Fluorene	23	79		68	11 U	10 U	9	6 J	3		
Phenanthrene	100	480		124	46	14	85	27	11		
Anthracene	220	1200		79	14	8 J	55	15	5		
2-Methylnapthalene	38	64		38	11 U	2 J	4 J	3 J	4		
Total LPAH	370	780		407	88	42	186	70	47		
HPAH											
Flouranthene	160	1200		124	87	28	92	46	18		
Pyrene	1000	1400		215	79	27	108	54	22		
Benzo(a)anthracene	110	270		107	32	12	57	23	7		
Chrysene	110	460		107	44	16	62	34	7		
Benzo(b)fluoranthenes					27	27	76	46			
Benzo(k)fluoranthenes					27	27	76	46			
Benzofluoranthenes	230	450		231	54	53	152	91	13		
Benzo(a)pyrene	99	210		99	31	13	58	26	11		
Indeno(...)pyrene	34	88		34	12	5 J	21	13	5		
Dibenzo(a,h)anthracene	12	33		12	12	2 J	8	5 J	2		
Benzo(g,h,i)perylene	31	78		31	14	5 J	17	13	5		
Total HPAH	960	5300		962	364	162	575	305	89		
PCBs											
PCB 1016											
PCB 1221											
PCB 1231											
PCB 1248											
PCB 1254											
PCB 1260											
Total PCBs	12	65							38		

[ ] Exceeds applicable EPA Sediment Quality Objective or State Sediment Quality Standard

[ ] Not Detected & detection limit above applicable EPA Sediment Quality Objective or State Sediment Quality Standard

N/M = Not Measured

B =Analyte found in blank as well as sample, indicating potential laboratory contamination

E = Estimated value

J = Estimated value which is less than the specified detection limit

S =Value represents the sum of individual compounds, with nondetects summed at their full value

U = Compound undetected at the detection limit shown

X = Estimated value based on isotope-labeled standard recovery less than 10 percent

Z = Value corrected for blank contributions, but resulting value still exceeds detection limit

Table Ov-2
Aquatic Sediments Sampling Data - Olympic View Resource Area Vicinity

Constituents	EPA SQO	State SQS	State MCUL & CSL	*Station Name/Sample Depth/Sample Date* MW-14 1-2ft 1988	MW-15 0-1ft 1988	MD-92 0-0.07ft 1988	MD-92 0.07-0.13ft 1988	MD-92 0.16-0.23ft 1988	MD-92 0.33-.039ft 1988	MD-92 0.66-0.72ft 1988	MD-92 1.05-1.11ft 1988
Metals (mg/kg)											
Antimony	150					10	26	4.6	2.9	3.4	24
Arsenic	57	57	93	7.1	21.3	162	495	92	46	48	12
Cadmium	5.1	5.1	6.7			2	4.3	1.5	1.3	1 U	3.7 U
Chromium						15	19	32	30	22	19
Copper	390	390	390	56.1	129	481	848	451	372	704	135
Lead	450	450	530	42	71	102	585	185	93	126	29
Mercury	0.59	0.41	0.59	0.32	0.42	3	1.8	1.3	1.3	1.8	0.44
Nickel	140					22	21	30	30	25	14
Silver	6.1	6.1	6.1			4.1	7.8	1.6	0.73	0.57 U	2.8 U
Zinc	410	410	960	57.1	80.8	201	398	319	175	128	60
Organics (ug/kg dry wt.)											
LPAH											
Naphthalene	2100					110 Z	42 Z	53	180	170	110
Acenaphthylene	1300					23	26	50 U	27	19	15
Acenaphthene	500					56 Z	19	13	50	28	21
Fluorene	540					72 Z	46	17	63	35	21
Phenanthrene	1500					350 Z	94 Z	130 Z	380	150	6 Z
Anthracene	960					100 Z	42	18	110	45	25
2-Methylnapthalene	670										
Total LPAH	5200					711	269	281	810	447	198
HPAH											
Flouranthene	2500					730 Z	240	210	690	180	58
Pyrene	3300					640 Z	240	180	880	280	72
Benzo(a)anthracene	1600					190 Z	85	55	330	73	24
Chrysene	2800					440 Z	150	130 X	840	160	44
Benzo(b)fluoranthenes											
Benzo(k)fluoranthenes											
Benzofluoranthenes	3600					580 ZS	150	140	810 S	195 S	39
Benzo(a)pyrene	1600					180 Z	110	70 X	460	82	27
Indeno(...)pyrene	690					99	59	50 U	240	54 E	13
Dibenzo(a,h)anthracene	230					41	24	50 U	75	16 E	30 U
Benzo(g,h,i)peryiene	720					92	61	50 U	230	53 E	11
Total HPAH	17,000					2992	1119	935	4555	1093	318
PCBs											
PCB 1016											
PCB 1221											
PCB 1231											
PCB 1248											
PCB 1254											
PCB 1260											
Total PCBs	150					150 EU	45 E	350 E	240	160 E	100 U
Chlorinated Hydrocarbons											
1,2-Dichlorobenzene	50					2	20 U	50 U	30 U	40 U	30 U
1,3-Dichlorobenzene	170					10 U	20 U	50 U	30 U	40 U	30 U
1,4-Dichlorobenzene	110					2	20 U	50 U	30 U	41	30 U
1,2,4-Trichlorobenzene	51					10 U	20 U	50 U	30 U	40 U	30 U
Hexachlorobenzene	22					10 U	20 U	40 U	30 U	40 U	30 U
Phthalates											
Dimehtyl phthalate	160					10 U	10	50 U	30 U	40 U	5
Diethyl phthalate	200					10 B	20 B	50 U	6	40 U	48 Z
Di-n-Butyl phthalate	1400					10 B	180 Z	50 B	27 X	28	130 Z
Butylbenzyl phthalate	900					10 U	27 Z	50 U	30 U	40 U	30 U
bis(2-Ethylhexyl) phthalate	1300					230 Z	150 Z	50 B	9 X	40 U	900 Z
Di-n-Octyl phthalate	6200					12 Z	300	21 B	30 U	40 U	13 B
Phenols											
Phenol	420	420	1200			74 Z	5 B	50 B	80	67 X	30 B
2-Methylphenol	63	63	63			21	20 U	50 U	30 U	4	30 U
4-Methylphenol	670	670	670			320 Z	74	19	30 U	240	44
2,4-Dimethylphenol	29	29	29			60 U	100 U	300 U	100 U	160 U	25
Pentachlorphenol	360	360	690			10 B	63 Z	40 U	30 U	40 U	30 U
Volatile Organics											
Trichlorethene											
Tetrachloethene	57										
Ethyl Benzene	10										
Xylenes	40										
Miscellaneous Compounds											
Benzyl Alcohol	73	57	73			10 B	100 U	50 U	100 U	160 U	26 E
Benzoic Acid	650	650	650			10 U	100 B	260 B	160	86	84 B
Dibenzonfuran	540					51 Z	27	13	53	34	21

