How the West Was Won…and the Challenges of Dealing with the Mess It Left

Michael Halliwell, M.Eng., FEC, P.Eng.



Photo credit: City of Edmonton Archives

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Acknowledgements

MacEwan UNIVERSITY

Edmonton

NORQUEST COLLEGE

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Who am I?

Senior Environmental Engineer with over 25 years of experience

- Phase 1 ESAs through remediation
- Commercial / industrial / large building radon work
- HBMS sampling
- Clients from “mom and pops” to government and multinational firms



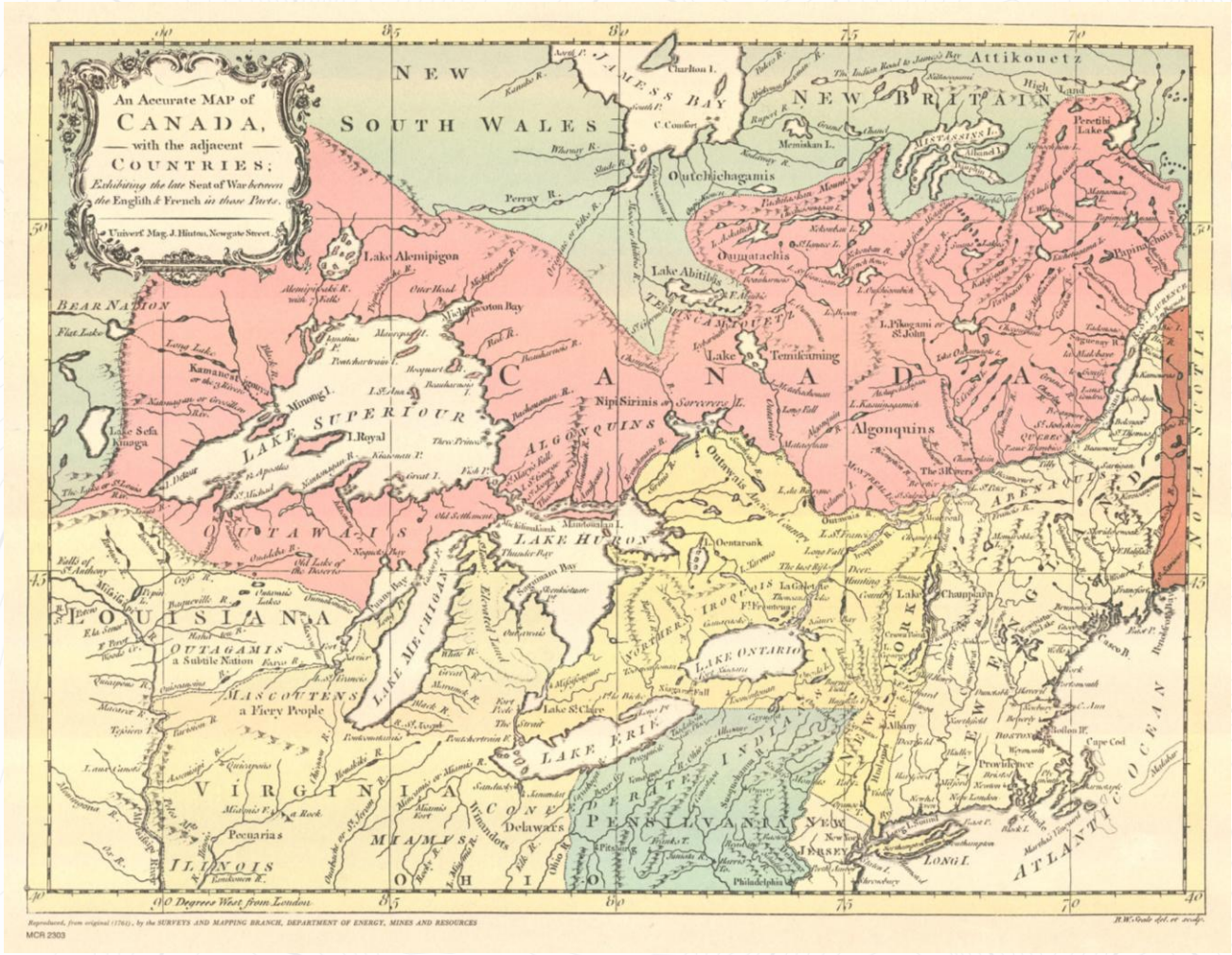
Michael Halliwell, M.Eng., FEC, EP, CESA, C-NRPP, P.Eng.

