

West Bay Park RI/FS – Sediments

(Solid Wood Site – Agreed Order #DE-08-TCPSR-5415)

Site and Site Boundary Discussion



Meeting Goals and Agenda

Goals for the Meeting

1. Discuss How the Site Boundary Should be Determined Under MTCA and the SMS at the West Bay Park Site
2. Discuss the Path Forward for the West Bay Site with Respect to Sediment

Agenda

- Overview of MTCA/SMS Rules on Sites and Site Boundaries
- Brief Summary of the Agreed Order and Initial Site Boundary
- Historical/Pictorial Record of Site Activities
- Summarize Upland Source Areas and Potential Impacts to Sediment
- Summarize Potential In-water/Overwater Sources
- Evaluate West Bay Sediment Data per the SMS
- Discuss the Path Forward for the West Bay Site with Respect to Sediment



Summary of West Bay Sediment Data

Per MTCA/SMS, the West Bay Site data indicates that there is no sediment issue of concern.

1. When the sediment data are evaluated independently, the data indicates the sediments do not qualify as an SMS sediment site.
2. No information is available that indicates that the TPH detected in sediment is associated with upland sources.
3. The site boundary was to be determined via the work performed under the Agreed Order and based on the information that has been obtained to-date, the site boundary should not include sediment.



Definition of a Site

- MTCA (WAC 173-340-200) – Any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located.
- SMS – The term Site is not explicitly defined under the SMS.



Differences Between MTCA and SMS

Because sediments sites are fluid, dynamic, and are typically very complicated (e.g., multiple PLPs, multiple sources, and comingled contamination) the process for listing, investigating, and remediating sediment sites is different than the MTCA process.

Step	MTCA	SMS
Site Definition	WAC 173-340-200	Not Explicitly Defined in the SMS
Site Discovery	WAC 173-340-300 – Site discovery and reporting	WAC 173-204-520 – Hazard assessment and site identification
Initial Investigation	WAC 173-340-310 – Initial investigation	WAC 173-204-510 – Identifying sediment station clusters of potential concern
Hazard Assessment	WAC 173-340-320 – Site hazard assessment	WAC 173-204-520 – Hazard assessment and site identification
Site Ranking	WAC 173-340-330 – Hazard ranking and the hazardous sites list	WAC 173-204-530 – Evaluation and listing of sites
RI/FS	WAC 173-340-350 – Remedial Investigation and feasibility study	WAC 173-204-550 – Remedial Investigation and feasibility study



MTCA and SMS Sites Are Evaluated Differently

- Based on the differences, by rule, upland MTCA Sites are not automatically SMS Sediment Sites and vice-versa. The data must be evaluated consistent with the methodology/criteria presented in MTCA and the SMS to determine the Site Boundary.

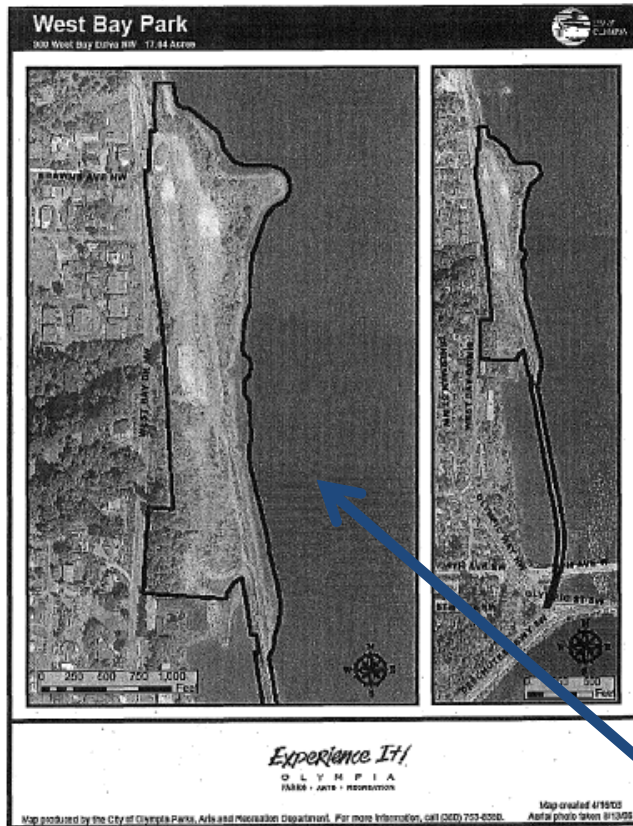


Agreed Order #DE-08-TCPSR-5415 V. Findings of Fact

- The findings of fact presented in the Agreed Order demonstrate that only soil and groundwater were available and were potentially impacted by hazardous substances.
 - There were no exceedances of SMS criteria in the sediment samples that were collected in support of the Phase II ESA.
 - The Initial Site Boundary at the time of signing the agreed order was the Upland Area; however, more work was required by Ecology to determine if the Site Boundary should be expanded to include sediments.
 - Sediment samples were collected as part of the Site Investigation process, per the Agreed Order.



Agreed Order #DE-08-TCPSR-5415 – Initial Site Boundary (Exhibit A)



IV. DEFINITIONS

A. Site: The Site is referred to as the Solid Wood Inc. Site (Site) and is generally located at 700 and 900 West Bay Drive in Olympia, Washington. The Site lies on the West Bay of Budd Inlet, east of West Bay Drive, north of the Fourth Avenue Bridge, and south of the Industrial Petroleum Distributors Site. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. Based upon factors currently known to Ecology, the Site is more particularly described in the Site Diagram (Exhibit A). The Site constitutes a Facility under RCW 70.105D.020(5).

Observations: As indicated in the direct quote and figure presented above, at the time the Agreed Order was signed sediments were not included in the Site Boundary because there was no data available that indicated that they were impacted by hazardous substances. The decision as to whether or not to extend the Site Boundary was to be made after sediment samples were collected and evaluated.



