

LOCKHEED WEST SEATTLE CLEANUP SITE

Superfund Site – Project Completion



Began field work:
September 3, 2019



Main Dredging Complete:
November 25, 2019



Fill placement complete:
February 11, 2020



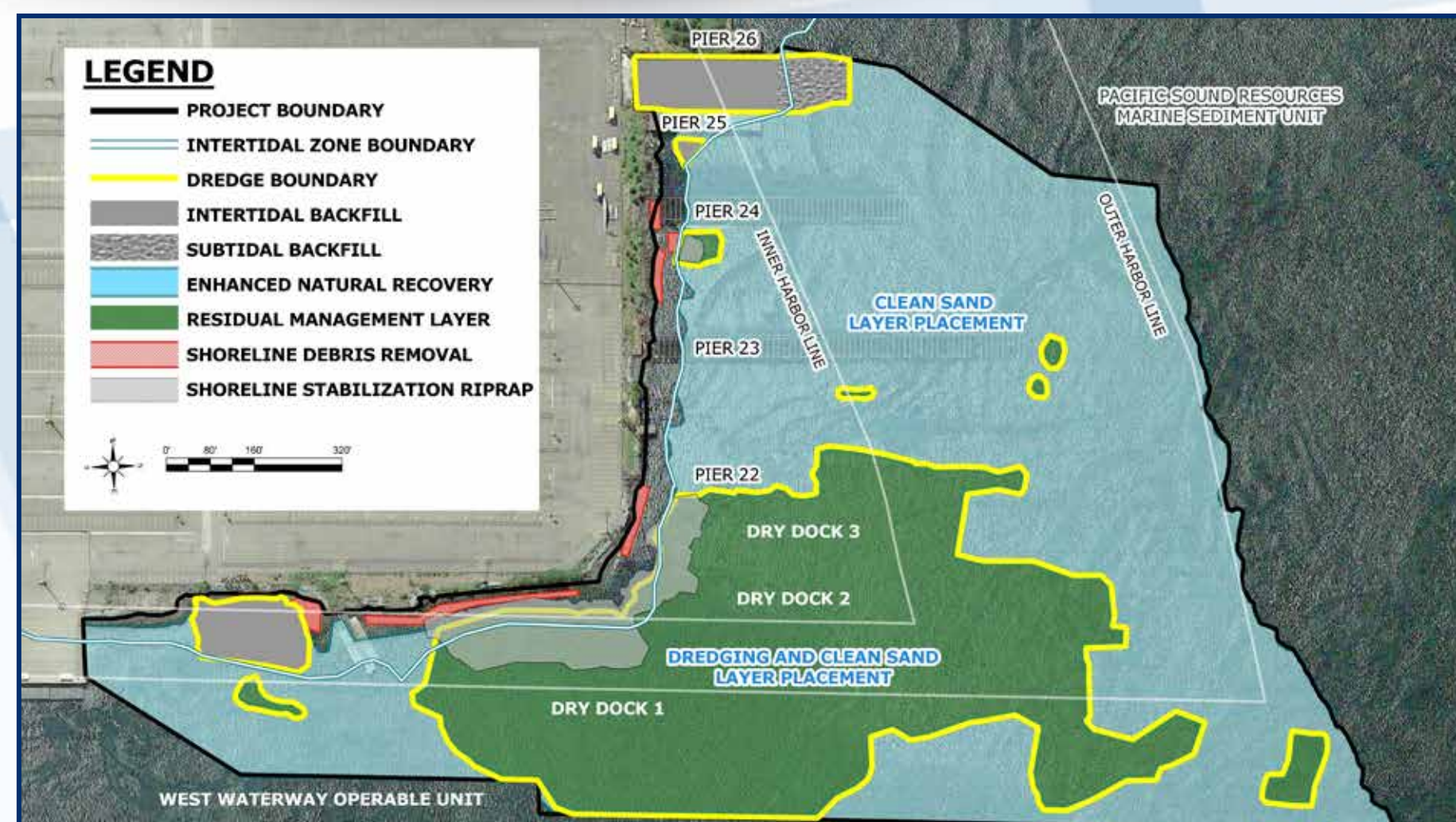
Decision Unit 5 Supplemental
Dredge and Fill: March 9 – March 25



Post-Construction Sediment Sampling:
March 26, 2020



Remedial Action
Construction Completed



Lockheed Martin Corporation (LMC) cleaned up mud and river bottom debris (sediments) at the former Yard 2 site. Contaminants at the Yard 2 site above included polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), tributyltin, and metals. LMC completed sediment excavation, removal of the debris to a permitted landfill, and placed a thin layer of clean material over dredged areas to manage any residual contaminants. The dredged area in the shipway was backfilled to make it even with the bottom of the waterway. A thin layer of clean material was placed over the remaining area within the site.