Table Ov-2
Aquatic Sediments Sampling Data - Olympic View Resource Area Vicinity

Constituents	EPA SQO	State SQS	State MCUL & CSL	MW-14 1-2ft 1988	MW-15 0-1ft 1988	MD-92 0-0.07ft 1988	MD-92 0.07-0.13ft 1988	MD-92 0.16-0.23ft 1988	MD-92 0.33-.039ft 1988	MD-92 0.66-0.72ft 1988	MD-92 1.05-1.11ft 1988
						Station Name/Sample Depth/Sample Date					
Hexachlorobutadiene	11					10 U	20 U	50 U	30 U	40 U	30 U
N-Nitrisodiphenylamine	28					58 Z	20 U	63 Z	69 Z	56 Z	30 B
Hexachloroethane											
Pesticides											
Total DDT											
DDD	16										
DDE	9										
DDT	34										
Aldrin											
Alpha Chlordane											
Gamma Chlordane											
Chlordane											
Dieldrin											
Heptachlor											
Lindane											
Conventionals											
Total solids (%)				65.2	55.8	74	68	58.5	46.5	45	54
Total Vol. Solids (%)											
TOC. (% dry wt.)				2.69	2.71	2.6	1.86	5.9	3.98	4.76	3.93
Gravel (%)				N/M	N/M	25.6	7.3	25.5	8.2	1.6	2.5
Sand (%)				N/M	N/M	46.9	43	25.4	41.5	42	39.4
Silt (%)				N/M	N/M	19	34.7	35.4	35.8	41.8	45.4
Clay(%)				N/M	N/M	8.5	15	13.8	14.5	14.6	12.7
Fines (%)											
Ammonia as N (ppm)											
Sulfide (ppm)											
pH											
Organics (mg/kg total organic carbon)											
LPAH											
Naphthalene	99	170				4.23 Z	2.26 Z	0.90	4.52	3.57	2.80
Acenaphthylene	66	66				0.88	1.40	0.85 U	0.68	0.40	0.38
Acenaphthene	16	57				2.15 Z	1.02	0.22	1.26	0.59	0.53
Fluorene	23	79				2.77 Z	2.47	0.29	1.58	0.74	0.53
Phenanthrene	100	480				13.46 Z	5.05 Z	2.20 Z	9.55	3.15	0.15 Z
Anthracene	220	1200				3.85 Z	2.26	0.31	2.76	0.95	0.64
2-Methylnapthalene	38	64									
Total LPAH	370	780				27.35	14.46	4.76	20.35	9.39	5.04
HPAH											
Flouranthene	160	1200				28.08 Z	12.90	3.56	17.34	3.78	1.48
Pyrene	1000	1400				24.62 Z	12.90	3.05	22.11	5.88	1.83
Benzo(a)anthracene	110	270				7.31 Z	4.57	0.93	8.29	1.53	0.61
Chrysene	110	460				16.92 Z	8.06	2.20 X	21.11	3.36	1.12
Benzo(b)fluoranthenes											
Benzo(k)fluoranthenes											
Benzofluoranthenes	230	450				22.31 ZS	8.06	2.37	20.35 S	4.10 S	0.99
Benzo(a)pyrene	99	210				6.92 Z	5.91	1.19 X	11.56	1.72	0.69
Indeno(...)pyrene	34	88				3.81	3.17	0.85 U	6.03	1.13 E	0.33
Dibenzo(a,h)anthracene	12	33				1.58	1.29	0.85 U	1.88	0.34 E	0.76 U
Benzo(g,h,i)perylene	31	78				3.54	3.28	0.85 U	5.78	1.11 E	0.28
Total HPAH	960	5300				115.08	60.16	15.85	114.45	22.96	8.09
PCBs											
PCB 1016											
PCB 1221											
PCB 1231											
PCB 1248											
PCB 1254											
PCB 1260											
Total PCBs	12	65				150 BJ	45 E	350 E	240	160 E	100 U

