Project
Former Paper Mill Demolition

Site Address
427 Mowat Avenue, Fort Frances, Ontario

Client
CMI

Submittal:
Engineered Demolition Plan – Overhead Gallery

Date
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Prepared by:

CANADIAN NATIONAL DEMOLITION

&

DST consulting engineers
a division of Englobe

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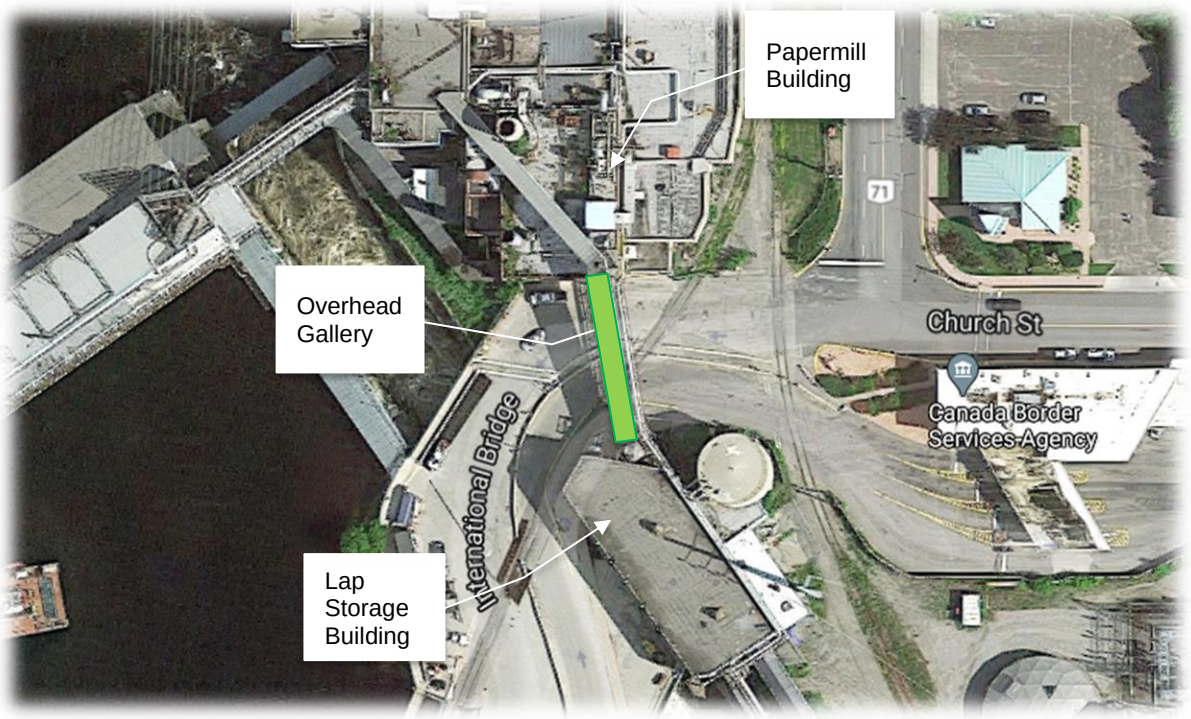
(Professional Engineer Seal is for
Demolition Methodology and Sequencing only)

Engineered Demolition Plan

As per the Ontario Building Code, an engineered plan is required when a building meets this requirement.

- A building is greater than 3 storeys in building height or 600 m² in building area,
- If a building structure contains pre-tensioned or post-tensioned members,
- If a building being demolished extends below the footings of adjacent buildings,
- Or for a building where explosives or lasers are to be used

Overview of Overhead Gallery Structure



Building Description

A. Overhead Gallery

- The overhead gallery crosses the international bridge road, spanning from the Lap Storage building to the Papermill building.
- The overhead gallery starts at the Lap Storage building at a height of approximately 20ft and proceeds upward to the Papermill building at a height of approximately 40ft.
- The overhead gallery consists of a steel truss structure. The structure is supported by:
  - The top and bottom chords which consist of back-to-back steel angles, the diagonal members consist of steel angles, and the top and bottom horizontal bracing consist of steel angles.
  - Each bay measures approximately 98” long, 120” wide and is 130” tall. There are 12 bays along the gallery as well as approaches on either end.
  - Large vertical I-beams on the Lap Storage Building side support the lower side of the gallery.
  - A steel frame located adjacent to the Papermill Building supports the higher side of the gallery.

