

# WALTERDALE BRIDGE REPLACEMENT PROJECT

## 2014 YEARBOOK



WALTERDALE SITE—OCTOBER 2014

Construction on the new \$155 million Walterdale Bridge project began in January 2013. The new bridge will feature three northbound traffic lanes and enhanced pedestrian and cyclist crossings, with a walkway on the west side and a separated shared-use pathway on the east side. Roadway and trail links north and south of the river will also be enhanced.

The signature arch bridge will feature two 43 m tall arches (equivalent to a 13-story building) supported by thrust blocks on both river banks, eliminating the need for permanent river piers.

The century-old Walterdale Bridge will be removed in 2016 once the new bridge opens to traffic.

# 2014 CONSTRUCTION TIMELINE

## JANUARY

- Pile driving is completed on both sides of the river to create watertight cofferdams.
- Excavation begins in the cofferdams to create a work area for thrust block construction.

## FEBRUARY

- Crews complete cofferdam soil excavation.
- Arch steel fabrication begins in South Korea.

## MARCH

- Thrust block construction begins in all four cofferdams. Thrust blocks are the foundations that will support the future bridge arches.
- Work begins on the north bridge abutment, which will tie the roadway to the future bridge.
- Decorative streetlights unique to the project are placed along Queen Elizabeth Park Road.

## APRIL

- Work continues on thrust blocks in all four cofferdams and on the north bridge abutment.
- Work begins on the south bridge abutment.

## MAY

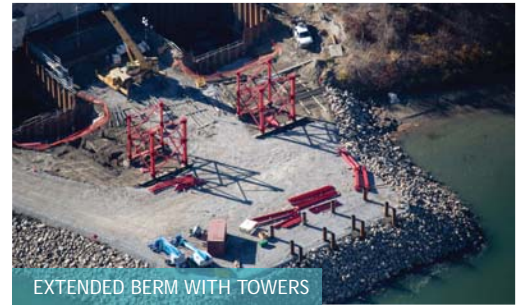
- Waltherdale Hill closes for road realignment.
- The Interpretive Belvedere information panels are refurbished.
- Work begins on micropiles that will support the thrust blocks.

## JUNE

- Work on the micropiles is completed.
- Crews begin installing anchor rods, which will secure the arches to the thrust blocks.
- Work continues on both bridge abutments.



EXCAVATING A COFFERDAM



EXTENDED BERM WITH TOWERS



PAVING WALTERDALE HILL



ARCH ASSEMBLY IN KOREA

## THRUST BLOCKS

Thrust blocks are large concrete foundations that will anchor the arches and carry the bridge load. The new bridge will have four thrust blocks, two on each side of the river.

The thrust blocks are built in stages to properly secure the foundation to the deep bedrock below. Micropiles are installed below each thrust block for support and anchor rods are installed to connect the thrust block to the steel arch structure.

Such a large amount of concrete requires a gradual pouring process. In order to keep the concrete from overheating and ensure it cures properly, the concrete is fitted with a circulating cooling system to control its temperature.

Each completed thrust block will measure 10 m across with a volume of 600 cubic metres and be buried 20 m below the road surface.



ANCHOR RODS COMING OUT OF SOUTHEAST THRUST BLOCK

## UPCOMING WORK

In 2015, Edmontonians will quickly see a lot of change on site as the new bridge comes together.

### 2015

- Complete thrust blocks and backfill cofferdams.
- Complete tracks in laydown area.
- Receive arch steel on site.
- Assemble and lift arches.
- Construct bridge deck.
- Construct new south side trails.
- Connect roads to new bridge.
- Open new bridge to traffic in late fall.

### 2016

- Remove old bridge.
- Complete landscaping and trail connections.
- Open trails to pedestrian/cyclist traffic.

### JULY

- Walterdale Hill reopens ahead of schedule.
- Work on anchor rods continues.
- The area northwest of the existing bridge is fenced off for tree removal and work on a future promenade wall.

### AUGUST

- Crews begin extending in-river berms to serve as launching areas for the bridge arches.
- The Interpretive Belvedere information panels are relocated to a temporary home northeast of the Traditional Burial Grounds/Fort Edmonton Cemetery.
- Work on thrust blocks continues on both sides of the river, with crews placing concrete over the anchor rods.

### SEPTEMBER

- Crews begin excavation in the fenced off area northwest of the existing bridge for a future promenade wall.
- Concrete pours continue for thrust blocks.
- Crews begin installing pilings on the in-river berms to support temporary arch lift towers.
- Temporary arch lift towers, which will lift the arches into place, are assembled on site.

### OCTOBER

- Temporary arch lift towers are installed on both in-river berms.
- Concrete track foundations are poured within the south side construction laydown area. Tracks will bring the arches from the assembly site to the river.

### NOVEMBER

- Concrete pours continue for thrust blocks.
- Work continues on temporary arch lift towers and tracks for the laydown area.

### DECEMBER

- Work continues on concrete foundations for tracks in the laydown area.
- Cofferdam excavations are backfilled.

## GETTING THE ARCHES INTO PLACE

The completed bridge arches will span 206 m and be 43 m tall (about as high as the High Level Bridge).

Arch steel will be assembled on site and lifted into place on top of the thrust blocks. The central segment of the arches will be assembled on the south side and moved along tracks before being transferred to barges on the river. Once on the barges, the central segments will be floated across the river until one side of the arch rests on each berm. Temporary lift towers installed on the berms will then lift the arches into place on top of the thrust blocks. An animated arch lift video is available at [edmonton.ca/walterdalebridge](http://edmonton.ca/walterdalebridge)



ARCH LIFT ANIMATION STILL

# ABUTMENT FLOOD LINES

One decorative element of the new bridge is a set of parallel lines stamped into the concrete on both abutments. These show historic river flood levels over the past century.

Once the bridge is completed, these lines will feature metal plaques with the flood dates for pedestrians to read as they stroll across the bridge and adjacent trails.



## HISTORICAL RESOURCES

The City of Edmonton recognizes and values the traditional and historic significance of the Rossdale area and seeks to minimize impacts as it replaces the Walterdale Bridge.

The area surrounding the Walterdale Bridge is considered an area of significant cultural and traditional importance for Aboriginal peoples. The north side is home to the Traditional Burial Grounds/Fort Edmonton Cemetery, which includes a memory circle, re-interment area, historic period graveyard and interpretive information panels.

Consultation with various Aboriginal communities has been ongoing throughout the project. In 2014, Aboriginal observers monitored all excavation and in-river work.



## INTERPRETIVE BELVEDERE INFORMATION PANELS

In 2014 Interpretive Belvedere information panels were refurbished and reinstalled in a new temporary location just north of the Traditional Burial Grounds/Fort Edmonton Cemetery.

## ARCHAEOLOGY

As of November 2014, four new cultural resource sites have been recorded as a result of archaeological monitoring. Three of these are refuse pits. Two of the refuse pits date to the early part of the 20<sup>th</sup> Century and the third is likely a 19<sup>th</sup> Century feature representative of the Fur Trade Period. The last is a small campsite dating to the Prehistoric period. Other finds include only industrial debris, isolated animal bones, and shards of glass and pottery from the middle to late part of the last century.