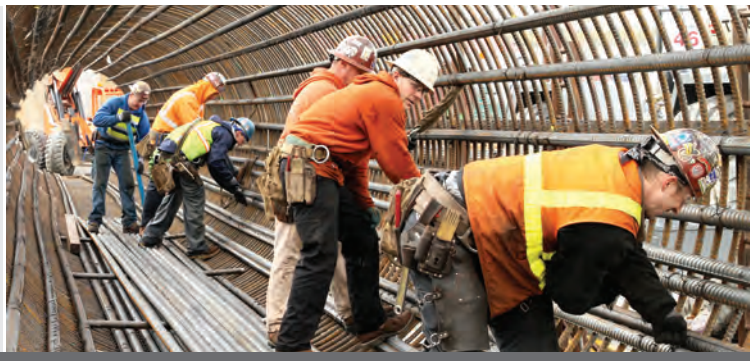
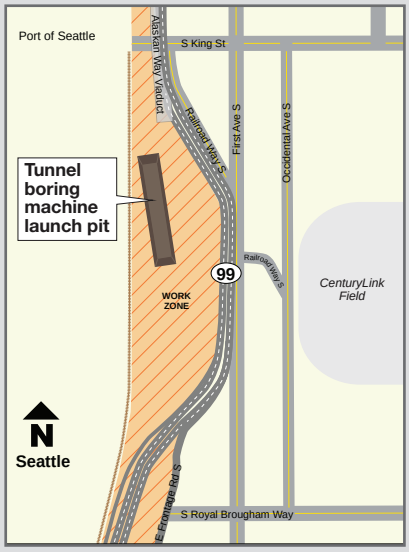
Alaskan Way Viaduct
REPLACEMENT
PROGRAM



March 2013



The tunnel boring machine will start its northward journey in a large pit being constructed to the west of Seattle's stadiums.

An in-the-ground view of the tunnel boring machine launch pit under construction. The pit is 400 feet long, 80 feet wide and 80 feet deep.

Digging into SR 99 tunnel construction: the launch pit

This summer, the largest-diameter tunnel boring machine (TBM) ever built will begin digging the SR 99 tunnel beneath downtown Seattle. The 57.5-foot diameter machine will start its two-mile journey in a massive pit located in the tunnel construction area to the west of Seattle's stadiums.

See the ferry boats at the center of this photo? They are roughly the same size as our TBM. Now picture one of those boats setting sail in the large dirt area in the foreground and you'll get an idea of just how large the SR 99 Tunnel Project really is.

How do you get a machine that's the size as some of Washington State Ferries' largest vessels into the ground? Simple – dig a pit. Of course the idea of the pit is simpler than its execution. A big tunneling machine requires a pretty big pit. Here's how the whole thing works:

Step 1: Build underground walls that will form the outside of the pit. The walls are made up of more than 200 concrete piles that are drilled up to 100 feet into the ground, side-by-side, until the walls are complete.

Step 2: Build wells to keep water out of the pit during excavation.

Step 3: Excavate more than 86,000 cubic yards of soil.

Step 4: Build a 10-foot-thick concrete foundation.

Step 5: Build a gantry crane system to lower TBM sections and other materials into the pit.

Step 6: Install utilities needed to operate the TBM.

Step 7: Assemble TBM in the pit and begin tunneling toward a new SR 99 corridor.

U.S. Department of Transportation Federal Highway Administration
Washington State Department of Transportation
King County
Port of Seattle
City of Seattle

Alaskan Way Viaduct
REPLACEMENT
PROGRAML

For more information

Visit the website at:
www.AlaskanWayViaduct.org

Call the hotline:
1-888-AWV-LINE

Send an email to:
viaduct@wsdot.wa.gov

Send a letter to:
Alaskan Way Viaduct
Replacement Program
c/o Washington State
Department of Transportation
999 Third Ave., Suite 2424
Seattle, WA 98104

Launch pit construction schedule

2013			
Winter	Spring	Summer	Fall
Build pit foundation and gantry crane system			
Install utilities and TBM support facilities			
	TBM arrives from Japan		
	Assemble TBM		
		Start tunneling (tunnel opens to traffic in late 2015)	

Launch pit machines

Built directly over the launch pit, a 68-foot-tall gantry crane will carefully place each TBM piece within the pit. The largest piece of the TBM will weigh over 900 tons.

This massive red crane is the Demag 1800, which is the strongest crane on the work site. The crane was used to erect the gantry crane.

Launch pit by the numbers

Number of piles used to build the walls: 226
Pile diameter: Five feet
Pile depth: 100 feet
Launch pit length: 400 feet
Launch pit width: 80 feet
Launch pit depth: 80 feet
Amount of soil excavated: 86,000 cubic yards

Americans with Disabilities Act & Title VI information

Americans with Disabilities Act (ADA) Information: This material can be made available in an alternate format by emailing the WSDOT Diversity/ADA Affairs Team wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Title VI: WSDOT ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin or sex in the provision of benefits and services resulting from its federally assisted programs and activities. For questions regarding WSDOT's Title VI Program, contact Jonté Sulton at 360-705-7082 or SultonJ@wsdot.wa.gov.