Pre-Demolition:

- Obtain utility Locates (Ontario One-Call and Private)
- Electrical utilities shall be disconnected and removed (H_2O Power)
- Gas utilities shall be disconnected and removed (Enbridge/Centra)
- Water meters shall be disconnected at the foundation and protected from damage
- Sanitary and storm lines will be capped at the property line
- Work area shall be fenced off from public with a minimum 6' tall modular fence.
- Proper construction signage shall be posted in visible areas indicating demolition in process
- A demolition permit shall be obtained from the municipality having jurisdiction
- Notify Ministry of Labour (MOL) & the Canadian Boarder Service Agency (CBSA) of the Project
- All hazardous and designated substances shall be removed prior to commencing the demolition proceedings.
- Dust control will be maintained at all times, as required.
- Install erosion control measure as necessary
- Localised water and process lines shall be relocated
- All equipment and buildings shall be de-energized

Hazardous Substance Removal Checklist

- As per O.Reg 278 and DSS report

Utility Disconnection Contacts

Natural Gas – Enbridge – 1-866-763-5427
Centra Gas Pipelines – 807-482-1039
Electricity – H_2O Power – 807-274-0174
Water and Sewer – Fort Frances - 807-274-9893

Preparation for Demolition:

I. Have Shaw cable remove their line which attaches to the Papermill building at 122 Church street.
II. Implement 1ft air gap for all piping, cables and trays at the Lap Building side and Paper Mill side cut lines of the gallery using quick cut saws, reciprocation saw and cutting discs.
III. Publish border closure dates and times in local media and through border agents from both sides

Demolition Methodology:

I. Confirm border closure with agents from both Canadian and American sides.
II. Remove all jersey barriers from roadway lanes.
III. Set out roadway protection (i.e. steel plates and rubber tires).
IV. JD850 removes pipe rack from north side of gallery.
V. JD850 pulls exterior cladding at cut lines to expose structure at upper and lower cut line bays.

Demolition Methodology (Continued)

VI. Cut 1: Cold cut top two chords at upper cut line (see Figure 1).
VII. JD850 and PC800 remove sections of pipe behind cross bracing at the upper cut line.
VIII. JD850 and PC800 move to lower side of gallery and members, as shown, from lower cut line bays.
    a. Cut 2: Horizontal Bracing (top and bottom; see Figure 1),
    b. Cut 3: Vertical Members (both sides, see Figure 1).
IX. JD850 and PC800 remove sections of pipe behind removed cross bracing at the lower cut line.
X. Cut 4: JD850 and PC800 cut Bottom Chords (both sides; see Figure 1).
XI. Cut 5: JD850 and PC800 cut Top Chords (both sides; see Figure 1).
XII. Cut 6 (Final Cut): JD850 and PC800 cut diagonal members simultaneously (See Figure 1).
XIII. Gallery lower side descends to protected roadway, pivoting at upper pivot point on Paper Mill side.
XIV. JD850 and PC800 cut gallery at midway point to shorten it into manageable pieces.
XV. PC800 cuts severed end of gallery into movable size and material is removed by support machines to lay down area on north side of Papermill building.
XVI. JD850 cuts the upper section of the gallery in place and then severs the remaining two horizontal truss members.
XVII. PC800 and JD850 cut back protruding gallery ends on Lap Building and Paper Mill sides, ensuring no overhead hazards remains.
XVIII. All remaining debris removed from roadway protection by support machines and skid steer.
XIX. Roadway protection is removed, and roadway cleaned with skid steer with sweeper attachment.
XX. Jersey barriers are reinstated.
XXI. Roadway is released back to Border Services.