Exceeds applicable EPA Sediment Quality Objective or State Sediment Quality Standard

Not Detected & detection limit above applicable EPA Sediment Quality Objective or State Sediment Quality Standard

N/M = Not Measured

B =Analyte found in blank as well as sample, indicating potential laboratory contamination

E = Estimated value

J = Estimated value which is less than the specified detection limit

S =Value represents the sum of individual compounds, with nondetects summed at their full value

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X = Estimated value based on isotope-labeled standard recovery less than 10 percent

Z = Value corrected for blank contributions, but resulting value still exceeds detection limit

Table Ov-2
Aquatic Sediments Sampling Data - Olympic View Resource Area Vicinity

Constituents	EPA SQO	State SQS	State MCUL & CSL	*Station Name/Sample Depth/Sample Date* MD-92 2.30-2.80ft 1988	MD-92 6.10-6.60ft 1988	MD-92 9.20-9.70ft 1988	MD-92 10.80-11.30ft 1988
Metals (mg/kg)							
Antimony	150			1.3 U	1.2 U	1.3 U	1.2 U
Arsenic	57	57	93	6 U	6 U	7 U	6 U
Cadmium	5.1	5.1	6.7	1.3 U	1.2 U	1.3 U	1.2 U
Chromium				9.3	8	9.3	6.3
Copper	390	390	390	14	10	13	8
Lead	450	450	530	3.2 U	3 U	3.3 U	3 U
Mercury	0.59	0.41	0.59	0.13 U	0.12 U	0.13 U	0.12 U
Nickel	140			10	10	15	9.3
Silver	6.1	6.1	6.1	0.77 U	0.73 U	0.78 U	0.74 U
Zinc	410	410	960	20	15	33	17
Organics (ug/kg dry wt.)							
LPAH							
Naphthalene	2100			34 Z	9 B	6	4
Acenaphthylene	1300			30 U	10 U	10 U	10 U
Acenaphthene	500			5 X	10 U	10 U	10 U
Fluorene	540			6 X	10 U	1	2
Phenanthrene	1500			39 Z	21 Z	22	2
Anthracene	960			11 B	5 B	10 U	10 U
2-Methylnapthalene	670						
Total LPAH	5200			125	65	59	38
HPAH							
Flouranthene	2500			24 B	10 B	10 U	3
Pyrene	3300			63 Z	22 Z	6	3
Benzo(a)anthracene	1600			10 X	7	10 U	2
Chrysene	2800			16 X	11	8	5
Benzo(b)fluoranthenes							
Benzo(k)fluoranthenes							
Benzofluoranthenes	3600			19 X	7	20 US	20 US
Benzo(a)pyrene	1600			15 X	6	10 U	10 U
Indeno(...)pyrene	690			30 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	230			30 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	720			30 U	10 U	10 U	10 U
Total HPAH	17,000			237	93	94	73
PCBs							
PCB 1016							
PCB 1221							
PCB 1231							
PCB 1248							
PCB 1254							
PCB 1260							
Total PCBs	150			20 U	20 U	100 U	13 U
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	50			30 U	10 U	10 U	10 U
1,3-Dichlorobenzene	170			30 U	10 U	10 U	10 U
1,4-Dichlorobenzene	110			30 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	51			30 U	10 U	10 U	10 U
Hexachlorobenzene	22			30 U	10 U	10 U	10 U
Phthalates							
Dimehtyl phthalate	160			30 U	10 U	3	4
Diethyl phthalate	200			6 B	2 B	120	35
Di-n-Butyl phthalate	1400			11 B	4 B	320	110
Butylbenzyl phthalate	900			23 E	18 E	190 E	10 U
bis(2-Ethylhexyl) phthalate	1300			800 X	310	570 Z	58
Di-n-Octyl phthalate	6200			12 B	3 B	11	3
Phenols							
Phenol	420	420	1200	6 B	6 B	10 B	65
2-Methylphenol	63	63	63	30 U	10 U	10 U	10 U
4-Methylphenol	670	670	670	30 U	10 U	10 U	2
2,4-Dimethylphenol	29	29	29	200 U	50 U	70 U	30 U
Pentachlorphenol	360	360	690	30 U	7	10 U	10 U
Volatile Organics							
Trichlorethene							
Tetrachloethene	57						
Ethyl Benzene	10						
Xylenes	40						
Miscellaneous Compounds							
Benzyl Alcohol	73	57	73	200 U	50 U	31 E	120 E
Benzoic Acid	650	650	650	200 Z	50 B	82 Z	55 E
Dibenzonfuran	540			11 X	3	3	4

