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Signage at a Mid-Canada Line site warns of demolition debris from a collapsed building containing asbestos.

Unlike the DEW Line, which was created by the U.S. military, the MCRL was entirely Canadian, consisting of 98 radar stations stretching across the 55th parallel from Dawson Creek, British Columbia to Hopedale, Labrador. Seventeen of these sites were located in Ontario and by 1965 this short-lived virtual security fence was closed for strategic and economic reasons.

The operation and decommissioning of the sites is widely accepted as not having adhered to the same environmental standards we have today. As a result, the Department of National Defence (DND) and the Ontario Ministry of Natural Resources (MNR) formed a partnership to properly put the Ontario sites to bed.

"The sites contained demolition debris, contaminated soils and old dumps, which were thrown into a pile instead of into an engineered landfill as we have down south," says Scott Munn, former Canadian Armed Forces engineer and head of DCC's Mid-Line Clean-Up team.

"I was involved with the DEW Line clean-up for 17 years so this is my second environmental remediation project in the North. It's very important work, a huge project and it needs to be managed carefully."

The guiding principles behind the effort were respect, equity, consultation and accommodation, with the mandate of remediating the sites while employing First Nations people locally.

Who knew the project would far exceed those original parameters and become a first-of-its-kind collaboration for DCC between two levels of government and First Nations people. With the MNR as project manager, DCC supported DND in managing the federal contribution program and provided advice and guidance on the clean-up itself—Munn and his team became more like partnering champions and advisors, given their experience with the DEW Line clean-up.

The result landed MNR employees an Ontario Public Service award and DCC received the highest level endorsement possible from DND and MNR who said the project would not have been as successful without the expertise of DCC.

“We were providing advice and the Ontario MNR graciously accepted it. We got this power of positive progress going. Trust and morale builds with good communication and positive results, so for me this whole process is an earned acknowledgment of DCC's competence.”

“It's extremely gratifying to receive this sort of customer satisfaction for this unusual federal-provincial collaboration, where our role has been expert advisor toward the success in both the project and the program.”

DCC first got involved in the project in the 1990s when the MNR approached DCC. After an Ontario-led beginning to the clean-up, DCC was re-engaged in 2007 and began working to get the clean-up going. Of the 11 sites DCC was asked to collaborate on, eight have been completed with the remainder slated for completion by this year or next.

With the MCRL clean-up close to completion, Munn can take stock of what has been accomplished by multiple stakeholders working together to operate in a difficult operating location with challenging terrain having remote, limited access.

“In spite of contract challenges in the North, MNR is close to being on budget and on schedule, which is a great result for this type of project.”

In addition to Munn, the DCC team consisted of Thuc Nguyen, Tamara Van Dyck, Patricia O'Donnell, Joanne Vaillancourt, Genevieve Boileau and Nick Sanders.

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On a large construction project, it is not unusual for there to be some unexpected challenges along the way. With the \$117.8-million Pleasantville Consolidation Project (PCP), some of the biggest challenges came from things the contractors with the big shovels literally bumped into underground.

Right from the moment they started digging, the contractors ran into concrete at every turn, recalls Jeff Hopkins, Site Manager, DCC St. John's, who has been on the project since before it went to tender in 2008. "Finding one huge tank was fine. We could deal with it. But then we found a bunch of things all at once, including foundations and concreted-encased storm and sanitary sewers. As soon as we'd conquered one, we'd find another. It never seemed to end."



Construction of the four-storey, 32,000 m<sup>2</sup> multi-use Pleasantville consolidation facility at CFS St. John's. The new single structure will replace 13 buildings and house vehicle maintenance garages, warehouse space, a gymnasium, medical unit, mess hall and offices.

These early obstacles put the human relations and communications skills of the DCC project team members to the test, as they worked with increasingly frustrated contractors.

Besides having Hopkins and his colleague Colin Sullivan, Program Leader, Construction Services on site every day personally directing the work and dealing with problems as they came up, the project team held a full-day partnering session with DCC, DND and contractors in attendance. "It was very productive," Hopkins says. "It really took a team effort from all sides to keep us all working in the same direction."

It also helped, despite having to contend with a significant labour shortage over the life of the project, that everyone had a common goal: building a brand-new 32,000-m<sup>2</sup> structure to replace multiple aging buildings and be the new home for CFS St. John's. The overall effort also involved considerable road and municipal services upgrades, along with the construction

of the new Military Family Resource Centre, which opened in May 2013.

At the time it was awarded, the \$117.8-million construction contract was the largest in DCC history. In fact, everything about the project is big. Contractors removed 3,000 m<sup>3</sup> of concrete and 22,000+ tons of contaminated material, and took that much again in demolition debris to the landfill. The new building required 25,000 m<sup>3</sup> of concrete to construct. The HVAC system is “huge and complicated” Hopkins notes, given the size of the facility. There are also two enormous generators, one to power the fire and life safety systems, and one that can run the whole facility in the case of an outage.

The project is nearing completion, with handover expected in March 2014. After that, DCC will help DND move in, having already furnished the building. Spring will also bring deficiency clean up, demolition of some temporary buildings associated with the PCP, and a list of other standard contract closure tasks, while ongoing work on the HVAC system will take place as the seasons change and the system requires rebalancing.

Hopkins credits the strength of the project team—and their mix of skills and experience—for the success of the project. Reflecting on their work, Jeff is excited about the challenges to come (DCC will be responsible for facilities maintenance) and takes pride in past accomplishments. “We talk about how challenging it was, but it’s better to think about how we found solutions to those challenges—and how we’re better for having done it.”

