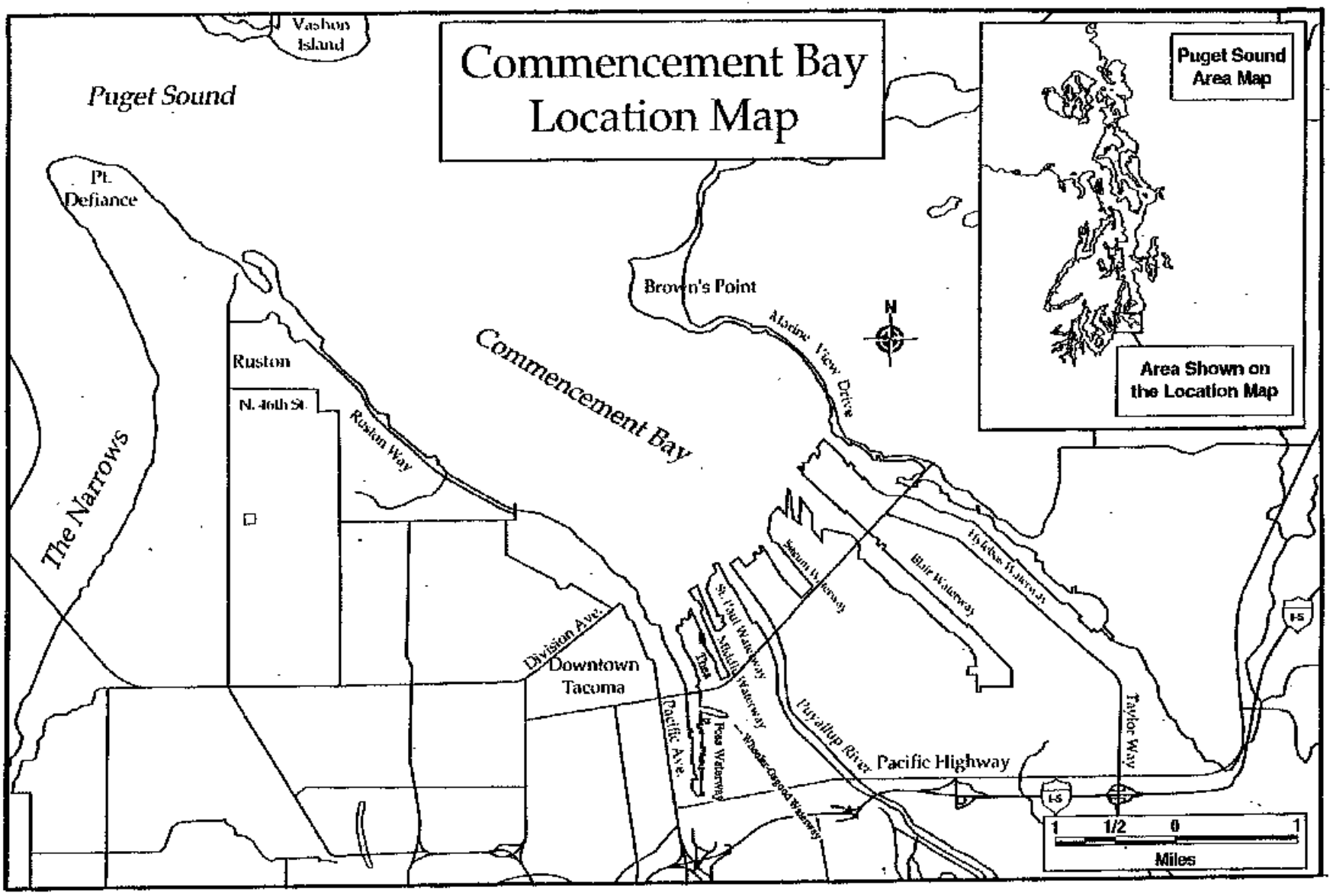
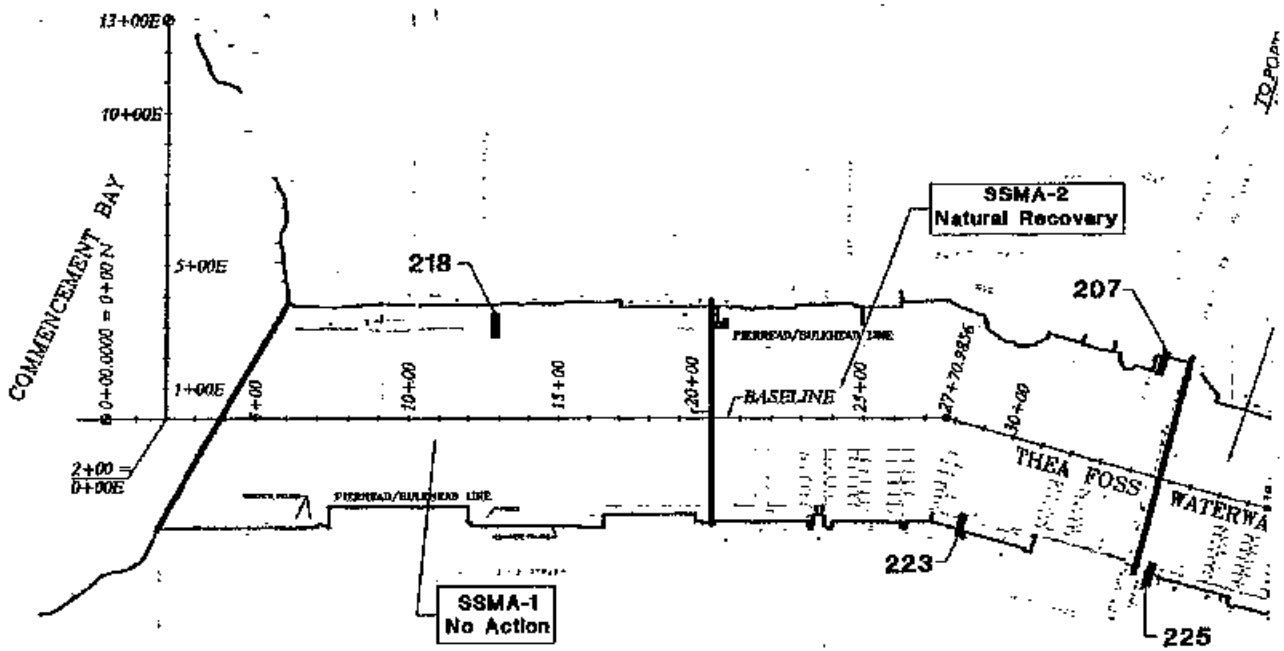