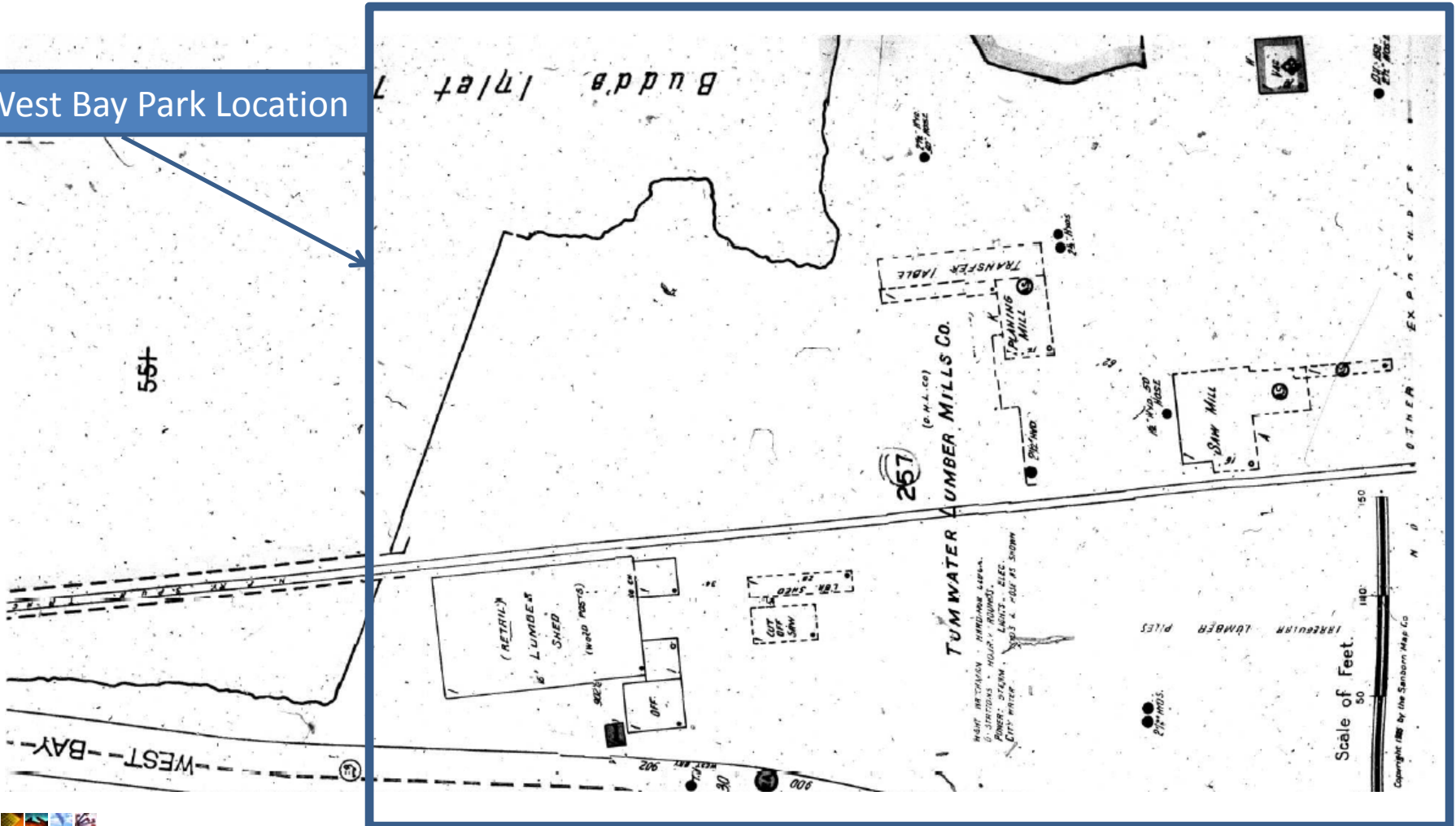
Historical Operations

- 1898 – 1924~. Site use was not known. Railroad tracks were present on the site.
- 1924~ to 1959. Various mill companies operated at the site.
- 1960 – 2000. Site was used as a lumber yard.
 - Various buildings and lumber storage areas were utilized in different areas of the site by each company.
- 2000 on. Site was a vacant lot.



1920's Tumwater Lumber Mills Co.

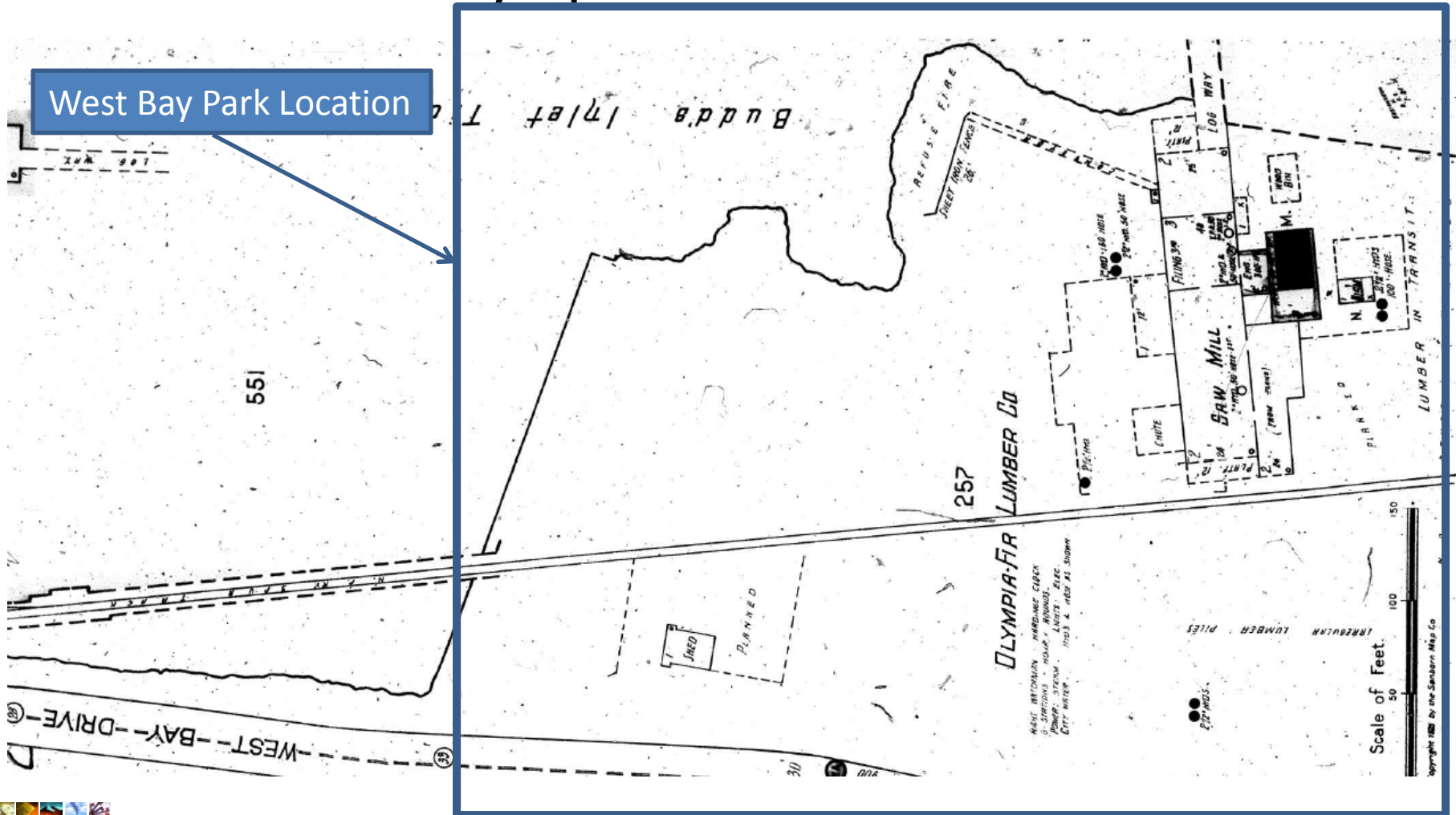
West Bay Park Location



1930's Olympia-Fir Lumber Co.

