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Klohn Crippen Berger

65 years of service

PARKDALE PLAZA

CALGARY, ALBERTA



2016 AWARD SUBMISSION
KLOHN CRIPPEN BERGER



THE CITY OF
CALGARY



NAME OF MEMBER
FIRM SUBMITTING

Klohn Crippen Berger Ltd

ADDRESS OF FIRM

500 – 2955 Virtual Way, Vancouver BC V5M 4X6

TEL

604.669.3800

FAX

604.669.3835

CONTACT NAME

Kathy Fowler

EMAIL

kfowler@klohn.com

PROJECT TITLE

Parkdale Plaza

LOCATION OF PROJECT

Calgary, Alberta

CATEGORY OF ENTRY

C. Water Resources

PROJECT OWNER / CLIENT

City of Calgary

SUMMARY
DESCRIPTION OF
PROJECT

The City of Calgary retained Klohn Crippen Berger to complete repairs to stormwater outfalls. Outfall B86 was selected as a site for Parkdale Plaza, a community gathering place that showcases the sculpture Outflow. KCB designed the outfall repairs, bank protection, and the support structure for the sculpture, which was fabricated out of an innovative concrete product. The plaza exposes the stormwater network, raising awareness of infrastructure, and our impacts on the health of the environment.

PARTNERS

The Marc Boutin Architectural Collaborative Inc.
Entuitive
Mulvey + Banani International (Alberta) Inc.
Scatliff+Miller+Murray

CONTRACTORS

Volker Stevin Contracting Ltd.
F&D Scene Changes Ltd.

KEY TEAM PLAYERS

Brian Tolle Studio
Kris Collins, Mark G. Anderson Consultants, Inc.
Lafarge North America



innovation

Klohn Crippen Berger (KCB) was retained by the City of Calgary (City) Water Resources to complete the Stormwater Outfall Upgrades (Outfalls) project. This project required the design and construction of rehabilitation and backflood prevention works for more than 40 outfalls located in Calgary, along the Bow and Elbow Rivers.

During the preliminary design phase of the Outfalls project, the Outfall B86 site, located on the Bow River in the community of Parkdale, was identified by the City for integrating public art as part of the Memorial Drive Landscape of Memory corridor.

The City envisioned a public plaza featuring an art sculpture by internationally acclaimed artist Brian Tolle. The objectives of the Parkdale Plaza project were to create an opportunity for the community to connect to the river, and to promote social, environmental, and economical responsibility by raising awareness of the municipal stormwater system.

The Marc Boutin Architectural Collaborative Inc. (MBAC), acted as lead consultant on the Parkdale Plaza project. KCB was the prime consultant for the Outfalls project, working with MBAC to complete the design and construction of the Parkdale Plaza project. Brian Tolle, of Brian Tolle Studio (BTS), is the artist that designed the artwork piece Outflow.

Inspired by the glacial origins of the Bow River, Brian visited the Bow Glacier in Banff National Park and used topographical maps and digital 3D software to create an inverted form of the peak of Mount PeeChee, the third highest peak in the Fairholme Range. This form was the original concept for Outflow.

The biggest challenge faced by the artist was to find a material that could bring his vision into reality. Potential materials were discussed at length including precast concrete, shotcrete, reinforced fiberglass, or a combination thereof. During the material selection process, KCB, the City, and Brian were invited to meet with Lafarge to discuss the capabilities of Ductal, an ultra-high performance concrete. The properties associated with Ductal are elevated values in strength, durability, and ductility. Lafarge claims that the ductile failure of Ductal closely resembles the failure mode of metals rather than concrete. Ductal allows designers the opportunity to create thinner sections and use complex geometries and forms which would not be possible with conventional concrete. To simplify the fabrication and shipping process, the sculpture was broken up into multiple panels with each panel featuring built-in capability for the required connections to either the foundation or to the adjacent panels.



complexity

Retaining a qualified fabricator, designing the subsurface support structure, and adapting to the effects of an unprecedented flood event were challenges faced by the project team.

Lafarge requires that fabricators be certified to work with Ductal. BTS located a Ductal-certified fabricator in New Jersey; however, mid-project, the fabricator experienced financial issues and backed out of the project. A search for a local fabricator began, and F&D Scene Changes Ltd. were engaged. They were eager to complete the required training and become Ductal-certified. In addition to strengthening the local talent pool, employing a local fabricator allowed the project to reduce shipping costs and the chance of schedule delays.

Concerned with the ability of the sculpture panels to resist external loads, KCB designed a retaining wall structure to envelope the embedded portion of the sculpture, alleviating earth pressure loads that would have been acting on the sculpture. In addition, a network of weeping tile drains was integrated into the structure to draw groundwater and seepage away from the sculpture to prevent the build-up of hydrostatic loads, including uplift, from developing.

In June 2013, heavy rainfall in the watersheds of the Bow and Elbow Rivers caused an increase in water levels in and around Calgary, in what is now known to be the largest flood in Calgary's modern history. Downtown Calgary and several communities were flooded, which delayed the project construction to allow for the project team to adjust priorities to complete post-flood repairs and provide assistance to other areas of the City.



social and / or economic benefits

The Parkdale Plaza site is located along the Landscape of Memory corridor, is accessible via bike and pedestrian pathways, and has impressive views of the Bow River. The location of the plaza, and the incorporation of public art, work together to generate social and economic benefits for the community.