Commencement Bay
Location Map
Puget Sound
Vashon Island
Pt. Defiance
The Narrows
Ruston
N. 46th St.
Ruston Way
Commencement Bay
Brown's Point
Marine View Drive
N
Puget Sound Area Map
Area Shown on the Location Map
Division Ave.
Downtown Tacoma
Pacific Ave.
Thea
Foss Waterway
St. Paul Waterway
Middle Waterway
Sitcum Waterway
Wheeler-Osgood Waterway
Puyallup River
Blair Waterway
Hylebos Waterway
Pacific Highway
Taylor Way
I-5
1 1/2 0 1
Miles

Figure 1

# Major SSMA Divisions




Regional Map

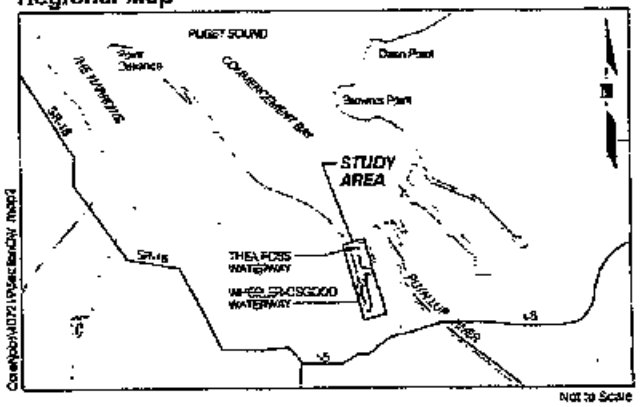
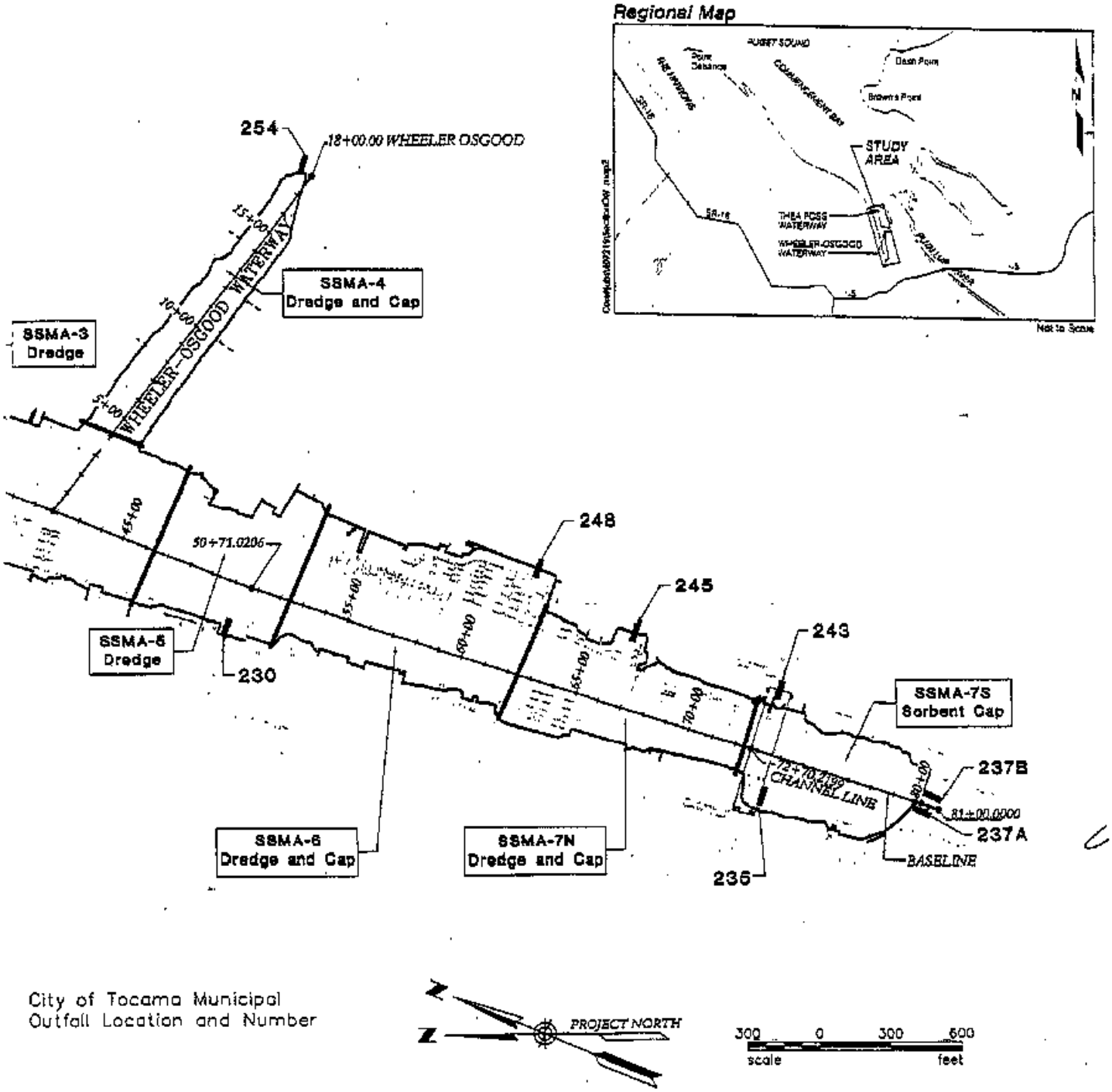