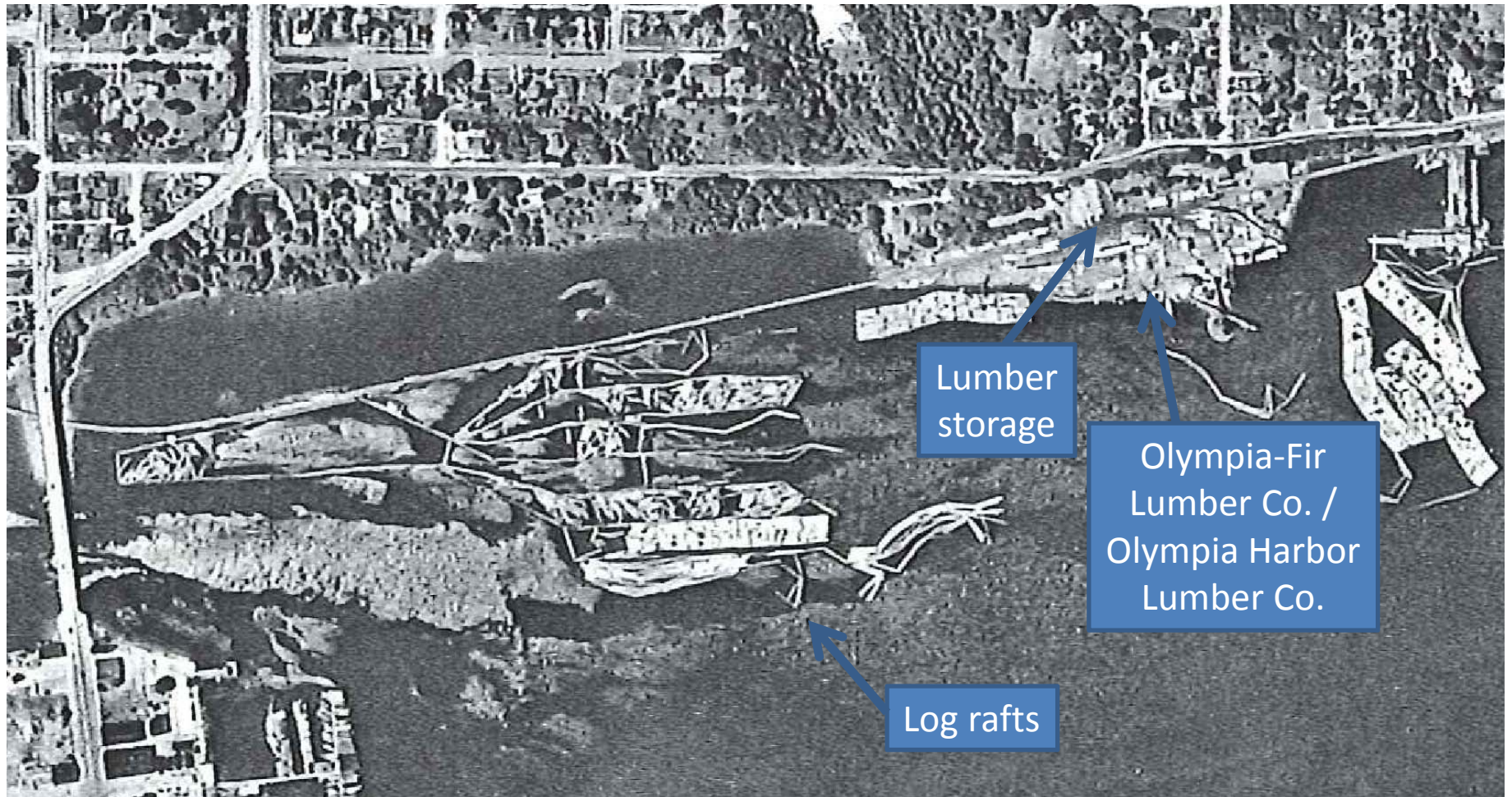


1930's Olympia-Fir Lumber Co.



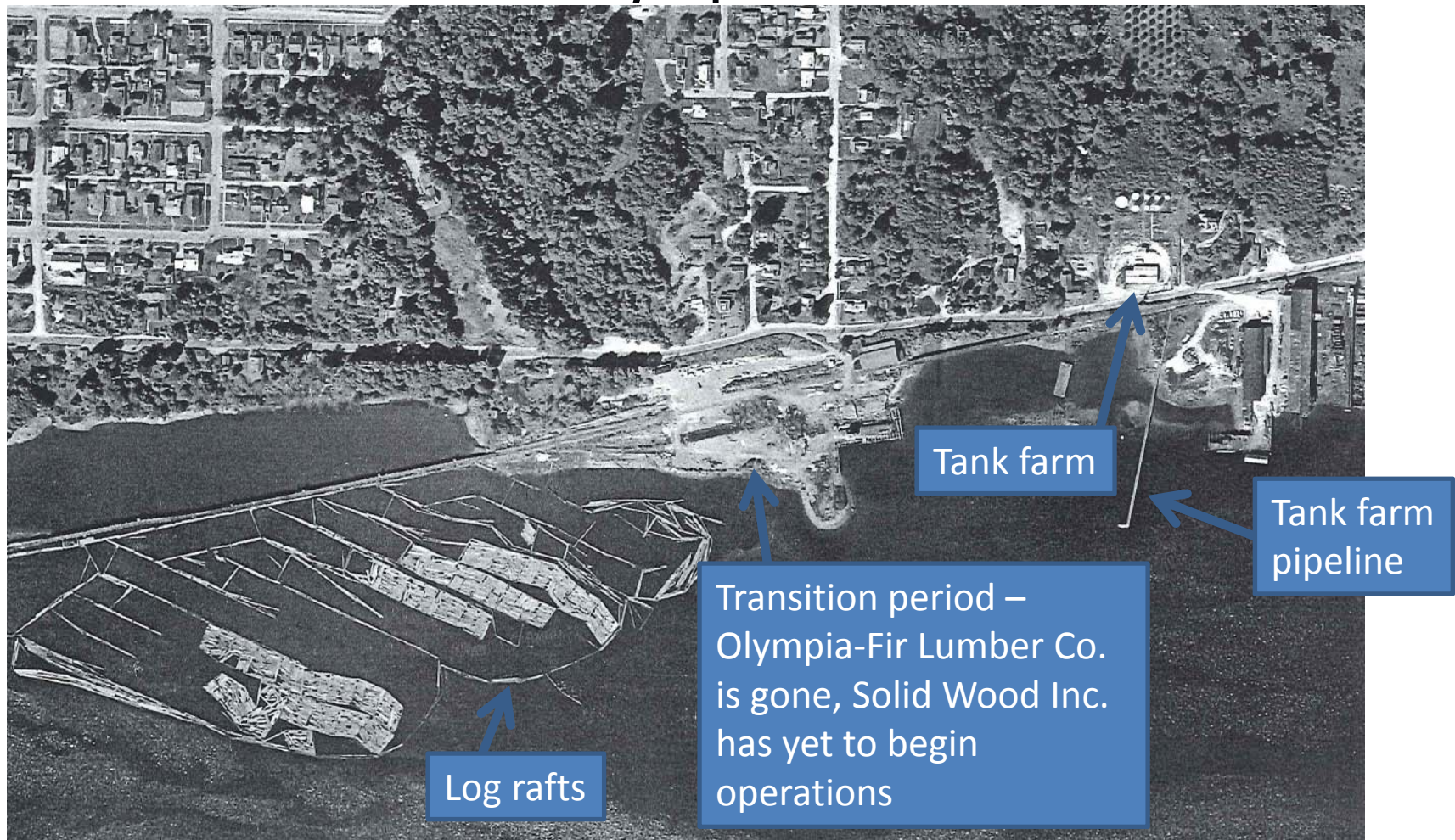
1946

Olympia-Fir Lumber Co. / Olympia Harbor Lumber Co.