Material	Quantity	Units	Equivalent
Debris removed from in-water & shoreline	1,200	tons	About 550 midsize SUVs
Pilings removed	790	each	
Dredged material removed	134,300	CY	Covers a football field in about 63 ft of material
Backfill and shoreline protection materials placed	100,600	CY	Covers a football field in about 47 ft of material
clean sand	59,500	CY	Covers a football field in about 28 ft of ENR & RML
gravel beach mix	7,900	CY	Covers a football field in about 4 ft of gravel beach mix
fish mix	2,500	CY	Covers a football field in about 1 ft of fish mix
filter rock	7,000	CY	Covers a football field in about 3 ft of filter rock
riprap	23,800	CY	Covers a football field in about 11 ft of riprap

For reference, the site area is equivalent to about 36 football fields

LMC Seattle Yard 2 Attainment of Cleanup Levels and Mass Removal								
Analyte (concentration)	Pre- Remediation SWAC	Post Dredging SWAC	Post-Cover SWAC	CUL SWAC (top 0-10 cm)	Percent Reduction in SWAC (Pre-Remediation SWAC/Post-Cover SWAC)	Mass Removed (kg)	Mass Removed (lb)	Mass Removed (tons)
Arsenic (mg/kg)	56.3	13.3	1.8	7	96.8%	4461	9832	4.9
Copper (mg/kg)	419.2	82.8	11.7	114	97.2%	34,424	75,870	38
Lead (mg/kg)	182.4	37.8	1.6	11	99.1%	13,617	30,012	15
Mercury (mg/kg)	1.2	0.25	0.01	0.41	99.2%	115	253	0.2
Total PCBs (ug/kg)	737.2	137.2	1.6	2	99.8%	145	320	0.16

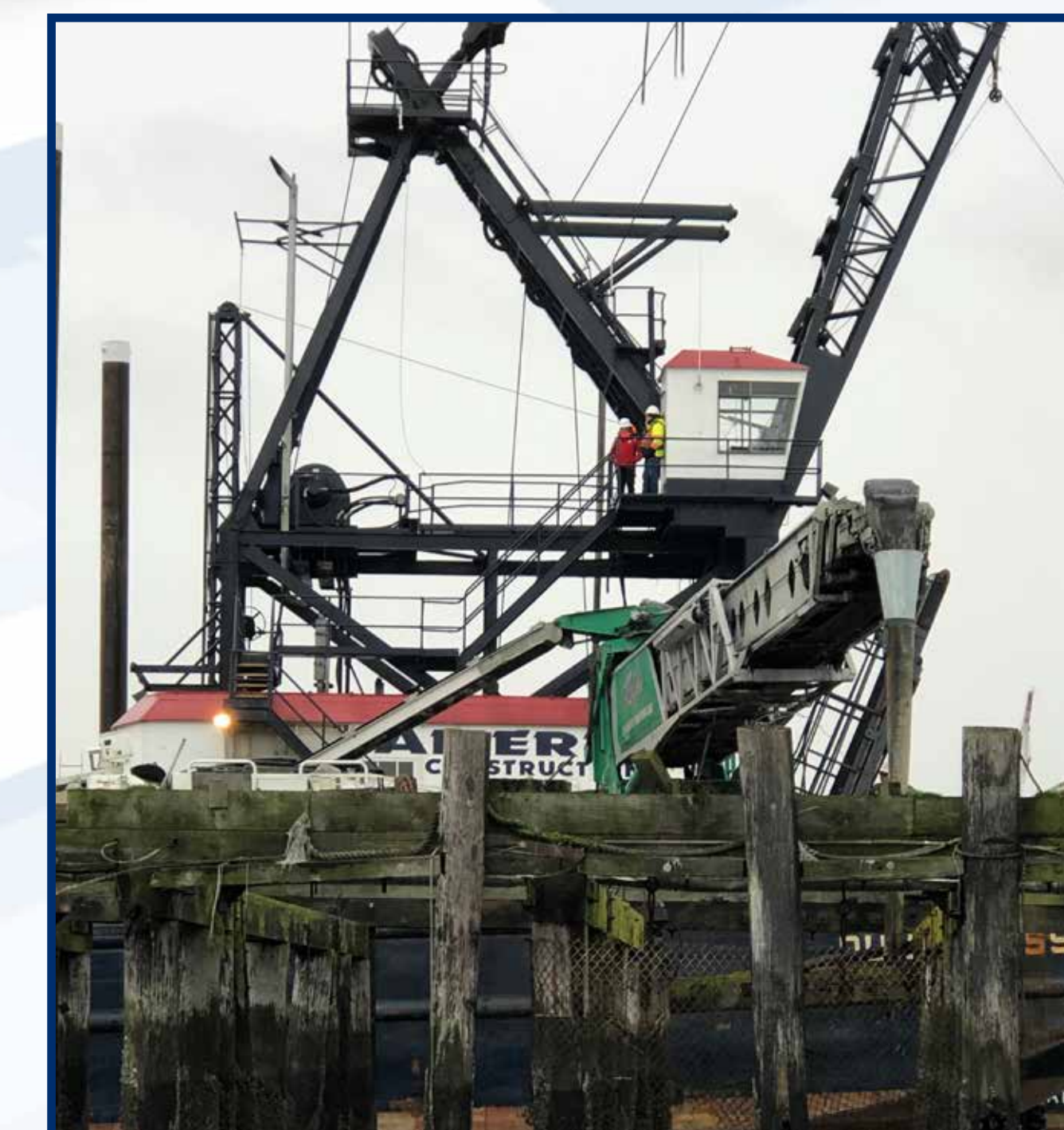
■ = Exceedance ■ = Pass CY = Cubic Yards CUL = Clean Up Level SWAC = Surface-Weighted Average Concentration