Figure 2A
Thea Foss Waterway Cleanup Area




City of Tacoma Municipal
Outfall Location and Number

HARTCROWSER

Figure 2B

Thea Foss and Wheeler Osgood
Waterways Cleanup Areas

# SSMA 7 Proposed Remedial Design

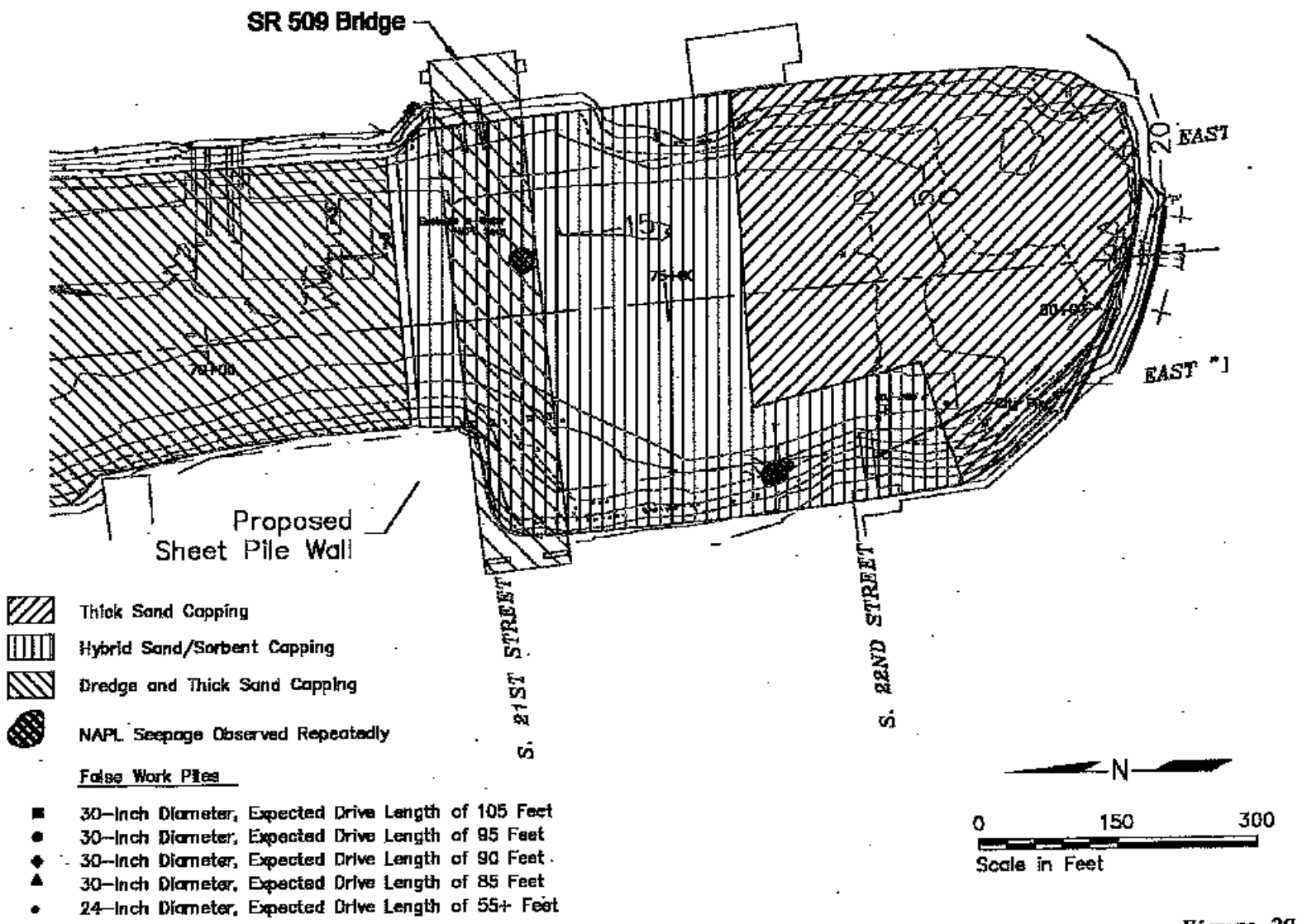



**Figure 2C**

**Head of Thea Foss Waterway Cleanup Areas**

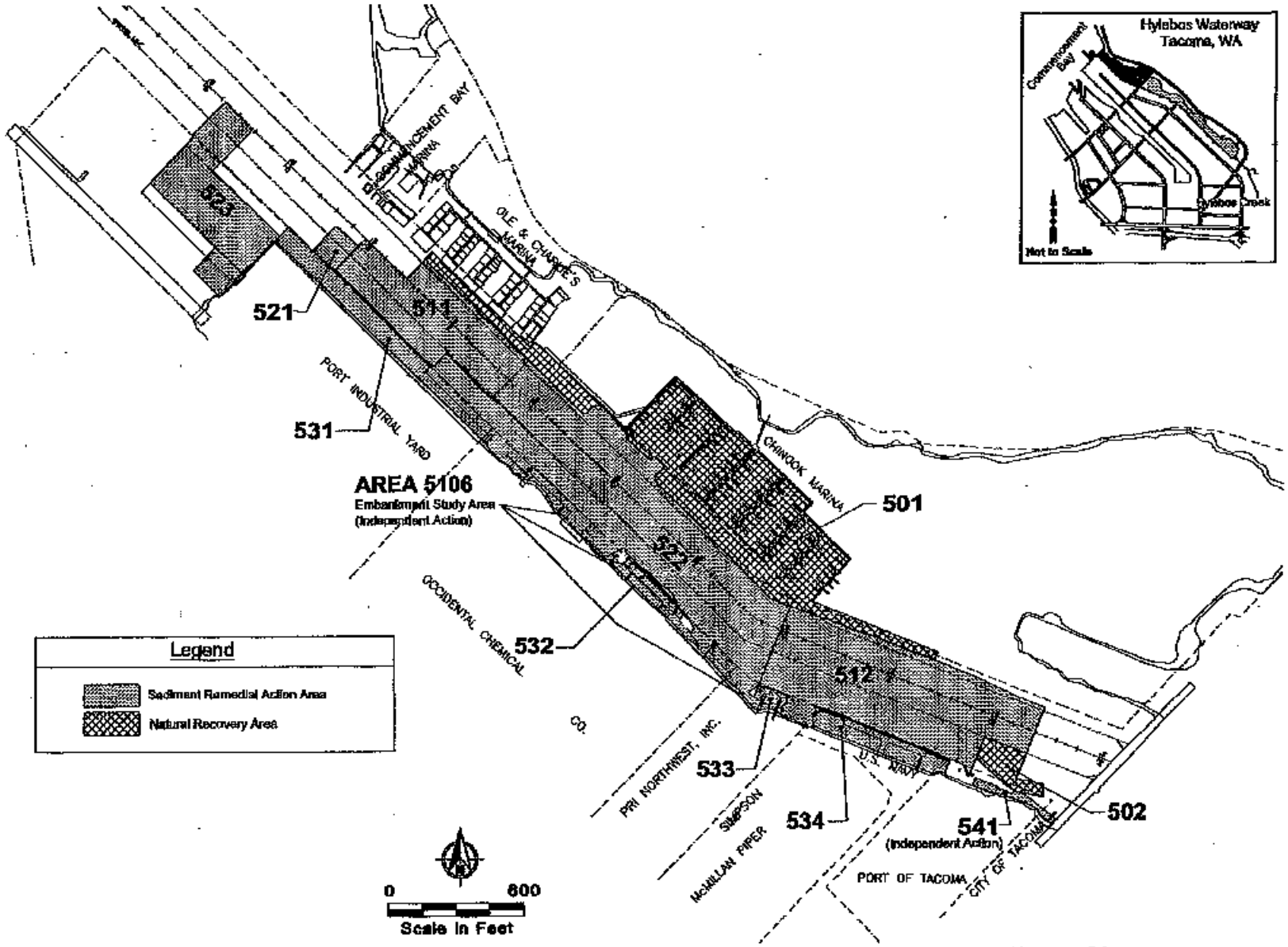
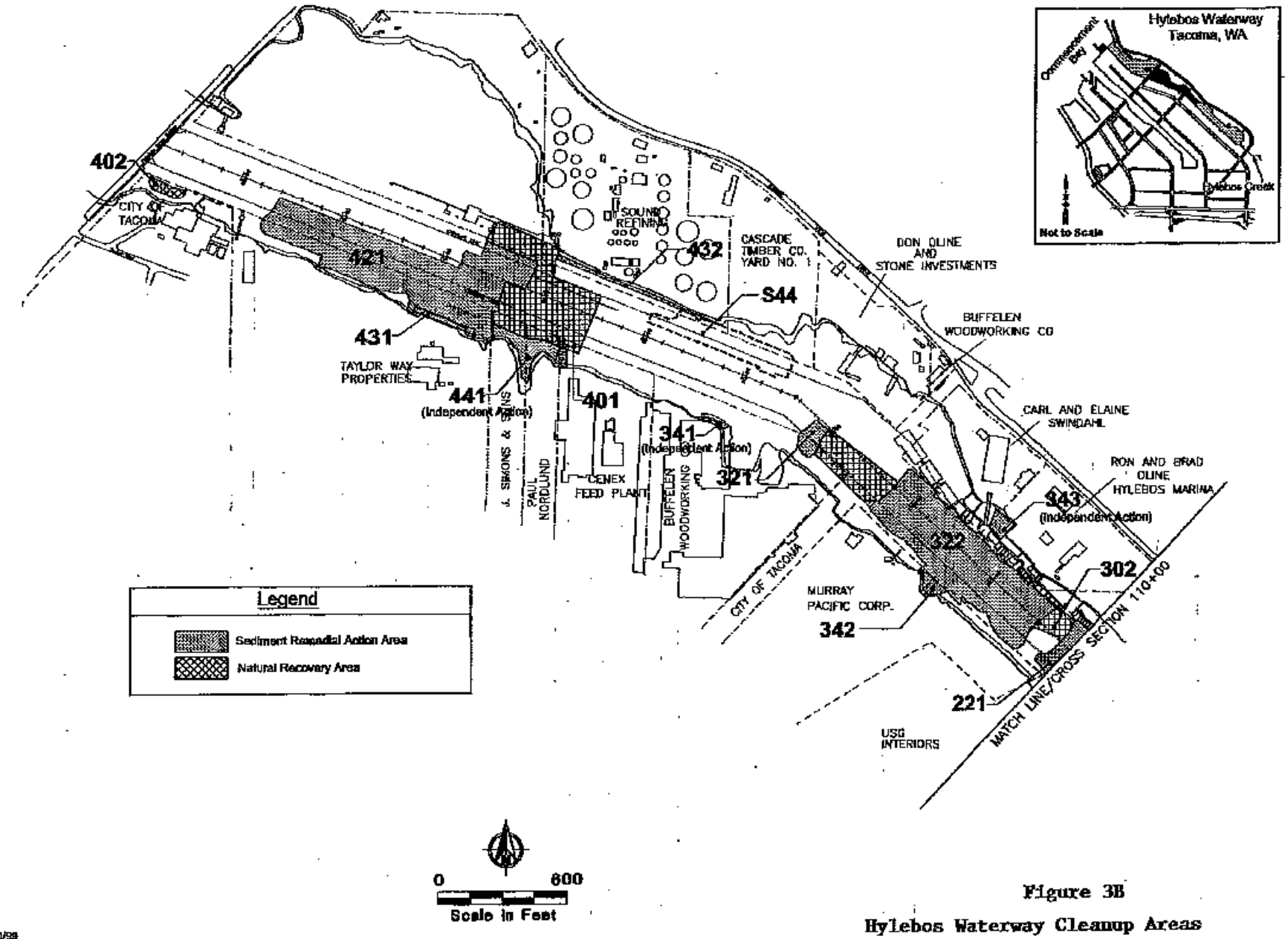