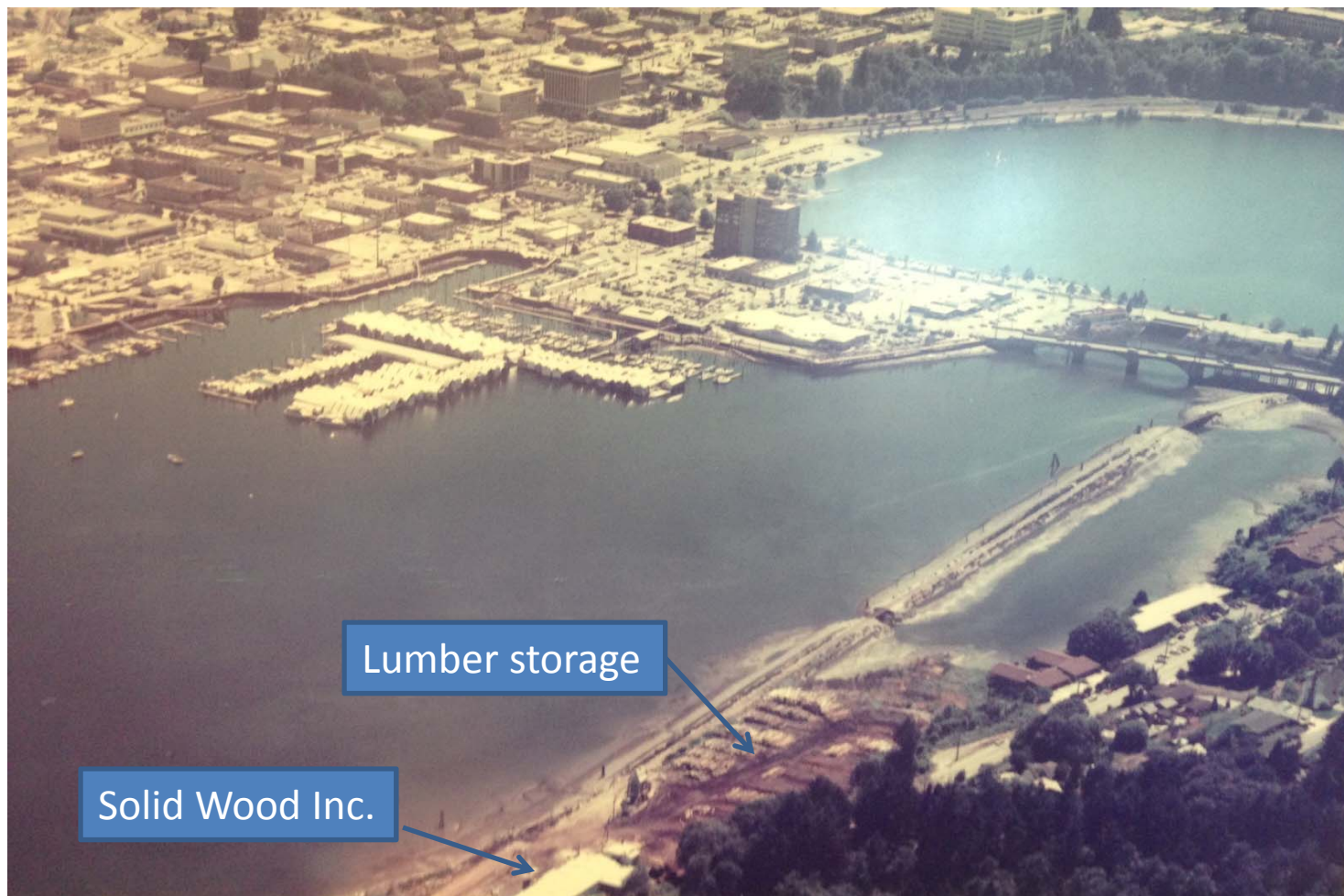
1960's / 1970's

Transition Period – Olympia Harbor Lumber Co.