Excavator unloading dredged sediment from barge to sediment transloading facility where rail cars are loaded.



Grout was placed, to prevent undermining, under the existing concrete slab in the shipway to stabilize it.



Placing clean sand cover between pilings with a "teletilt" conveyor system.

Total Project By The Numbers 2018 through 2020

The numbers below reflect the work conducted through two seasons, Sept 3, 2018 – March 25, 2020.

- 790 PILES – Removed.
- 1237 TONS DEBRIS – Removed.
- 182,600 TONS CONTAMINATED SEDIMENTS – Removed.
- 80,300 TONS OF SAND – Placed for enhanced natural recovery (ENR) and for a residuals management layer (RML) across the site.

- 141 POST-DREDGING CONFIRMATION SEDIMENT CORES – Collected and processed.

- 42,900 PLUS TONS PROTECTIVE RIP RAP AND FILTER ROCK – Placed in the dry dock slopes and former shipway areas.
- 13,400 PLUS TONS SAND, FISH MIX, AND GRAVEL BEACH MIX – Placed in the shallow and deep areas.

- 0 – TRIBAL COMPLAINTS – Coordination at the work site with Native American fishers was excellent with no damaged fishing nets and no complaints from the Tribes.

- The removed sediment, piles, and debris were disposed of at the licensed Waste Management Columbia Ridge Landfill in Oregon.

- 126,000 GALLONS – Fuel saved by using rail to transport dredge spoils instead of trucking!

- 1400 TONS – Amount of carbon dioxide (CO₂) emissions reduced!

- 500 POUNDS PLUS – Amount of aluminum, paper, and plastic from the site recycled!

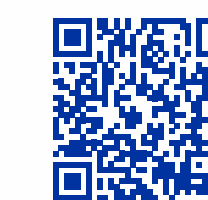
COMMUNITY OUTREACH - CONTACT INFORMATION

Lockheed Martin Corporation has communicated regularly with the community as part of a government agency and industry team that includes the corporation, USEPA, and numerous state and federal agencies.

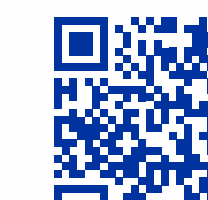
The Muckleshoot and Suquamish Indian Tribes, which have usual and accustomed fishing area rights, have been consulted at key points during the cleanup.

Project updates and additional information can be found on Lockheed Martin Corporation's website.

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Thank you to our Participating Partners:

- Muckleshoot Tribe
- National Oceanographic and Atmospheric Administration
- Port of Seattle
- Suquamish Tribe
- US Fish and Wildlife Service
- Washington Department of Ecology
- Washington Department of Fish and Wildlife
- Washington Department of Natural Resources