Figure 3A

Hylebos Waterway Cleanup Areas

10/20/99




10/20/99

**Figure 3B**

**Hylebos Waterway Cleanup Areas**

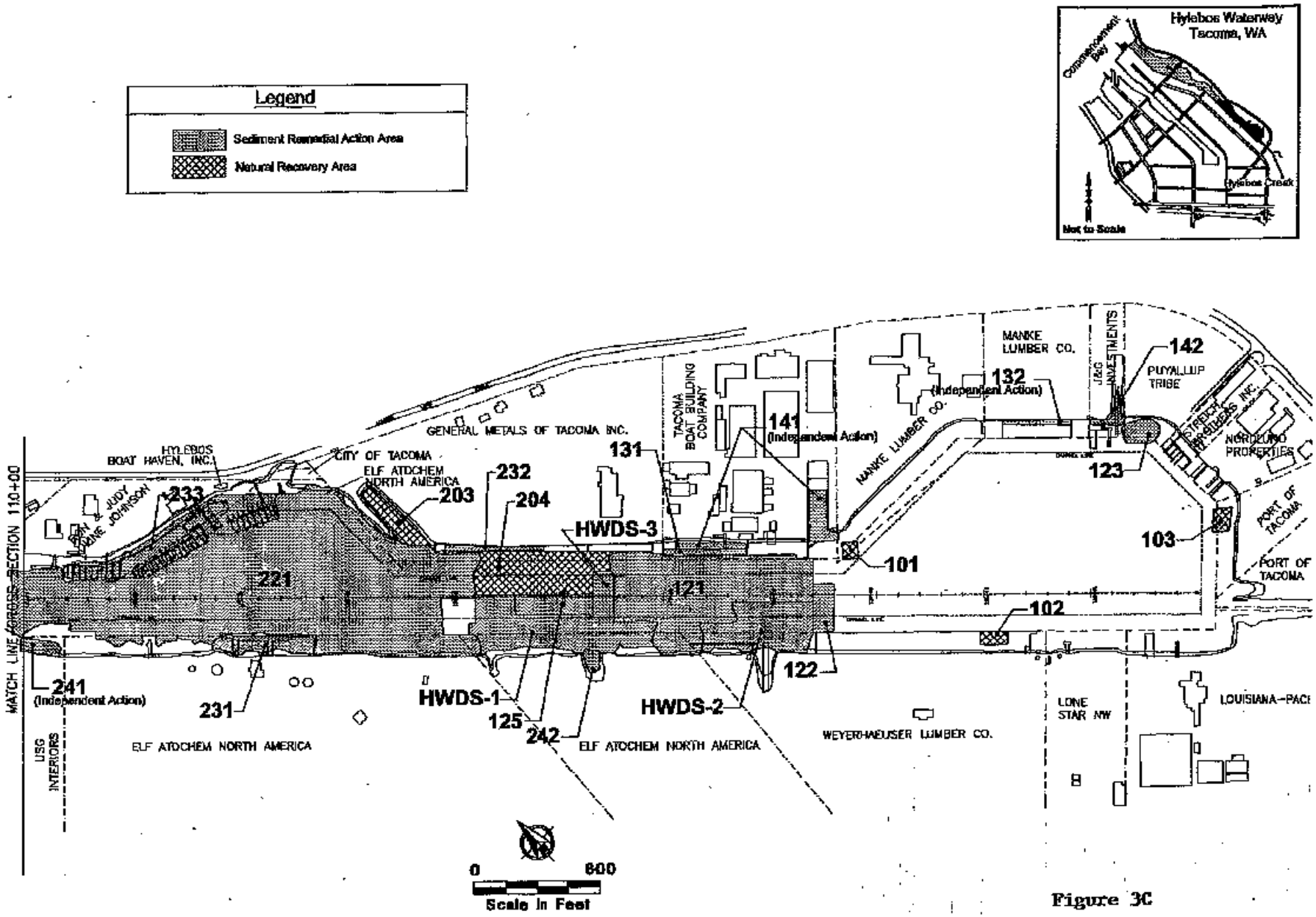



Figure 3C

Hylebos Waterway Cleanup Areas

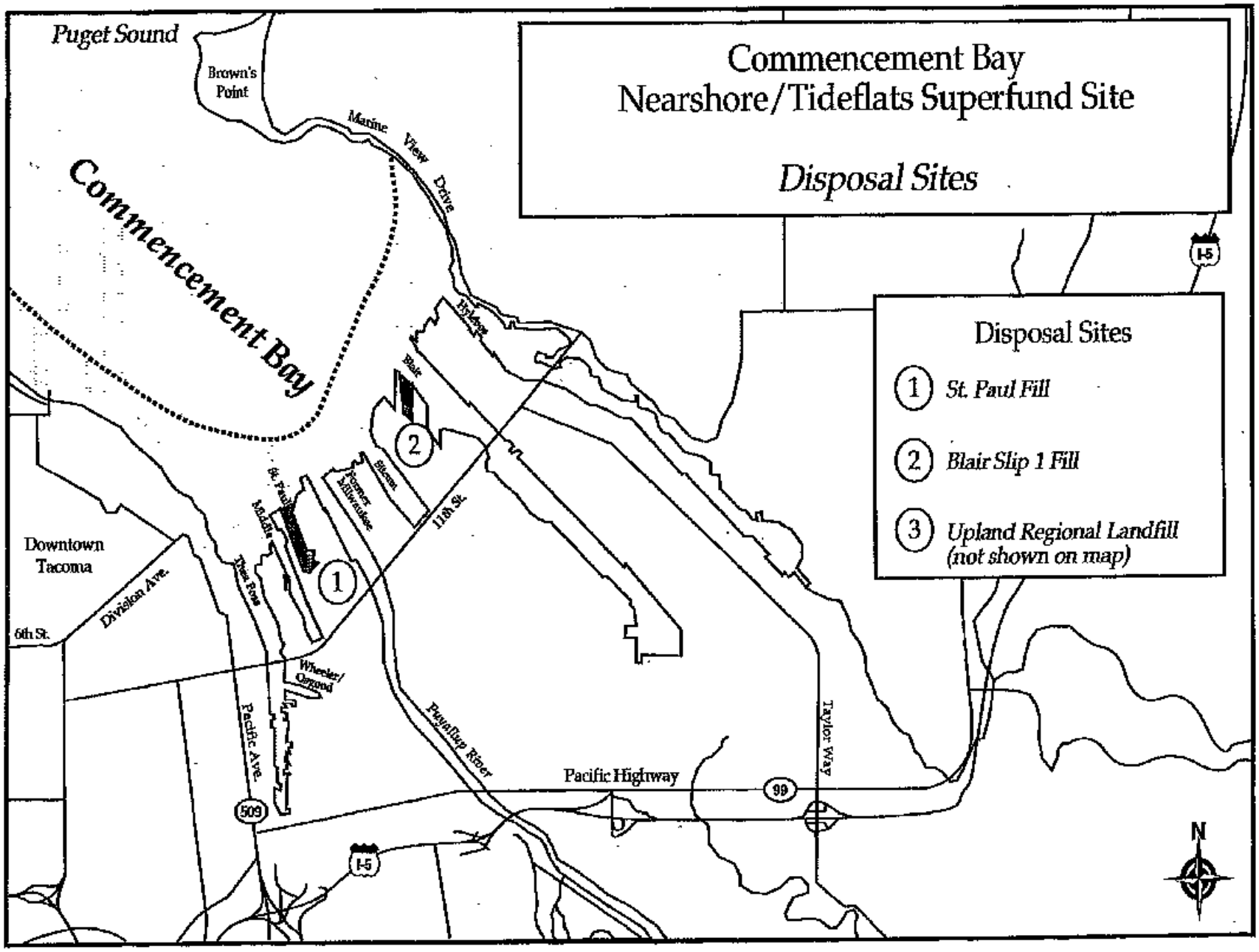

Commencement Bay
Nearshore/Tideflats Superfund Site
Disposal Sites
Disposal Sites
1 St. Paul Fill
2 Blair Slip 1 Fill
3 Upland Regional Landfill (not shown on map)
Puget Sound
Brown's Point
Commencement Bay
Marine View Drive
Hylebos
Blair
St. Paul
Milwaukee
Sitcum
Former Milwaukee
11th St.
Downtown Tacoma
Division Ave.
6th St.
Thea Foss
Wheeler/ Osgood
Pacific Ave.
509
I-5
Puyallup River
Pacific Highway
99
Taylor Way
N