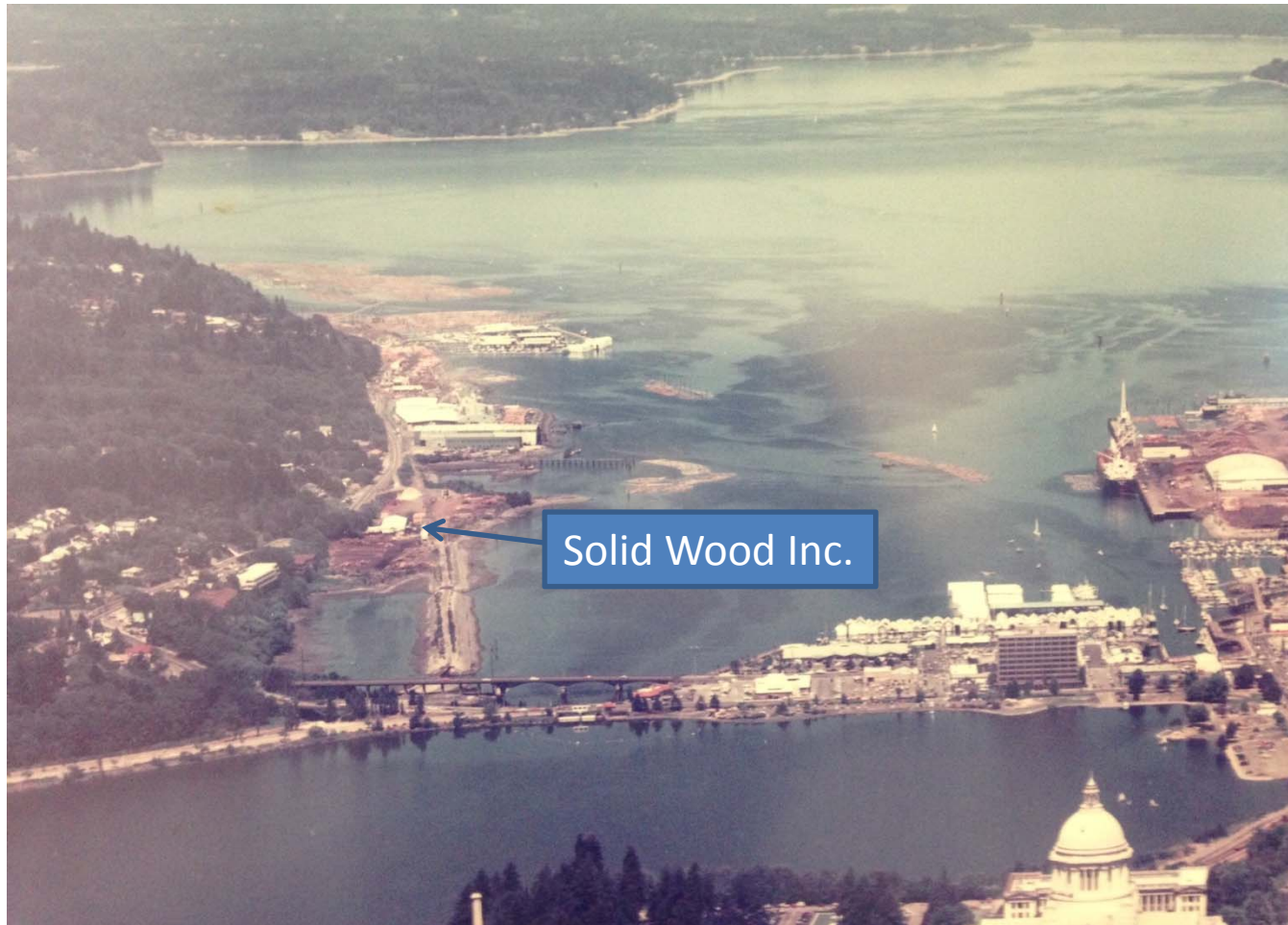




1960's / 1970's Solid Wood Inc.

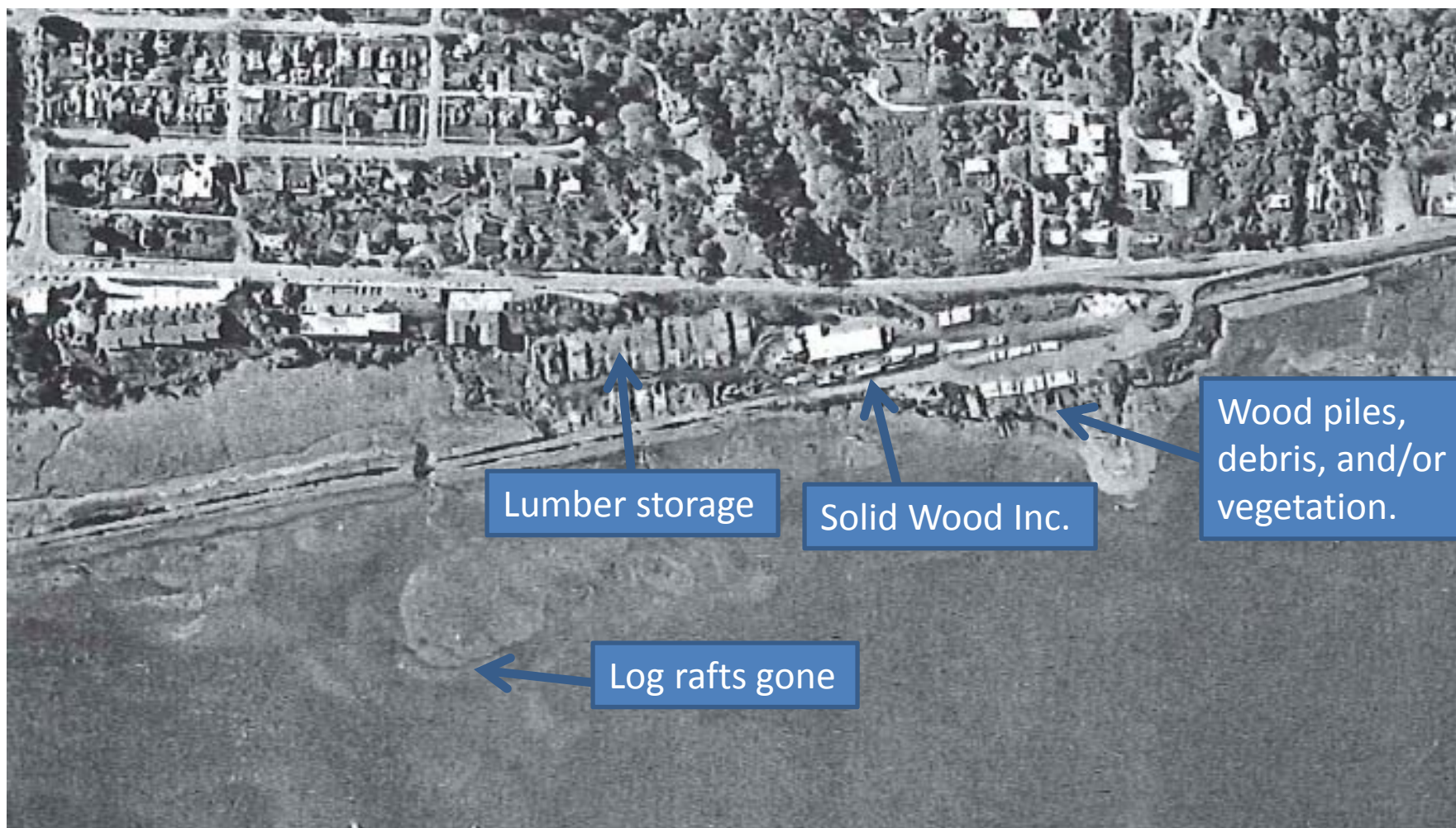


1960's / 1970's Solid Wood Inc.