Table Ov-2
Aquatic Sediments Sampling Data - Olympic View Resource Area Vicinity

	EPA SQO	State SQS	State MCUL & CSL	*Station Name/Sample Depth/Sample Date* MD-92 2.30-2.80ft 1988	MD-92 6.10-6.60ft 1988	MD-92 9.20-9.70ft 1988	MD-92 10.80-11.30ft 1988
Constituents							
Hexachlorobutadiene	11			30 U	10 U	10 U	10 U
N-Nitrisodiphenylamine	28			30 B	10 B	18 Z	12
Hexachloroethane							
Pesticides							
Total DDT							
DDD	16						
DDE	9						
DDT	34						
Aldrin							
Alpha Chlordane							
Gamma Chlordane							
Chlordane							
Dieldrin							
Heptachlor							
Lindane							
Conventionals							
Total solids (%)							
Total Vol. Solids (%)							
TOC. (% dry wt.)				0.69	0.14	0.19	0.06
Gravel (%)				0.3	0.6	0	0
Sand (%)				91.3	95.9	82.9	97.3
Silt (%)				5.8	2.4	12.7	1.8
Clay(%)				2.6	1.2	4.5	0.9
Fines (%)							
Ammonia as N (ppm)							
Sulfide (ppm)							
pH							
Organics (mg/kg total organic carbon)							
LPAH							
Naphthalene	99	170		4.93 Z	6.43 B	3.16	6.67
Acenaphthylene	66	66		4.35 U	7.14 U	5.26 U	16.67 U
Acenaphthene	16	57		0.72 X	7.14 U	5.26 U	16.67 U
Fluorene	23	79		0.87 X	7.14 U	0.53	3.33
Phenanthrene	100	480		5.65 Z	15.00 Z	11.58	3.33
Anthracene	220	1200		1.59 B	3.57 B	5.26 U	16.67 U
2-Methylnapthalene	38	64					
Total LPAH	370	780		18.12	46.43	31.05	63.33
HPAH							
Flouranthene	160	1200		3.48 B	7.14 B	5.26 U	5.00
Pyrene	1000	1400		9.13 Z	15.71 Z	3.16	5.00
Benzo(a)anthracene	110	270		1.45 X	5.00	5.26 U	3.33
Chrysene	110	460		2.32 X	7.86	4.21	8.33
Benzo(b)fluoranthenes							
Benzo(k)fluoranthenes							
Benzofluoranthenes	230	450		2.75 X	5.00	10.53 US	33.33 US
Benzo(a)pyrene	99	210		2.17 X	4.29	5.26 U	16.67 U
Indeno(...)pyrene	34	88		4.35 U	7.14 U	5.26 U	16.67 U
Dibenzo(a,h)anthracene	12	33		4.35 U	7.14 U	5.26 U	16.67 U
Benzo(g,h,i)perylene	31	78		4.35 U	7.14 U	5.26 U	16.67 U
Total HPAH	960	5300		34.35	66.43	49.47	121.67
PCBs							
PCB 1016							
PCB 1221							
PCB 1231							
PCB 1248							
PCB 1254							
PCB 1260							
Total PCBs	12	65		20 U	20 U	100 U	13 U

Exceeds applicable EPA Sediment Quality Objective or State Sediment Quality Standard

Not Detected & detection limit above applicable EPA Sediment Quality Objective or State Sediment Quality Standard

N/M = Not Measured

B =Analyte found in blank as well as sample, indicating potential laboratory contamination

E = Estimated value

J = Estimated value which is less than the specified detection limit

S =Value represents the sum of individual compounds, with nondetects summed at their full value

U = Compound undetected at the detection limit shown

X = Estimated value based on isotope-labeled standard recovery less than 10 percent

Z = Value corrected for blank contributions, but resulting value still exceeds detection limit

III PROJECT CONCEPT PLAN

The City is proposing to preserve and restore resource area habitats and develop public access at the project site to further the project goals outlined in Section I. Activities associated with the restoration actions are depicted in Figure Ov-4 and include:

i. Acquisition of 0.7 acres of property bordering state aquatic lands.

ii. Execution of a lease for 11.7 acres of Washington State aquatic lands within the proposed resource area.

iii. Removal of that portion of the Puget Sound Plywood building that presently extends over intertidal areas to restore daylight and associated primary productivity to these aquatic lands.

iv. Establishment of public access to and within the resource area consistent with habitat management objectives.