Parkdale Plaza invites visitors to pause, reflect, and connect to the river. It provides an opportunity for the community to take a moment to consider the connection between their everyday activities to our natural environment, and also inspires visitors to start dialogue with each other, strengthening social ties within the community. Being located along the Landscape of Memory corridor, the plaza also plays a part in contributing to the corridor's commemoration of the legacy of the lost men and women of our community that made sacrifices so that we have the privilege of personal freedoms today.

Public art projects are large undertakings, with one cent from each infrastructure project dollar being spent on enhancing our environment. Public art benefits the economy, creates jobs, and makes our city more attractive to visitors. Often, a good majority of the public art money stays in Calgary. For the Parkdale Plaza project, although the artist was based out of New York, local contractors, local engineers, and a local specialty fabricator, now Ductal-certified, were employed. Calgary has a reputation for award-winning public art, and hopes that in supporting public art projects, such as Parkdale Plaza, the City will create investment benefits for the local economy.

environmental benefits

The Parkdale Plaza project aims to increase public education about City infrastructure and promote environmental responsibility.

Outflow was designed to replace a segment of the existing stormwater line, making the invisible stormwater network visible. The intent of this was to encourage individuals to not only respect the resources that travel within these buried conduits, but the infrastructure itself.

The pedestrian bridge that spans Outflow allows visitors to watch stormwater flow travel through the inverted mountain range, mimicking the movement of the river, reminding visitors of how our everyday activities can have an impact on the health of the river and inspiring each citizen to be an environmental steward, protecting this source of water for the City and those downstream.

The plaza strikes a balance between the natural environment and our man-made environment, and as Outflow emerges from the plaza surface it successfully brings to light the impact we have on our surrounding environment.

"As Calgary has grown, its relationship to the river has changed. Increased development within the Bow River watershed puts pressure on this hydrological system. Storm run-off flowing through outfalls carries oil from roads and chemical fertilizers from lawns directly into the river. By day-lighting this outfall, the artist has connected this site to the water's origin in the Rocky Mountains to raise awareness about water pollution. Like other forms of physical memory, these chemical pollutants are recorded by the river and its plants and animals in ways that will negatively impact future generations." – Brian Tolle

meeting client needs

The main objectives of the Parkdale Plaza project included:

- Creating an opportunity to allow the community to connect to the river;
- Creating a public gathering place for the neighbourhood and regional pathway users;
- Rehabilitating Outfall B86 and providing erosion protection for the riverbank; and
- Promoting social, environmental, and economical responsibility.

To help the project team meet the objectives, KCB completed the following scope of work.

Multiple site visits and a geotechnical site investigation program to establish design parameters were completed. KCB designed an outlet structure to replace the aging infrastructure and bank protection consisting of vegetated riprap with integrated stepping stones to help the public connect to the river. A new manhole was designed with a slide gate to provide backflood protection for the site in case of high river levels, and to provide City Field Services a means to isolate the sculpture for maintenance. KCB performed construction and environmental monitoring to ensure adherence to City specifications and regulatory requirements.

KCB liaised with the artist providing input on the design, construction, and installation of the artwork, plaza components, and subsurface supporting works. Also, a public engagement session was held to gather input from residents of the community.

June 27th, 2015 was a celebration of the public opening for Parkdale Plaza and the culmination of years of collaboration between engineers, artists, landscape architects, City departments, and community members. Parkdale Plaza is now a space where visitors can appreciate the sculpture, and reflect on the relationship between the community and the river.



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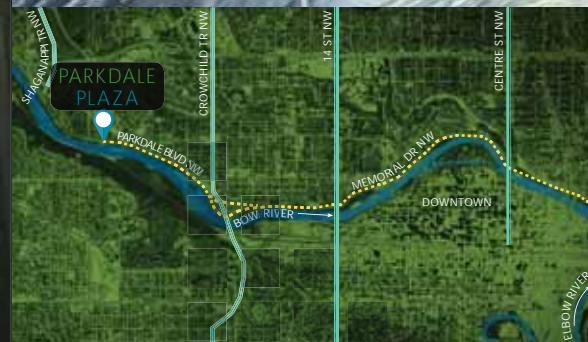
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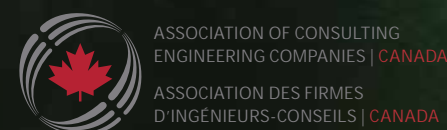
Parkdale Plaza is a unique collaboration between artists, landscape architects, and engineers. Outflow, the public art featured in the plaza, which is in the shape of an inverted mountain range, replaces a segment of the stormwater infrastructure offering a new perspective to our urban landscape, helping to raise awareness of the connection we have to the health of the river and surrounding environment.



PHOTOS BY KRIS COLLINS OF MGAC | ARTIST RENDERINGS BY MBAC



Brian Tolle, the project artist, has won international acclaim for his work in countries worldwide, from the UK to Switzerland, Cuba to all over the United States.



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ARTIST RENDERING



POURING THE BASE SLAB OF THE SUBSURFACE SUPPORT STRUCTURE



PARKDALE PLAZA ON OPENING DAY



VIEW OF THE BOW RIVER FROM PARKDALE PLAZA



VISITORS AT PARKDALE PLAZA

"As Calgary has grown, its relationship to the river has changed. Increased development within the Bow River watershed puts pressure on this hydrological system. Storm run-off flowing through outfalls carries oil from roads and chemical fertilizers from lawns directly into the river. By day-lighting this outfall, the artist has connected this site to the water's origin in the Rocky Mountains to raise awareness about water pollution. Like other forms of physical memory, these chemical pollutants are recorded by the river and its plants and animals in ways that will negatively impact future generations."



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