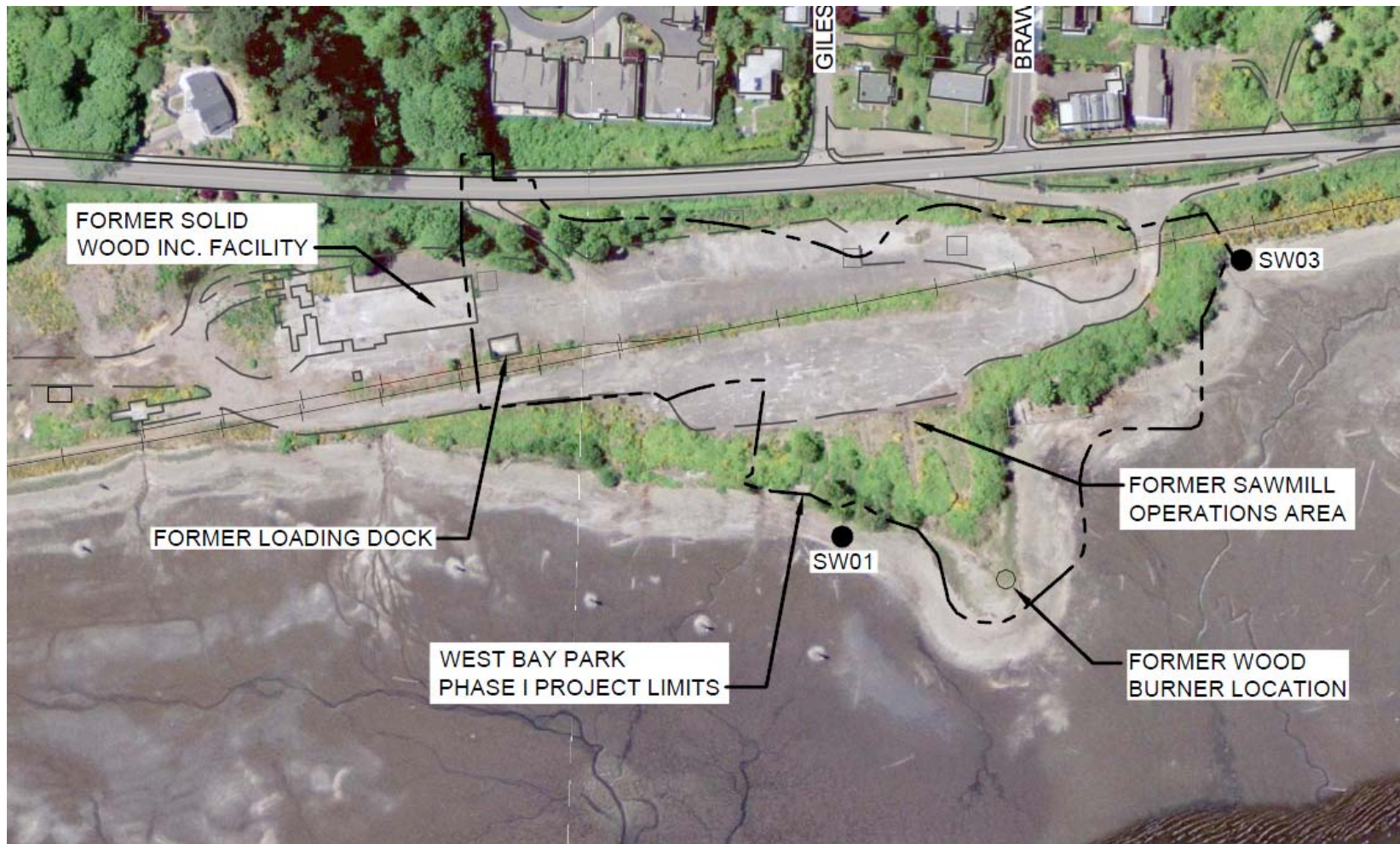


1983

Solid Wood Inc.



2008



West Bay Park Site: Evaluation of Sources Areas with Respect to Impacts to Sediment

- Potential Upland Sources
 - Interim Action Area A
 - Interim Action Area B
 - Interim Action Area C
 - Interim Action Area D
 - Interim Action Area E
- Potential In-water/Overwater Sources
 - Wood Pilings
 - Historical overwater activities



Upland Source Areas and Potential Impacts to Sediment: Interim Action Areas A, B, C, D, and E

- Interim Action Area A
 - Impacted Media: Soil & Shallow Groundwater
 - COCs: TPH-Heavy Oil (TPH-HO) and PAHs
 - Impacts to Sediment? No. Localized extent of contamination.
- Interim Action Area B
 - Impacted Media: Soil
 - COCs: TPH-HO
 - Impacts to Sediment? No. Localized extent of contamination.
- Interim Action Area C
 - Impacted Media: Soil
 - COCs: PAHs
 - Impacts to Sediment? No. Localized extent of contamination.



Upland Source Areas and Potential Impacts to Sediment: Interim Action Areas A, B, C, D, and E (cont)

- Interim Action Area D
 - Impacted Media: Soil
 - COCs: Metals and Dioxins/Furans
 - Impacts to Sediment? No. Confirmed by sampling.
 - Sediment samples were collected and there were no exceedances of SMS criteria for metals and there were not exceedances of applicable screening levels for dioxins/furans.
- Area E
 - Impacted Media: Soil
 - COCs: Metals (Copper and Nickel)
 - Impacts to Sediment? No. Confirmed by sampling.
 - Groundwater, seeps, and surface water samples were collected and it was determined that the source of the elevated concentrations of copper and nickel in groundwater and seeps was from surface water in Budd Inlet (i.e., background) and not from an upland source.



Upland Source Areas and Potential Impacts to Sediment: Interim Action Areas A, B, C, D, and E (cont)

- Sampling results indicate that upland areas of contamination did not result in impacts to Sediment that would potentially warrant extending the Site Boundary into Sediment.



Potential In-water/Overwater Sources and Potential Impacts to Sediment

- Ecology was concerned that the wood pilings and historical overwater, industrial activities could have resulted in hazardous substances being released to sediment
- The City collected and analyzed sediment samples for:
 - SMS constituents
 - PAHs
 - Pentachlorophenol (PCP)
 - Diesel (TPH-D) and TPH-HO