Figure 4

# Appendix A

## Cost Summaries for the Hylebos, Thea Foss and Wheeler Osgood Waterway Remedial Actions

Table A-1. Cost of Dredging Hylebos Waterway Sediments and Disposal in Blair Slip 1 (640,000cy)

| Category<br>Disposal Site 640,000 CY | Quantity | Unit | Unit Cost ($) | Cost ($) |
|---|---|---|---|---|
| ***Disposal Site Development*** | | | | |
| **Mobilization and Demobilization** | | | | |
| Pier Demolition Equipment | 1 | LS | 50,000.00 | 50,000 |
| Clamshell Equipment | 1 | LS | 200,000.00 | 200,000 |
| Hydraulic Equipment | 1 | LS | 100,000.00 | 100,000 |
| **Site Preparation** | | | | |
| Pier Demolition | 6,600 | TON | 150.00 | 990,000 |
| Temporary Facilities (Relocate Facilities, Lighting, Site Office) | 1 | L.S. | 250,000.00. | 250,000 |
| **Berm Foundation Excavation and Disposal at PSDDA Site** | | | | |
| Clamshell and Bottom-Dump Barge | 45,000 | CY | 7.50 | 338,000 |
| DNR Disposal Site Use Fee | 45,000 | CY | 0.45 | 20,000 |
| **Berm Construction w/Imported Crushed Material** | | | | |
| Bottom-Dump Barge (-50 feet to -5 feet) | 76,000 | CY | 14.00 | 1,064,000 |
| Haul Barge and Clamshell (-5 feet to +18 feet) | 25,000 | CY | 17.00 | 425,000 |
| **Berm Outer Slope Riprap, 2 feet Thick (Class II)** | 10,400 | Ton | 20.00 | 208,000 |
| **Place 7-foot Cap with Sand from Puyallup River by Hydraulic Dredge** | | | | |
| Hydraulic Dredging | 180,000 | CY | 5.00 | 900,000 |
| DNR Sand Purchase Cost | 180,000 | CY | 3.19 | 574,000 |
| **Budget Allowance to Install Wick Drains** | 1 | LS | 1,000,000.00 | 1,000,000 |
| **Water Quality Monitoring** | 1 | LS | 250,000.00 | 250,000 |
| **Surveying** | 1 | LS | 145,000.00 | 145,000 |
| **Mitigation and Monitoring <5>** | 1 | LS | 3,350,000.00 | 3,350,000 |
| **Long-Term Monitoring and Maintenance <2>** | 1 | LS | 760,000.00 | 760,000 |
| **Land Acquisition <3>** | 1 | LS | 0.00 | - |
| **Cost Subtotal** | | | | 10,624,000 |
| **Engineering & Design** | | | 15% | 1,594,000 |
| **Contingency** | | | 20% | 2,125,000 |
| **Total Estimated Disposal Site Cost <1>** | | | | 14,343,000 |

Source: Hylebos Waterway Pre-Remedial Design Evaluation Report, Hylebos Cleanup Committee, November, 1999.

**Table A-1 (continued)**

| Category<br>Disposal Site 640,000 cy | Quantity | Unit | Unit Cost ($) | Cost ($) |
|---|---|---|---|---|
| ***Dredging and Disposal*** | | | | |
| **Dredge Hylebos Waterway Sediment (See Section 6) and Dispose of at Site 12 <4>** | | | | |
| Clamshell and Bottom-Dump Barge | 354,000 | CY | 6.50 | 2,301,000 |
| Clamshell and Rehandling w/Derrick and Flat-Deck Barge (Fill above -5 feet) | 286,000 | CY | 12.50 | 3,575,000 |
| **Dredging and Disposal Subtotal** | | | | 5,876,000 |
| **Engineering and Design** | | | 15% | 881,000 |
| **Construction Oversight and Monitoring by HCC Authorized Representative** | 1 | LS | 250,000.00 | 250,000 |
| **Contingency** | | | 20% | 1,175,000 |
| **Dredging and Disposal Cost Total** | | | | 8,182,000 |
| **Total: Disposal Site Development and Dredging and Disposal Cost <1>** | | | | 22,525,000 |

<1>The estimated cost for construction of Nearshore CDF 12 (Slip1) includes all anticipated construction-related costs, without consideration of whether the costs are commercial development costs associated with the Port of Tacoma's proposed filling of Slip 1 to expand its existing marine container facility, or CERCLA response costs associated with the handling and disposal of Hylebos dredged sediments.

<2> Long-term monitoring monitoring and maintenance costs were calculated based on the Confined Disposal Site Study, Programmatic EIS. Draft, February, 1999.

<3> No cost for land acquisition, if any, is included in this cost estimate.

<4> Cost does not include dredging under floating docks and fixed structures.

<5> Mitigation costs provided by Port of Tacoma (9/24/99 Memo to HCC), based on the Port's proposed mitigation plan for Terminal 3/4 Northern Expansion Plan (PIE, December 22, 1998)

**Table A-2. Cost of Dredging Hylebos Waterway Sediments and Disposal in an Upland Regional Landfill (300,000cy)**

| Category<br>Dredge and Dispose 300,000 cy Sediment | Quantity | Unit | Unit Cost ($) | Cost ($) |
|---|---|---|---|---|
| Mobilization | 1 | LS | 250,000.00 | 250,000 |
| Dredge Sediment (Clamshell) from Hylebos Waterway Problem Areas, and Off-Load to a Land-Side Stockpile Area <1> <2> | 300,000 | CY | 9.60 | 2,880,000 |
| Dewater Sediment <3> | 300,000 | CY | 1.20 | 360,000 |
| Load Sediment into Waste Management Gondola Cars | 300,000 | CY | 1.00 | 300,000 |
| Transport to Regional Landfill and Dispose | 450,000 | Ton | 30.00 | 13,500,000 |
| Monitoring During Construction | 1 | LS | 200,000.00 | 200,000 |
| Mitigation | 1 | LS | N/A | N/A |
| Long-Term Monoitoring and Maintenance | 1 | LS | N/A | N/A |
| Land Acquisition | 1 | LS | N/A | N/A |
| Cost Subtotal | | | | 17,490,000 |
| Engineering & Design | | | 15% | 2,624,000 |
| Contingency | | | 20% | 3,498,000 |
| Total Estimated Dredging and Disposal Site Cost = Project Cost | | | | 23,612,000 |

<1> Cost Estimate does not include dredging under floating docks and fixed structures.