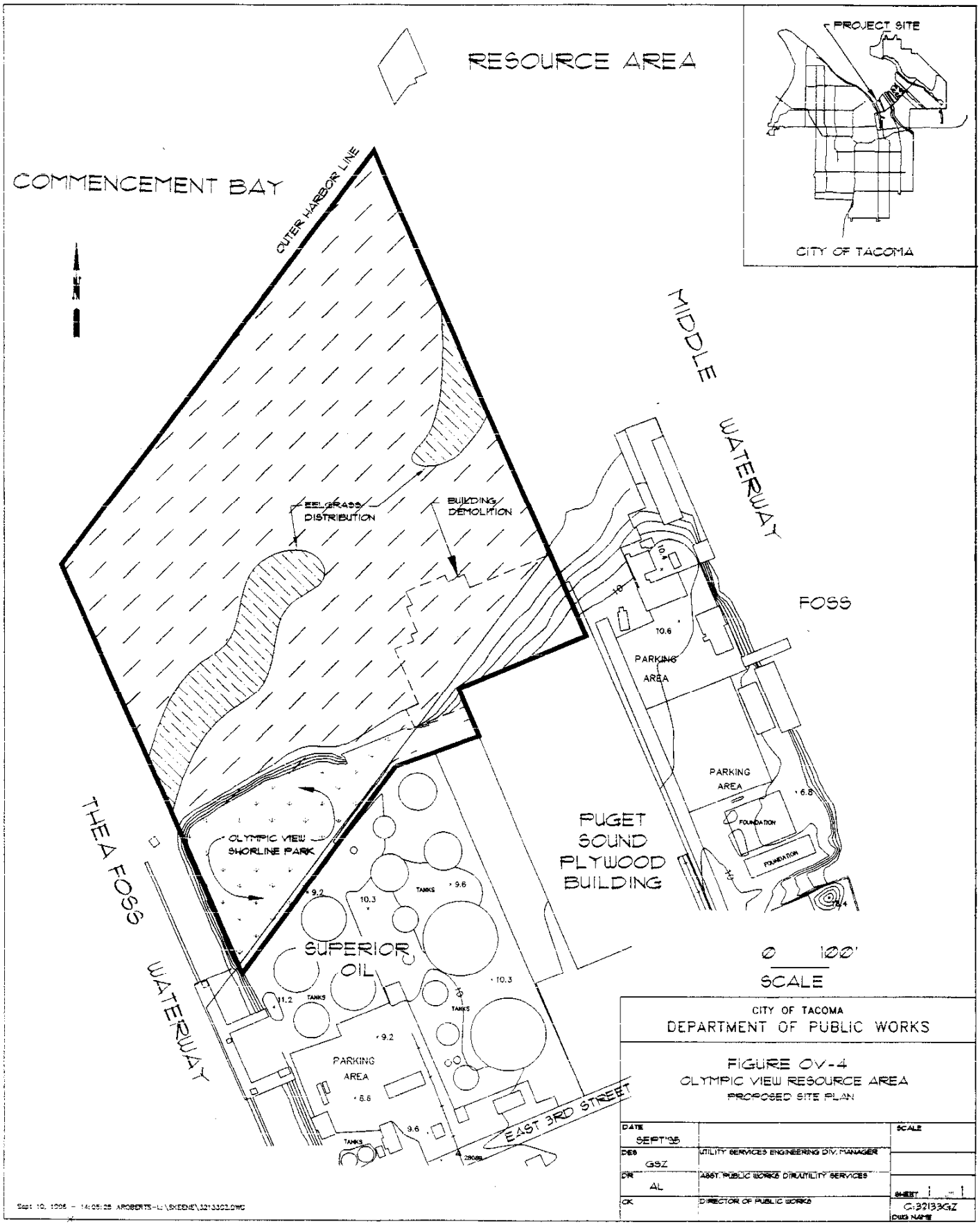
v. Coordination of additional restoration actions with natural resource agencies.

vi. Monitoring and maintenance of the management area to ensure project success.

These project elements are discussed below.

Acquisition of Property

Representatives of the City and agents of Puget Sound Plywood have agreed in concept to terms under which the City would acquire a portion of the company's property totaling 0.7 acres. The City of Tacoma initiated discussions with Puget Sound Plywood and its agents regarding the acquisition of shoreline property bordering Washington State lands in early 1995. The company was approached after the City had learned of the presence of eelgrass in the nearshore area, and as the result of internal City discussion over how best to protect this aquatic resource. Discussions have been complicated by the corporation's prior filing for protection from creditors, both secured and unsecured, the presence of intervening assignees, and assumed liability associated with proximity to two Superfund problem area.



CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

FIGURE OV-4
OLYMPIC VIEW RESOURCE AREA
PROPOSED SITE PLAN

DATE SEPT'95		SCALE
DES GSZ	UTILITY SERVICES ENGINEERING DIV. MANAGER	
DR AL	ASST. PUBLIC WORKS DIR/UTILITY SERVICES	SHEET 1 OF 1
CK	DIRECTOR OF PUBLIC WORKS	G:32133GZ DWG NAME

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The 0.7 acres which the City is acquiring varies from approximately 15 feet to 140 feet in width and is approximately 800 feet in length. The property is bounded by the Inner Harbor Line on the north and Superior Oil property and the remainder of the Puget Sound Plywood property on the south, and includes approximately 0.4 acres of upland property and 0.3 acres of intertidal aquatic property.

The Puget Sound Plywood building extends over most of the intertidal land and also over state-owned intertidal aquatic lands. That portion of the building constructed over the intertidal area is supported by piers. The purchase and sale agreement speaks to the eventual reconstruction of the building to restore these aquatic lands to daylight. The City will manage its aquatic lands together with leased State lands for habitat protection and restoration.

The upland property adjoins 1+ acres of filled state aquatic lands north of the Superior Oil site. The City will manage its upland property together with the one acre of filled State aquatic lands for public access to the shoreline area.

Execution of a lease for Washington State Aquatic Lands

The City has applied for a lease of the 11.7 acres of state-owned aquatic lands within the proposed management area. The City approached the Department of Natural Resources regarding a property lease shortly after the presence of the eelgrass was discovered on the state lands. After initial meetings and additional research, the City concluded that existing regulations would allow for such a lease and submitted an application in May, 1995. In November, the Department responded favorably, indicating that the lease could be granted. The City is presently reviewing with the Department proposed harbor area lease provisions. As stated in the lease application, the City expects to manage state lands for public access and the protection and restoration of aquatic habitat.