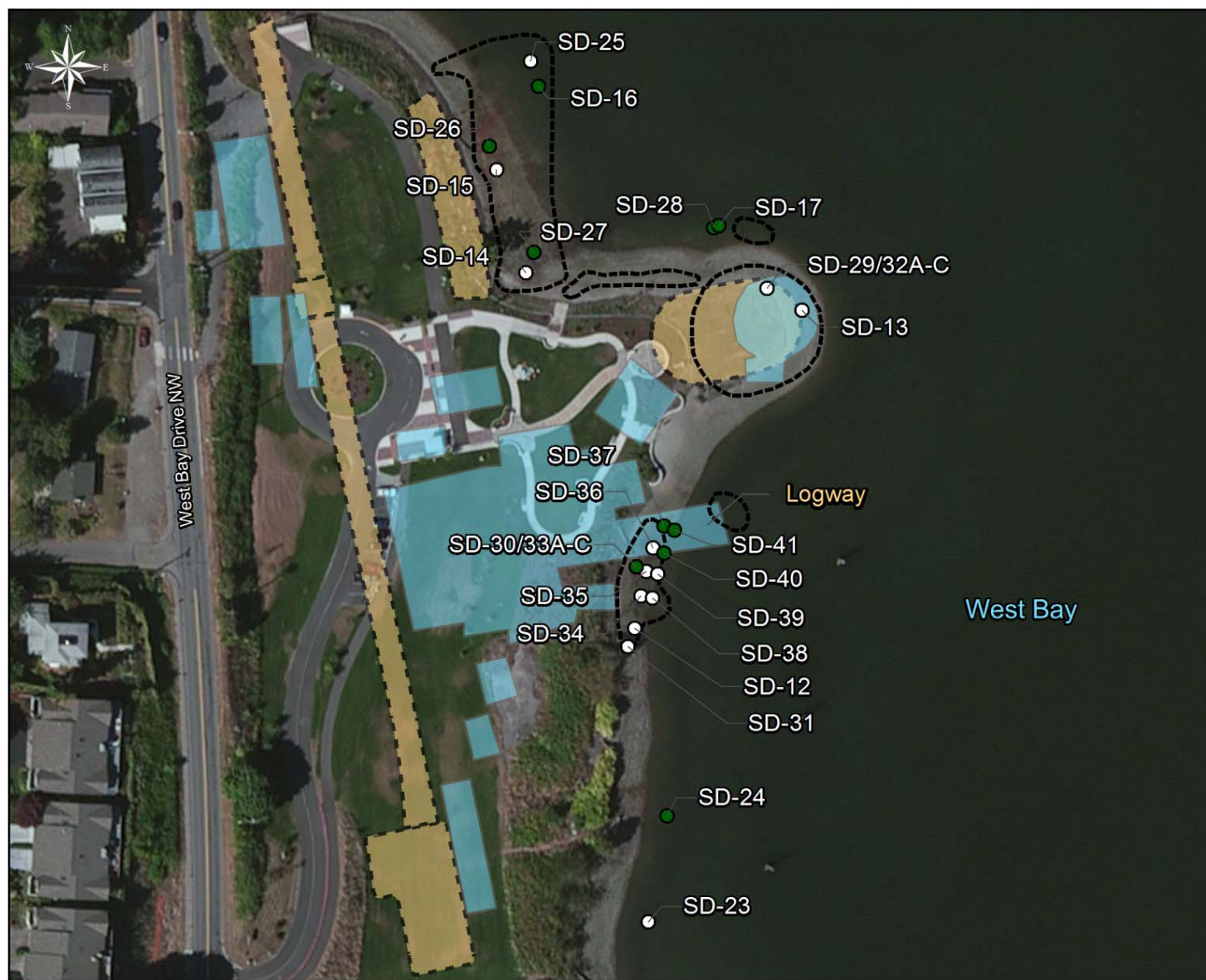


Analytical Results for Sediment Samples

- The analytical results for all sediment samples were below all SMS criteria
 - The data indicate that the pilings were not treated with creosote
 - Of the first 100 pilings pulled, all still had the bark intact and none were treated
 - The remaining pilings were cut off below the mud line and none appeared to have been treated
 - Analytical data from sediment samples support this
 - For example, PAHs (LPAHs/HPAHs) and PCP were not detected in sediment at concentrations exceeding SMS criteria
- Ecology required that TPH-D and TPH-HO be compared to a 100 mg/kg screening level
 - The majority of sediment samples exceeded the screening level for TPH-HO but TPH-D concentrations were less than 100 mg/kg
 - Range of TPH-HO concentrations was ND to 1,500 mg/kg (detected in 35 of 48 samples).
 - Range of TPH-D concentrations was ND to 94 mg/kg (detected in 14 of 48 samples).

Biological Testing was performed based on discussions with Ecology.





Legend

TPH-D Concentration (mg/kg)

○ Non-Detect

● TPH-D <= 100

■ Historic Buildings

■ Interim Action Areas

⊞ Piling Area

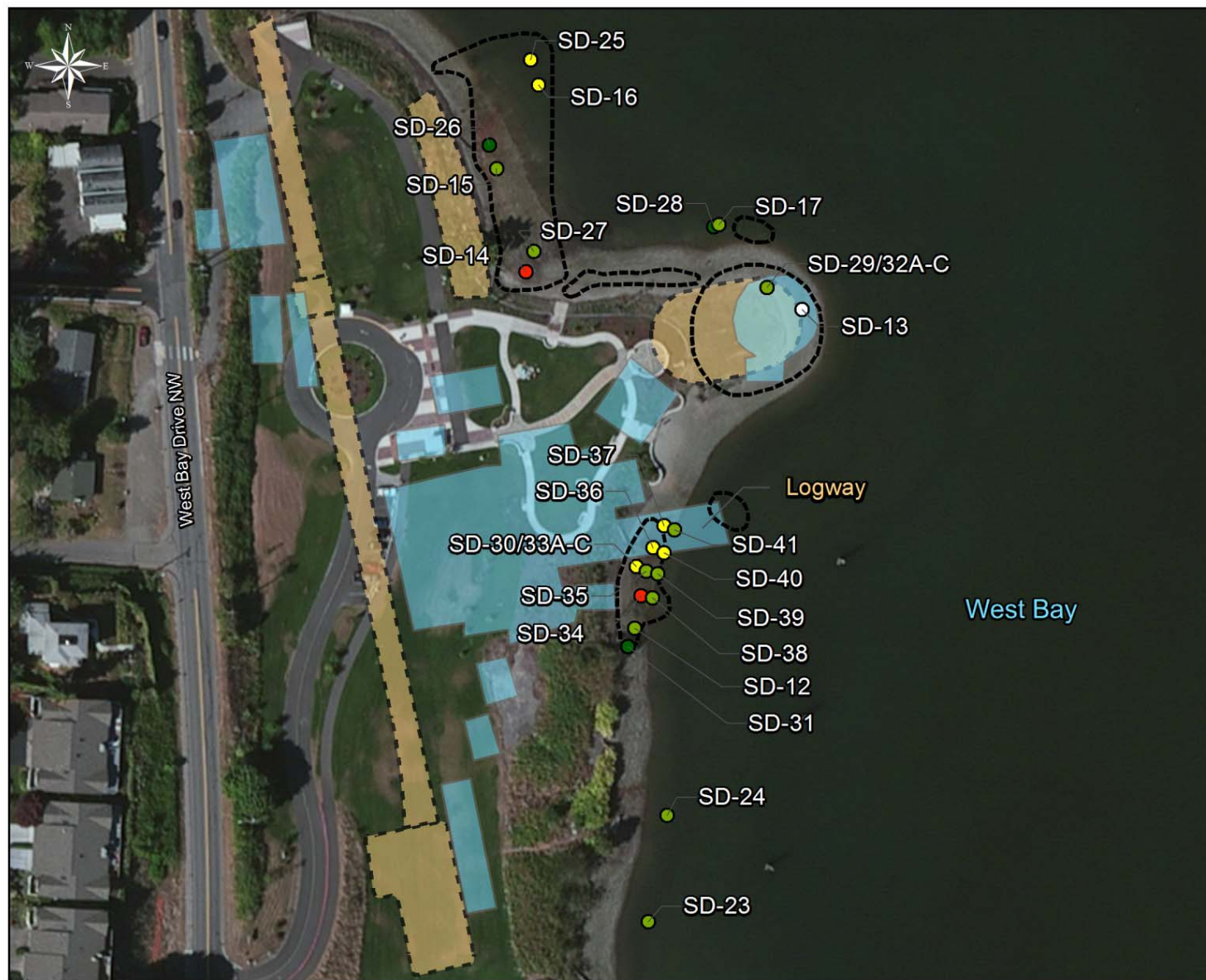
Notes:

-The locations of Historic Buildings and Interim Action Areas are approximate.



Sediment TPH-D Concentrations in Relation to Historic Operations
West Bay Park Site
Olympia, Washington

Figure 3



Legend

TPH-HO Concentration (mg/kg)

- Non-Detect
- TPH-HO <= 100
- 100 < TPH-HO <= 350
- 350 < TPH-HO <= 600
- 600 < TPH-HO <= 850
- TPH-HO > 850

- Historic Buildings
- Interim Action Areas
- Piling Area

Notes:
-The locations of Historic Buildings and Interim Action Areas are approximate.