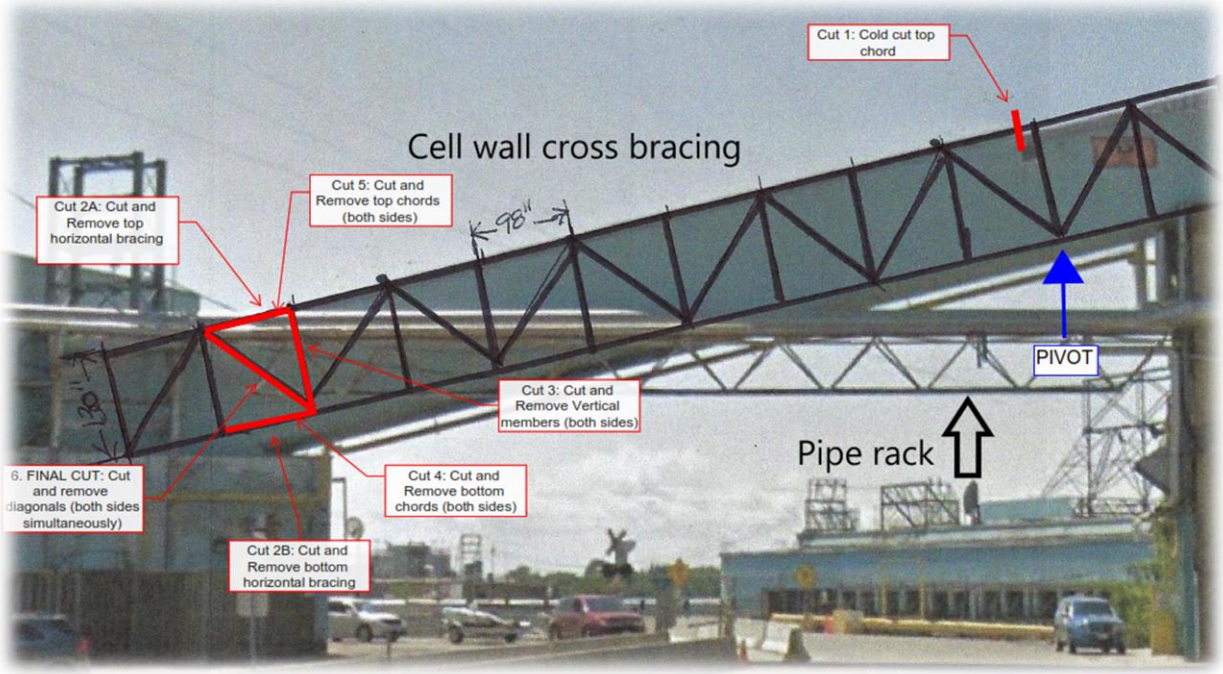


Figure 1: Overhead Gallery Demolition Sequence

Risk Management Strategy- Site Specific Health and Safety Plan

CND will ensure that all work is performed in accordance with the OSHA and O.Reg 278. Our Health and Safety representative will review the onsite characteristics and site conditions prior to commencing issues related to the structure. Identifying potential risks with the site and roof structure and briefing the staff prior to starting. Job briefing on daily basis and trips, falls and any other hazard discussions and inspection daily. All demolition will be completed with machine thus reducing the chance of falls etc. Noise, vibration and dust risks are identified furthermore any hazards uncovered during the work identified and handled accordingly.

Site boundaries and exclusion zones need to be identified prior to starting. Demolition activities resulting in falling materials or flying debris or with potential to affect structural will be monitored as per the plan.

Maps to the nearest health care facility will be onsite. All our vehicles and equipment are outfitted with first aid kits and fire extinguishers. Our site job box will have a spill kit supplies in them. Our safety board also outlines key contacts in case of an emergency and key personnel.

All manual worked faces above 2 meters in heights will be completed with the use of Hydraulic platform.

The structure will be progressively worked from one common face. Care will be taken so as not to destabilize the main structure. At the end of each shift, inspections by the site supervisor in charge will determine as to what temporary measures, if any, will be implemented until the commencement of the next shift.

All personnel must always wear safety helmets within the site. Those involved in the use of flame cutting equipment or straight sided cutting wheels must wear eye protection. Those involved in the use of or working proximity to, equipment such as pneumatic hammers and cutting wheels must wear hearing protection. Breaking out operations will produce high levels of nuisance dust and all involved in breaking out removal of rubble are to wear dust mask.

Entire site perimeter to be fully enclosed with enclosed with suitable security fencing/scaffold gantry as considered necessary by the site supervisor as mentioned above.

All utilities to be disconnected (i.e. isolated) & air gapped. Identify underground services lines and mark clearly prior to completing any digging. Map and safety protocol to be posted on job board prior to starting work. In the event of work close to live service lines, all work modes to be undertaken by hand techniques. Exercise common sense and good housekeeping always. Areas beneath demolition to be cordoned off. Constant evaluation of site safety on a consistent basis.

Implement an effective practicable fire drill for use in the event of an emergency. Comply with the latest edition of the following statutes codes and standards and all amendments thereto.

1. CSA S350-M – “Code of practice for safety in Demolition of Structures.”
2. NFPA 241 Standard for safeguarding Construction, Alteration, and Demolition Operations
3. Canadian Environmental Protection Act
4. Transportation of Dangerous Goods Act

We trust that this information meets your technical requirements at this time. Should you have any questions, or require additional information, please don't hesitate to contact us.