<2> Cost estimate does not include land easement, if any, for stockpile site.

<3> Cost estimate includes barrier, impermeable liner, runoff water collection and disposal.

Source: Hylebos Waterway Pre-Remedial Design Evaluation Report, Hylebos Cleanup Committee, November, 1999.

Table A–3 **Preliminary Engineer's Cost Estimate of Waterway Remediation Alternative 5B with Disposal at the St. Paul Nearshore Facility**

| TASK | QUANTITY | UNIT | UNIT COST | COST |
|---|---|---|---|---|
| PRE-CONSTRUCTION | | | | |
| Mobilization/Demobilization | 1 | EA | $550,000 | $ 550,000 |
| Baseline Water Quality Survey | 1 | EA | $100,000 | $ 100,000 |
| Pre- and Post-Dredge Surveys | 2 | EA | $25,000 | $ 50,000 |
| NEARSHORE FACILITY CONSTRUCTION | | | | |
| Disposal Facility Preparation | | | | |
| Remove and Dispose of Piling | 400 | EA | $200 | $ 80,000 |
| Site, Building, and Utility Demolition | 1 | EA | $190,000 | $ 190,000 |
| Deepen Nearshore Facility and Construct Berm | | | | |
| Berm Construction below Elev. -5 ft MLLW | 167,000 | CY | $5.25 | $ 876,800 |
| Berm Construction above Elev. -5 ft MLLW | 23,000 | CY | $8.00 | $ 184,000 |
| Installation of Overflow Weirs | 2 | EA | $40,000 | $ 80,000 |
| Construction of Perimeter Berm | 7,500 | CY | $8.00 | $ 60,000 |
| Cap Nearshore Fill Site to Finished Subgrade | | | | |
| Middle Waterway Excavated Material | 90,000 | CY | $4.00 | $ 360,000 |
| Off-Site Dredge Material | 42,500 | CY | $8.75 | $ 371,900 |
| Perimeter Berm Material | 7,500 | CY | $0.50 | $ 3,800 |
| Site Mitigation/Restoration | | | | |
| Remove and Dispose of Piling | 1,370 | EA | $200 | $ 274,000 |
| Final Contouring of Tidal Channel in Middle Waterway | 90,000 | CY | $0.50 | $ 45,000 |
| Final Contouring of St. Paul Habitat | 100,000 | CY | $0.50 | $ 50,000 |
| Habitat Material Dredged from St. Paul | 273,000 | CY | $5.25 | $ 1,433,300 |
| High Marsh Grading and Planting | 1 | EA | $100,000 | $ 100,000 |
| Rock-lined Berm Construction (High Marsh) | 3,000 | CY | $24.00 | $ 72,000 |
| Intertidal Reef (Riprap) | 4,000 | CY | $40.50 | $ 162,000 |
| Freshwater Wetland Excavation/Diversion | | | | |
| Vinyl Sheet Pile with Granular Fill | 2,000 | LF | $285 | $ 570,000 |
| Excavation and Disposal/Reuse | 30,000 | CY | $8 | $ 240,000 |
| Freshwater Wetland Grading and Plantings | 1 | EA | $60,000 | $ 60,000 |
| Breach Dike | 1 | EA | $200,000 | $ 200,000 |
| Freshwater Supply (Rehabilitate abandoned City line) | 2,500 | LF | $25 | $ 62,500 |
| Logs | 500 | LF | $210 | $ 105,000 |
| Ecology Blocks | 2,000 | LF | $115 | $ 230,000 |
| DREDGE, HAUL AND DISPOSE OF AT NEARSHORE FILL SITE [1] | | | | |
| Hydraulic Dredge | | | | |
| Channel | 460,000 | CY | $5.25 | $ 2,415,000 |
| Slopes | 135,000 | CY | $5.75 | $ 776,300 |
| WATERWAY CAPPING [1] | | | | |
| Channel Areas - *In Situ* and Thick Cap over Dredge Cuts | 105,000 | CY | $8.75 | $ 918,800 |
| Slope Areas | | | | |
| Slope Protection Filter | 82,000 | CY | $25.00 | $ 2,050,000 |
| Slope Quarry Spalls | 18,000 | CY | $24.00 | $ 432,000 |
| Slope Riprap | 3,000 | CY | $40.50 | $ 121,500 |
| RELATED CONSTRUCTION | | | | |
| Construct Temporary Marinas | 1 | LS | $49,000 | $ 49,000 |
| Remove and Replace Marinas | 113,000 | SF | $5.00 | $ 565,000 |
| Remove and Dispose of Debris | 1 | LS | $25,000 | $ 25,000 |
| Regrade Sediments at Head of Waterway | 2,000 | CY | $0.50 | $ 1,000 |
| Armor Twin 96-inch Outfalls | 1 | LS | $110,000 | $ 110,000 |
| Remove and Replace Piling | 50 | EA | $2,500 | $ 125,000 |
| Remove and Replace Outfalls | 5 | EA | $10,000 | $ 50,000 |
| Miscellaneous Demolition and Slope Work | 1 | EA | $200,000 | $ 200,000 |
| SSMA 7 REMEDIATION (see Table N-19) [2] | 1 | LS | $12,317,400 | $ 12,317,400 |
| CONSTRUCTION SUPPORT | | | | |
| Construction Management (See Table N-10) | 56 | WKLY | $10,000 | $ 560,000 |
| Water Quality Monitoring (See Table N-10) | | | | |
| Intensive | 19 | WKLY | $20,000 | $ 380,000 |
| Routine | 37 | WKLY | $14,000 | $ 518,000 |
| Bathymetric Surveys (Thea Foss Waterway) (See Table N-10) | 1 | LS | $57,500 | $ 57,500 |
| Bathymetric Surveys (St. Paul Nearshore Fill Site) (See Table N-10) | 1 | LS | $23,800 | $ 23,800 |
| Post-Dredge Sediment Sampling and Analysis (See Table N-10) | 1 | LS | $51,800 | $ 51,800 |
| Monitoring Wells (St. Paul Nearshore Fill Site) (See Table N-10) | 3 | LS | $10,000 | $ 30,000 |
| LONG-TERM MONITORING (Present Worth) | | | | |
| Thea Foss Waterway Monitoring | 1 | LS | $80,300 | $ 80,300 |
| St. Paul CDF Monitoring | 1 | LS | $300,000 | $ 300,000 |
| St. Paul CDF Contingency Reserve | 1 | LS | $630,000 | $ 630,000 |
| Habitat Monitoring and Adaptive Management (including Middle Waterway and Puyallup Wetland) | 1 | LS | $682,000 | $ 682,000 |