Removal of the Puget Sound Plywood building presently extending over intertidal areas.

As part of the acquisition of the private property, the City will remove that portion of the building that extends over intertidal areas; that is, over state lands and the newly acquired city property. To maintain the building in a serviceable condition, the City will construct a new wall at the City of Tacoma / Puget Sound Plywood property line. The pilings presently supporting the building and pilings in the area outside of the building footprint would be cut at the mudline and the cut portion would be removed. Some pilings would be left in place if requested by resource agencies for their value as hard substrate, perches, as a means to discourage boat traffic in the area, or to serve as a breakwater for the restored beach. The purpose of the removal of the

approximately 40,000 square feet of building is to restore sunlight to the intertidal and subtidal areas that are presently shaded.

That part of the foundation assumed to be a concrete sill appears to extend beyond the location of the new wall in one location a distance of about 30 feet and width of approximately seventeen feet - possibly in the location of the well of a former plywood press. The City will confer with natural resource agency staff and the staff of the Washington State Department of Natural Resources on the retention, reconfiguration, or demolition of this element of the building. In general, removal from the beach area would be consistent with restoration objectives but creative re-use might also present a cost-effective option.

The City will remove all solid waste (e.g. concrete) debris presently in evidence beneath the building during or subsequent to over-water building removal.

Establishment of public access to and within the resource area consistent with habitat management objectives.

Public access improvements would be developed both to and within the site as defined under the terms of the DNR lease agreement. The City expects that public access would be provided primarily in the upland area where improvements would be made similar to those which exist along Ruston Way (e.g. benches, lawn area). The City would also explore with resource agency staff the development of water access for sea kayaks or similar hand launched boats, which could be provided in a defined area. One such location that might be made available for such access would be at the terminus of an existing City easement extending north from the vicinity of East 3rd and East F Streets. To limit impacts to adjoining property owners the easement would likely be opened to foot traffic only or would be open only for loading but not parking. A second alternative is to develop an easement on the west side of the Puget Sound Plywood property.

Access for kayakers provides an opportunity to develop for the site a constituency among the bay-going public. Local classes for sea-kayaking have expanded in Tacoma in the past two years, with classes now offered by Tahoma Outdoor Pursuits and the local chapter of the Mountaineers. Both groups have incorporated wilderness ethics materials into all classes to help ensure that individuals remain sensitive to habitat attributes. These classes also provide a pool from which potential stewards can be recruited.

Existing monitoring wells at the site would be retained for on-going monitoring by Superior Oil, with possible modifications to eliminate above ground protrusions. The City will work with Superior Oil to ensure continued access to these wells and to allow for additional wells as requested for site monitoring. The length of time over which such access will be required is

presently unknown. Wells in existence at the site were installed at the request of the Washington State Department of Ecology (Coleman, personal communication).

Coordination of additional restoration actions with natural resource agencies.

Staff of the various federal, state and tribal governments have expressed an interest in evaluating additional restoration actions at the site in conjunction or subsequent to City sponsored improvments. Such activities have not yet been defined but would be funded by these governments. Project development would be coordinated by either City staff or by the staff of one of the other government offices. The City would work closely with the resource agency and tribal staff to implement such additional restoration measures consistent with Department of Natural Resources lease provisions.

Provisions for monitoring and maintenance

The City has included in the project budget funds sufficient for monitoring and maintenance of the project over a five year period. Funds have been budgeted for maintenance and the implementation of recommendations developed through project monitoring at an amount equal to 25% of the expected construction cost, or 5% per annum for five years. Additional funds are available for the monitoring of site conditions annually for five years.