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Rendering of the Canadian Forces Military Police Academy at CFB Borden. This 9,920-m<sup>2</sup>, two-storey training facility will consolidate all the academy's operations and offer a modern space for specialized training.

The new Canadian Forces Military Police Academy at CFB Borden will house facilities ranging from the ordinary—classrooms, offices and a library—to the extraordinary—a live ammunition firing range, a pepper spray room, evidence rooms and labs, as well as a museum.

Supporting the construction of this \$54-million multi-purpose building has brought the analysis and problem-solving skills of the DCC project team to the fore. For example, there are many types of firing ranges, explains Derek May, Team Leader, Construction Services, and you need to have the right infrastructure in place to accommodate the model chosen, including the ceiling height and various mechanical systems. The DCC team has become very good at “determining what was, what is and what will be” to build such a specialized space—that is, figuring out the client's goals, the requirements of the current design and how best to meet them.

The key to doing so is having the right two-person team overseeing the project, May says, in this case Mark Jarman and Ryan McKnight, Coordinators, Construction Services. “They complement each other in their knowledge, experience and background.”



Construction of the \$54-million multi-purpose training facility. The design-build contract is due to be completed in 2015.

Each has his role (Jarman works on the systems side while McKnight's specialty is the building envelope and on-site project management and quality assurance), but they do overlap. As a result, communications is crucial. "We have to be on the same page," Jarman says. And that comes through active listening about what each one is doing and why. In addition, by reviewing drawings and maintaining a daily presence on site, they can see what's coming and identify problems before they happen.

The team also has regular access to DCC Borden colleagues, so when a challenge does crop up, such as finding discoloured soil that was cause for concern, Jarman and McKnight can bring in help right away—in this instance, to get the soil tested and determine a response. Similarly, the commissioning team regularly helps Jarman and McKnight look ahead to when building systems will be connected, turned on and inspected. "We don't want to get all the way down the road and find out something doesn't work," Jarman says.

The 9,920-m<sup>2</sup>, two-storey Military Police training facility, which has been designed to the Leadership in Energy and Environmental Design (LEED) Silver standard, will consolidate all the academy's operations and offer a modern space for specialized training. With the structural steel at 100 percent, the rough-in of services has begun and exterior cladding is expected to start shortly. The current completion date for the new structure is 2015.

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***DCC staff working at CFB Comox on Vancouver Island tried an innovative approach for getting things done on a tight timeline. The result? It has become a model of success for other DND projects.***



B-327, as the building is known, has 24 single rooms, with shared baths, laundry facilities, and office space for Accommodations personnel. DCC tendered and completed the \$862,000 facility in 120 days. The new building replaces quarters that had been constructed as barracks for airmen during the Second World War.

It could be a construction coordinator's most challenging assignment—find a contractor to construct an important building for under \$1 million in a 72-day construction schedule—over Christmas.

Garry McLeod, Coordinator of Construction Services for DCC at CFB Comox, laughs when describing how he felt when faced with this request.

"How do we get industry to respond enthusiastically? There was no sense putting something on the street they're not going to bid on."

So Garry and his DCC team got creative. "We knew that making it recognizable as a very simple project in the documents was key. So in the tender documents we stated that clearly and left it open, meaning the contractor had flexibility to determine how it wanted to build it."

This performance design-build approach meant the contractor was responsible for design. DCC provided a description of how the building would function—as temporary lodging for people on short assignments on the base—and what it would need to accommodate, such as shared washrooms, window requirements, minimum sizes for storage spaces, safety requirements, etc. But the contractor was responsible for the ultimate design.

This was a different approach from most DND projects at 19 Wing Comox. "DND is very precise when defining projects—this was definitely a different approach for a project that had a budget of under \$1 million. We suggested it due to

the tight timeline and they saw the merit.”

In the performance design-build process, McLeod outlined acceptable options for the contractor to use: either a modular construction, a manufactured construction (build components elsewhere then deliver and assemble on site) or build from scratch on site. It was up to industry how they wanted to respond.

“We also outlined the options that DND were willing to accept in terms of materials and interior finishes, based on what is available on Vancouver Island.” This was a way to reassure contractors who might bid on the project that they weren’t expected to use hard-to-source materials that could delay the project.

The approach worked. The package was put to tender and multiple bids came from a range of modular builders, pre-manufacturing outfits, and build-from-scratch contractors. McLeod and his team awarded the work to Muchulat Projects Ltd., who chose to build from scratch.

The resulting accommodation building, called building B-327, was completed on time and under budget. It was built in 72 days, including everything from design, review, and excavation to finishes. The crew of local architects, designers, and contractors started before Christmas and worked through the holidays.

The response time of DND Project Manager, Captain Clifford Boyechko, was key as well. Captain Boyechko was travelling at the time working on other projects and often out of cell range.

“Contractor questions went through DCC to DND and we heard back almost immediately from Captain Boyechko. All parties stepped up to the plate,” said McLeod.

The description of the process makes it sound like a reality TV show—a short timeline to build a 24-room hotel style accommodation in 72 days! A seemingly impossible task that required an innovative approach to make it work. “Since then we’ve done more projects this way at CFB Comox,” said McLeod. “Offering contractors a choice has proven to be a good way to deliver a quality project at great value for public dollar.”



On May 2, 2013, officials cut the ribbon on the new Temporary Training Accommodations facility. Pictured here (left to right) DCC’s Garry McLeod, Coordinator, Project Support, Tania Formosa, Muchalat Projects Ltd, Wing Commander Col Jim Benninger, CWO David Bolster and Capt Boyechko, WCE Ops O.

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