



Photographs show the installation of precast concrete bridge units, placement of reinforcing steel for distribution and approach slab and the completed bridge and roadworks.



## Montgomery Bridge Replacement County of Simcoe

In November 2005, the County of Simcoe retained the Ainley Group to complete the Class Environmental Assessment (Schedule 'B'), final design, and construction supervision for the replacement of the Montgomery Bridge, located on County Road 9. The existing structure was in very poor condition with numerous large cracks, spalls, and corroded reinforcing steel visible on the fascias, soffit, and wingwalls. In addition, traffic barriers were nonexistent on both the existing bridge and approaches, contrary to the current requirements of the Canadian Highway Bridge Design Code and the Ministry of Transportation's Roadside Safety Manual.

A hydraulic model of the existing structure was created using HEC-RAS software, with the results being utilized to establish the size requirements for the hydraulic opening of the new structure to safely pass the required design storm and maintain access within the road Right-of-Way. The final design consisted of a precast concrete, open footing, rigid frame structure which minimized the disturbance to the watercourse and duration of the required road closure. In addition, the road platform was significantly widened with the road profile and alignment likewise modified.

Construction of the bridge began in late June 2007 and was substantially completed by early September 2007. After the environmental protection and stream control measures were installed, removal and disposal of the existing bridge was completed. This was followed by construction of concrete footings for both the precast bridge units and retaining walls. The precast concrete bridge units were installed by crane onto the concrete footings. Retaining wall construction, backfilling of the structure, and distribution and approach slab construction followed. Cast-in-place concrete barriers were formed and poured, incorporating reinforcing steel that had been cast into the precast bridge units. Roadworks and site restoration, including the use of a turf reinforcement system to provide erosion control on the steep embankment adjacent to the bridge, were the final steps towards completion.

### Project Facts

**Client:** County of Simcoe

**Scope of Work:**

- Class Environmental Assessment (Schedule 'B')
- Detailed structural, hydraulic, and road design
- Contract administration
- Construction supervision:
  - Environmental protection measures
  - Removal and disposal of existing bridge structure
  - Earth excavation
  - Concrete footings
  - Installation of precast bridge units
  - Granular backfill
  - Concrete retaining walls, distribution and approach slabs, and barriers
  - Site restoration.

**Project Cost:** \$475,000 (2007)