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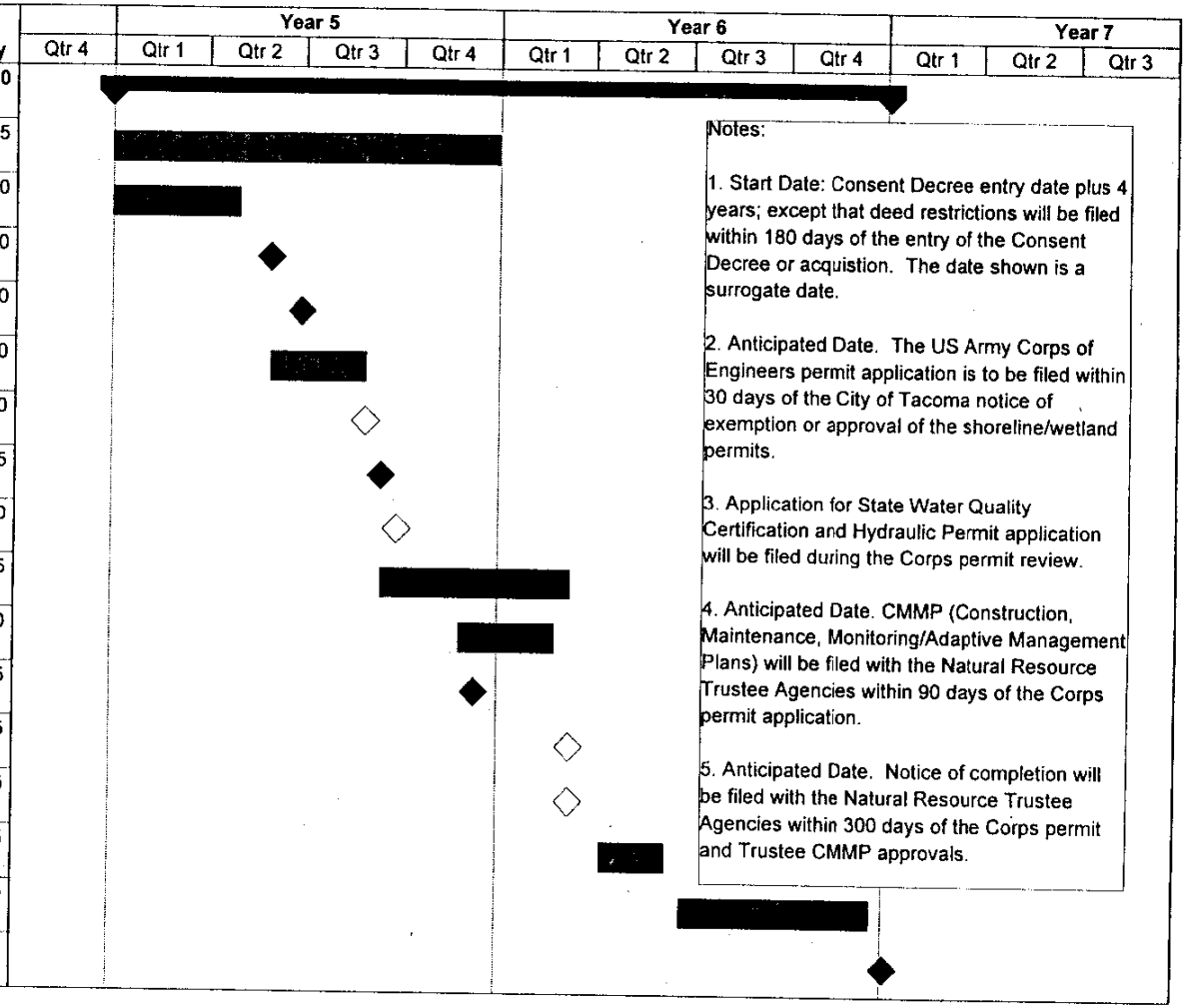
Appendix A

Project Schedule

CITY OF TACOMA
OLYMPIC VIEW RESOURCE AREA
PROJECT SCHEDULE

ID	Task Name	Start Day	Finish Day
1	**Olympic View Resource Area**	1	0
2	Baseline Habitat Data Collection	0	365
3	Preliminary Design	0	120
4	Shoreline/Wetland Permit Applications	150	150
5	Deed Restrictions Filed (1)	180	180
6	Shoreline/Wetland Permit Review	150	240
7	City Shoreline/Wetland Permit Approval	240	240
8	Corps Of Engineers Permit Application (2)	255	255
9	State Shoreline Permit Approval	270	270
10	Corps Of Engineers Permit Review (3)	255	435
11	Final Design	330	420
12	CMMP Submittal (4)	345	345
13	Corps Of Engineers Permit Approval	435	435
14	CMMP Approval	435	435
15	Bid and Contract	465	525
16	Construction (5)	540	720
17	Notice of Completion (6)	735	735



Notes:

1. Start Date: Consent Decree entry date plus 4 years; except that deed restrictions will be filed within 180 days of the entry of the Consent Decree or acquistion. The date shown is a surrogate date.

2. Anticipated Date. The US Army Corps of Engineers permit application is to be filed within 30 days of the City of Tacoma notice of exemption or approval of the shoreline/wetland permits.

3. Application for State Water Quality Certification and Hydraulic Permit application will be filed during the Corps permit review.

4. Anticipated Date. CMMP (Construction, Maintenance, Monitoring/Adaptive Management Plans) will be filed with the Natural Resource Trustee Agencies within 90 days of the Corps permit application.

5. Anticipated Date. Notice of completion will be filed with the Natural Resource Trustee Agencies within 300 days of the Corps permit and Trustee CMMP approvals.