Sediment TPH-HO Concentrations in Relation to Historic Operations
West Bay Park Site
Olympia, Washington

Figure 4

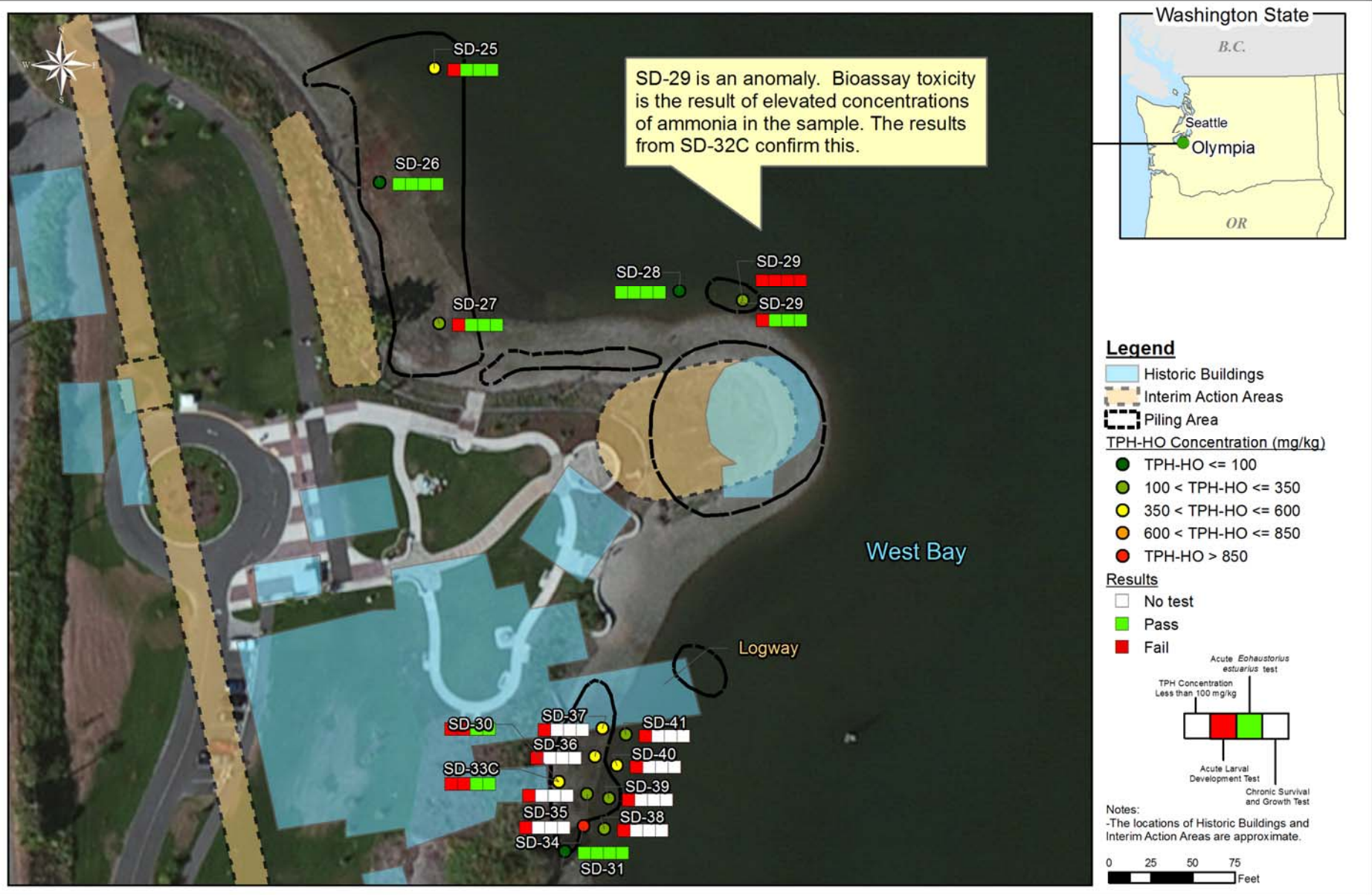
Bioassay Results for Sediment Samples

- 9 Bioassay tests were performed on sediment samples that were obtained from 7 spatially distinct stations at the site
 - 2 of the bioassays were performed at co-located stations
 - SD-29 and SD-32
 - SD-30 and SD-33
- Only one station failed a bioassay test (SD-30 and SD-33 are co-located) – actually passed 2 of the 3 bioassay tests
 - The acute larval test (*Mytilus galloprovincialis* [mussel larvae]) failed CSL criteria
 - The acute, 10-day amphipod solid phase survival test (*Eohaustorius estuarius* [a shrimp-like crustacean]) passed CSL criteria
 - The chronic, 20-day polychaete solid phase survival and growth test (*Neanthes arenaceodentata* [polychaete worms]) passed CSL criteria

Note: SD-29 failed all bioassay tests.

- It was suspected that this was due to elevated ammonia concentrations associated with decay of muscle tissue in the sample.
- The tests were re-run on SD-32 (SD-29 and SD-32 are co-located) and the results passed all bioassay criteria.





Sediment TPH-HO & Bioassay Results in Relation to Historic Operations
West Bay Park Site
Olympia, Washington

Figure 5

Evaluating West Bay Sediments Using SMS Criteria: Sediment Bioassays WAC 173-204-510(2)(b)

- Only 1 of the 7 stations (SD-30/33) failed CSL Biological Criteria.
 - CSL is exceeded if one of the three biological test results at a station exceed the CSL presented in Table IV of the SMS

Criterion WAC 173-204-510(2)(b): Each of the 3 stations must fail “Biological Criteria” to be considered a station cluster of potential concern.

Rule Change: The Previous SMS rule stated if Any of the 3 stations exceeded the biological effects criterion then the station cluster was defined a station cluster of potential concern. This has been changed to Each in the new rule.

Result: The Sediment Data Did Not Fail This Criterion



Evaluating West Bay Sediments Using SMS Criteria: Other Criteria WAC 173-204-510(2)(c)

- None of the stations exceeded Other Criteria
 - Human Health Comparison Values:
 - MTCA Method A Soil Cleanup Level for TPH-D = 2,000 mg/kg and TPH-HO = 2,000 mg/kg
 - TPH-D and TPH-HO in West Bay sediment do not meet criteria in:
 - Other toxic, radioactive, biological, or deleterious substances criteria in WAC 173-204-562 or WAC 173-204-563, as applicable
 - Nonanthropogenically affected criteria of WAC 173-204-562 or WAC 173-204-563, as applicable

Criterion WAC 173-204-510(2)(c): Each of the 3 stations must fail “Other Criteria” to be considered a station cluster of potential concern.

Rule Change: The Previous SMS rule stated if Any of the 3 stations exceeded the biological effects criterion then the station cluster was defined a station cluster of potential concern. This has been changed to Each in the new rule.

Result: The Sediment Data Did Not Fail This Criterion



Proposed Path Forward for the West Bay Site with Respect to Sediment

- Based on the evaluation of sediment data, the West Bay Site Boundary should not be expanded to include sediment because the sampling results indicate that the sediment:
 - Has not been impacted by potential Upland Source Areas (i.e., A, B, C, D, and E)
 - Does not meet the definition of a Sediment Site based on the evaluation of Sediment Bioassay Results per WAC 173-204-510(2)(b).

