PORT MANN BRIDGE
Vancouver, British Columbia
Photo by Ryan Tabuchi

WORLD CLASS
ENGINEERED CONSTRUCTION®
MANHATTAN WEST  
9TH AVENUE DECK  
COVER STRUCTURE  
New York, NY

Provided design and construction engineering services for the platform structure, which consisted of sixteen 240 foot long simple span box girders set side-by-side. The platform supports a skyscraper and plaza. Each span is comprised of up to 39 precast segments and weighs 2,400 tons. Spans were set at night using a custom 1,100 ton overhead gantry during 20 minute rail closures over rail lines adjacent to Penn Station. Box girders were designed with web vents and fans to exhaust track-level air, and steel armored openings through wings to accommodate future penetrations for support of the towers, up to 1,200 foot tall, located above.

Owner:  
Brookfield Development  
Contractor:  
Rizzani de Eccher
Providing engineering services for the construction of the approaches to the new bridge over the St. Lawrence Seaway. To accelerate construction of the approaches, the footings and the pier starter segments are being precast on a temporary jetty on the bridge alignment, then placed in the river and grouted in place. McNary Bergeron designed the form system and the handling and lifting devices for the 1000 ton precast footings.

Owner: Infrastructure Canada
Contractor: Signature on the Saint Lawrence Construction G.P. (SNC-Lavalin, Dragados, Flatiron)
Provided construction engineering services and on-site engineering support for the construction of the extradosed main spans of this new bridge over the St. Croix River. The dual box superstructure utilizes a unique 4-web bathtub section for the girders, which are connected using a transverse frame system. 580 precast segments, weighing up to 180 tons each, were lifted with beam and winch frames which were capable of side shifting between the girder lines. Due to lack of river access beneath the endspans at the exterior piers, segments were lifted onto the river-side cantilever tip and walked to the opposite end of the cantilever.

Owner: MnDOT
Contractor: Lunda Ames JV
Provided construction engineering services for 1.4 km of precast segmental viaducts. The new line spans roads, existing buildings, Ocean Park, the Aberdeen Channel, and for much of its length, straddles a nullah. To meet these challenges, the structure was built in balanced cantilever using a mobile lifting frame that allowed delivery of segments to any point below the span. The structures use a number of innovative techniques including precast pier segments on integral columns and split straddle bents to eliminate bearings and simplify construction.

Owner: MTR
Contractor: Leighton Construction Ltd.
Provided construction engineering required to launch a 1421 foot steel girder bridge. In the Arctic, heavy construction is typically limited to the coldest months of winter, after ice roads have been constructed. By using launched construction, PCL was able to erect the bridge in just 3 months, finishing in mid December while temperatures were still a balmy -20°F. The construction engineering included equipment design (launch nose, rollers, launch track, and launch system), launch procedures, and step-by-step analysis of the permanent structure. In addition to all of the usual considerations, the system was designed to operate at -40°F and resist 110 mph winds.

Owner: Conoco Phillips
Contractor: PCL
RIYADH METRO PROJECT
CONTRACT 1
Riyadh, Saudi Arabia

Provided construction engineering services for an aerial guideway that has over 600 spans of single box, dual box, and station platforms. The guideway is built using 5 overhead launching gantries for span-by-span construction and two sets of mobile segment lifters for balanced cantilever construction. The 600+ spans range in width from 4.5 meters to 17 meters and have a maximum segment weight of 83 tonnes.

Owner: Kingdom of Saudi Arabia
Contractor: Bechtel Almabani, CCC, Siemens
Provided construction engineering services to support the JV with complex portions of the steel girder erection. This included conventional erection of long span steel girder spans, and most notably the incremental launch of the girders on the Westchester approach. Bound by the Metro North Railroad tracks, and the existing bridge, conventional crane erection was deemed impractical. The nine (9) – 9’ deep girders in the cross section were launched three (3) at a time from a common bed behind the abutment. The critical push across the 265’ clear span above the railroad tracks was carefully coordinated with MTA with limited interruption to passing trains. Once launched into their final longitudinal position, girders were side-launched into final position above the permanent bearings. McB developed and designed the launching plan, the launch equipment (nose, king post support system, launching system, and roller supports), an incremental analysis of the structure and geometry control plan.

Owner: New York Thruway Authority
Contractor: Tappan Zee Constructors JV (Flour/ American Bridge/ Traylor / Granite)
Provided design and construction engineering services for 3 cast-in-place (CIP) and 3 precast segmental bridges as part of the Carmel Tunnel and Rupin Interchange project. To simplify the form traveler design, the CIP bridges had a versatile, constant depth design, that accommodated maximum spans of 70 meters, curvature of 75 meters and deck widths varying from 8 to 16m.

Owner: Carmelton Group, Ltd.
Contractor: Ashtrom Construction/ Solel Boneh Ltd. JV
Provided construction engineering for the cast-in-place approaches and 2,000 foot cable stayed bridge. The new bridge will be significantly taller to accept Panamax ships. Our work included design of heavy lifts for the MSS (Movable Scaffold System) for casting of the approaches. For the main-span structure, services included design of the heavy lift system for the pre-assembled pier table and design of the temporary stability towers in the backspans.

Owner: Port of Long Beach
Contractor: Shimmick / FCC Construction / Impregilo S.P.A., Joint Venture
Provided design support for Bridges to Prosperity’s standardized suspension bridge. In our 10 years of involvement with B2P the organization has brought safe access to thousands of people in developing countries. To date, our prototype design has been adapted for use on 20 projects around the world including the Rio Abajo Bridge which serves a population of 3,000 near Pueblo Nuevo.

Owner: Community of Rio Abajo
Builder: Bridges to Prosperity/Kiewit