| | |
|---|---|
| SUBTOTAL: | $ 29,975,700 |
| CONTINGENCY @ 20%: | $ 5,995,200 |
| TOTAL ESTIMATED COST: | $ 35,970,000 |

Notes:

407225/Round3/AppendixN.xls

Source: Round 3 Data Evaluation and Pre-Evaluation Report, City of Tacoma, 1999

Note: This table includes the cost of a slurry wall at the head of Thea Foss Waterway, which has been excluded from EPA's selected remedy. Exclusion of the slurry wall reduces the cost of the remedy to approximately $35 million.

Appendix B

State of Washington Concurrence Letter
Puyallup Tribe of Indians Concurrence Letter

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

RECEIVED
JUL 21 2000
Environmental Cleanup Office

July 17, 2000

Ms. Lori Cohen
EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101

Dear Ms. Cohen:

The Department of Ecology (Department) has reviewed EPA's Explanation of Significant Differences (ESD), dated June 2000, for the Commencement Bay Nearshore/Tideflats Superfund Site. The ESD describes the cleanup plans for Hylebos, Thea Foss, and Wheeler-Osgood Waterways. The Department concurs with the ESD.

The Department appreciates EPA's willingness to work with private parties and the Army Corps of Engineers to integrate navigational dredging into the remedial design schedule, if there is interest by the private parties. The Department also appreciates EPA's statement encouraging private property owners and waterway users to consider any current or future additional dredging needs and to alert EPA. The Department continues to be available to help with this endeavor, including potential grant funding to local public entities that provide financial support to navigational dredging. The Department will not assume responsibility for overseeing navigational dredging of Hylebos sediments contaminated at depth above levels suitable for open water disposal under PSSDA. The Department maintains that such responsibility remains with EPA under CERCLA.

In addition, the Department has reviewed EPA's revised estimate for the residual PCB level in Hylebos Waterway post-remediation ("Recalculation of Residual PCB Concentrations in Commencement Bay Sediment", undated). The Hylebos remedy selected in the 2000 ESD assumes that at least 940,000 cubic yards of sediment will be removed from the waterway, whereas the 1997 ESD assumed only 508,000 cubic yards of sediment would be removed. Because considerably more PCB's will be removed than anticipated in 1997, the residual PCB level that EPA expects to achieve is now 28% below the level selected in the 1997 ESD and 14% below the level originally proposed in the 1989 Record of Decision. These calculations are based on area-weighted averages for

Hylebos Waterway. The Department concurs with this analysis and the new cleanup goal, assuming additional active remediation would take place if the goal were not achieved 10 years after cleanup.

EPA should continue to push for a 2001 start for active remediation and we will assist as we can to see that goal realized.

Sincerely,

James J. Pendowski, Manager
Toxics Cleanup Program

JJP:nh

# Puyallup Tribe of Indians

Allison Hiltner
US EPA Region 10
1200 Sixth Ave
Seattle, WA 98101

RECEIVED
JUL 24 2000
Environmental Cleanup Office

Re: Concurrence on Explanation of Significant Differences (ESD) Commencement Bay Nearshore Tideflats Superfund Site.

Dear Allison:

Thank you for taking the time and meeting with me to review the above referenced document. With this letter, the Puyallup Tribe concurs on the ESD for clean up of Hylebos and Thea Foss/Wheeler Osgood waterways and disposal site selection for the CB/NT Superfund Site.

Although the Puyallup Tribe supports the cleanup of contaminated sediments from the Hylebos and Thea Foss/Wheeler Osgood waterways, we have numerous concerns regarding the menu of proposed methodologies to achieve cleanup.

As stated in our 1/31/00 comment letter to your agency, the Puyallup Tribe of Indians are the indigenous people of Commencement Bay who still rely on the aquatic resources of this embayment for subsistance as well as cultural and spiritual health. Additionally, the Tribe owns valuable economic properties on the Hylebos and Blair waterways. The ultimate success of this cleanup means more to this Tribe than another entity.

The recovery of salmonid stocks will continue to be in jeopardy if the cleanup remedy fails. The Tribe insists that during remedial design, EPA places a higher preference on permanent long-term effective cleanup. All Intertidal cleanup must be designed to prevent habitat loss. The reliance on Natural recovery, particularly in Hylebos waterway needs to be minimized. The Puyallup tribe remains unconvinced that natural recovery can be achieved in an active navigational waterway.

Finally, the Tribe fully supports the two in water disposal sites identified in the ESD. The mitigation is adequate but the Tribe has some concern regarding the "uncertainty factor" as it relates to the Simpson proposal. The Tribe feels that this uncertainty factor is true for all mitigation and restoration projects undertaken in Commencement Bay. As part of the CWA section 404 and ESA salmon recovery, the Tribe believes that this factor should be applied Baywide and that EPA and the Natural Resource Agencies support the option of establishing up front additional mitigation either through an additional project or a mitigation bank to develop a project located in the river node area identified in the Baywide habitat assessment.

In conclusion, the Puyallup Tribe of Indians concurs with the final ESD. However, the Puyallup Tribe encourages the EPA to work with the PRP's during remedial design to achieve cleanup solutions that will be the most protective of human health and the natural resources of Commencement Bay. The Tribe looks forward to the cleanup of these waterways and remains supportive of EPA's efforts.

Sincerely,

Bill Sullivan

Bill Sullivan
Director of Natural Resources &
Environmental Programs

Cc Tribal Council
Fisheries
Legal
Files

2002 East 28th Street • Tacoma, Washington 98404 • 206/597-6200