Project: Olympic View
Date: Mar 6 '97

Task ■ Summary ■ Date ◇
Milestone Date ◆ Multiple Dates ▦

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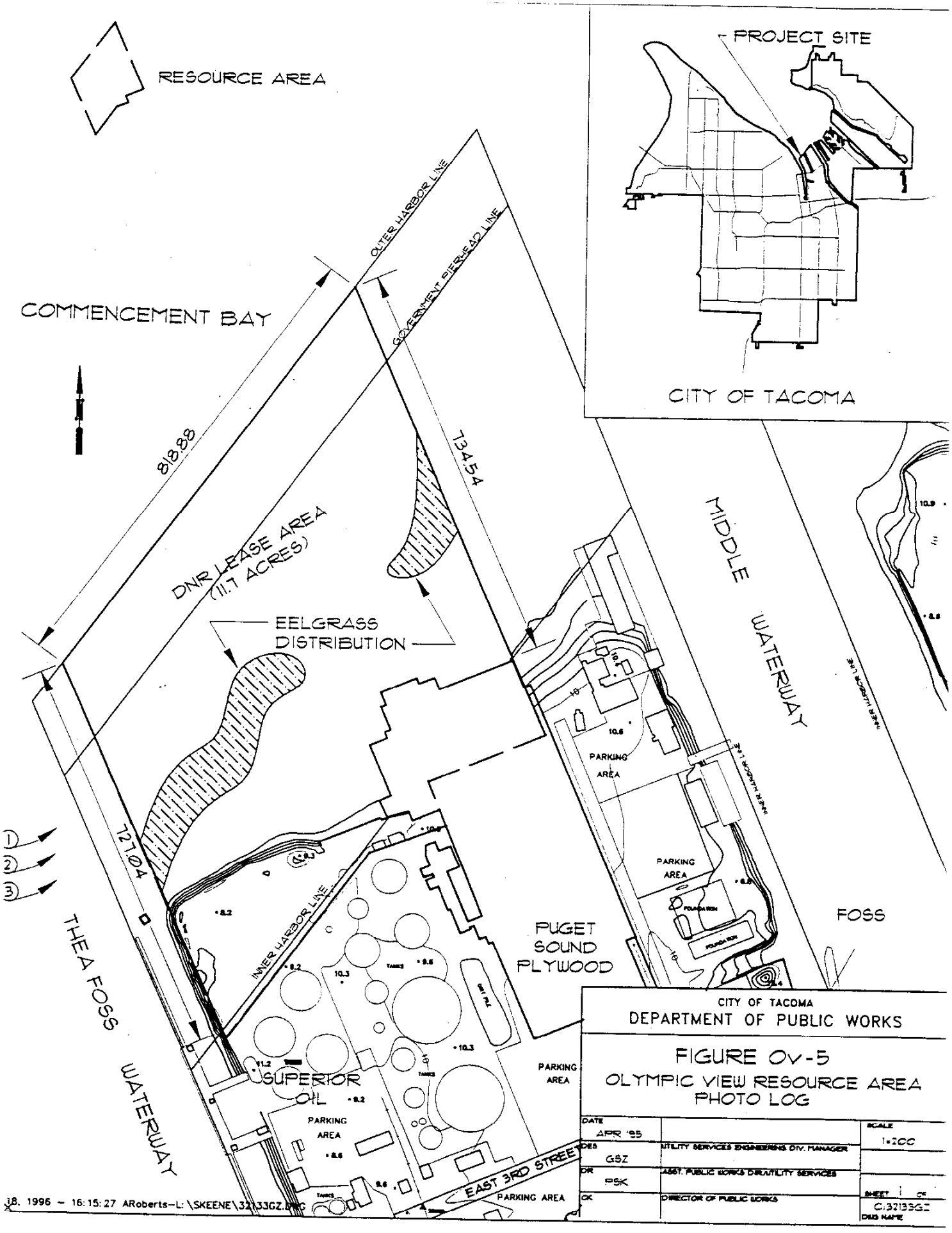
Appendix B

Photo Log



CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

FIGURE OV-5
OLYMPIC VIEW RESOURCE AREA PHOTO LOG

DATE APR '95		SCALE 1=200
DES GSZ	UTILITY SERVICES ENGINEERING DIV. MANAGER	
DR PSK	ASST. PUBLIC WORKS DIR./UTILITY SERVICES	
CK	DIRECTOR OF PUBLIC WORKS	SHEET 1 OF
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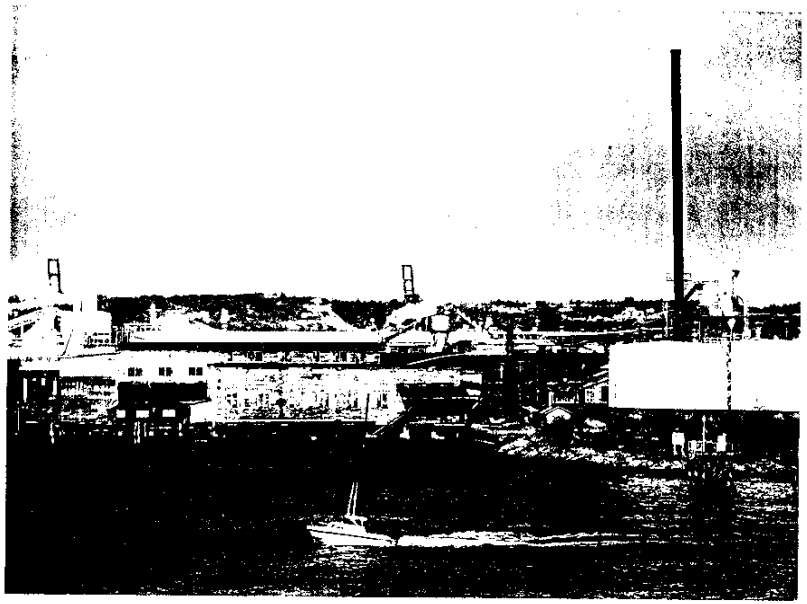

Olympic View Resource Area

Photo 1 (Above, Left)	View north from Stadium Way. Proposed park area is on photo right.
Photo 2 (Above, Right)	View north from Stadium Way
Photo 3 (Right)	View north from Stadium Way. (telephoto lens). The portion of the building to be demolished dominates this photograph and is to the left of the rusted, reddish-brown stack. The majority of the building is not visible but is to the right.