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A little history lesson…

Early Transportation Systems…Rivers

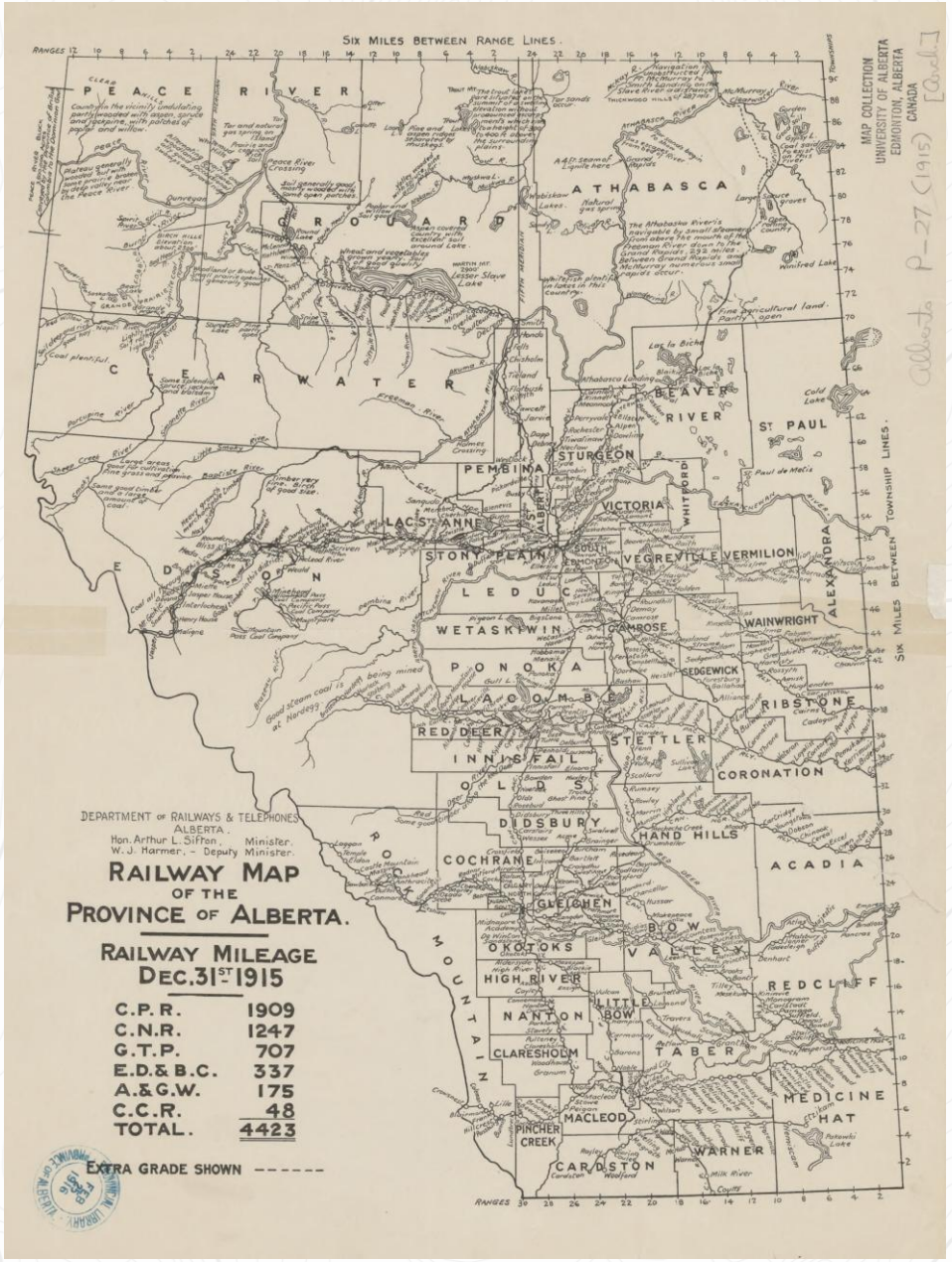
- In colonial times, river systems were the long-distance transportation network for goods and people
- Settlements were built along rivers and lakes
- Local transport by horse and buggy



(1761)

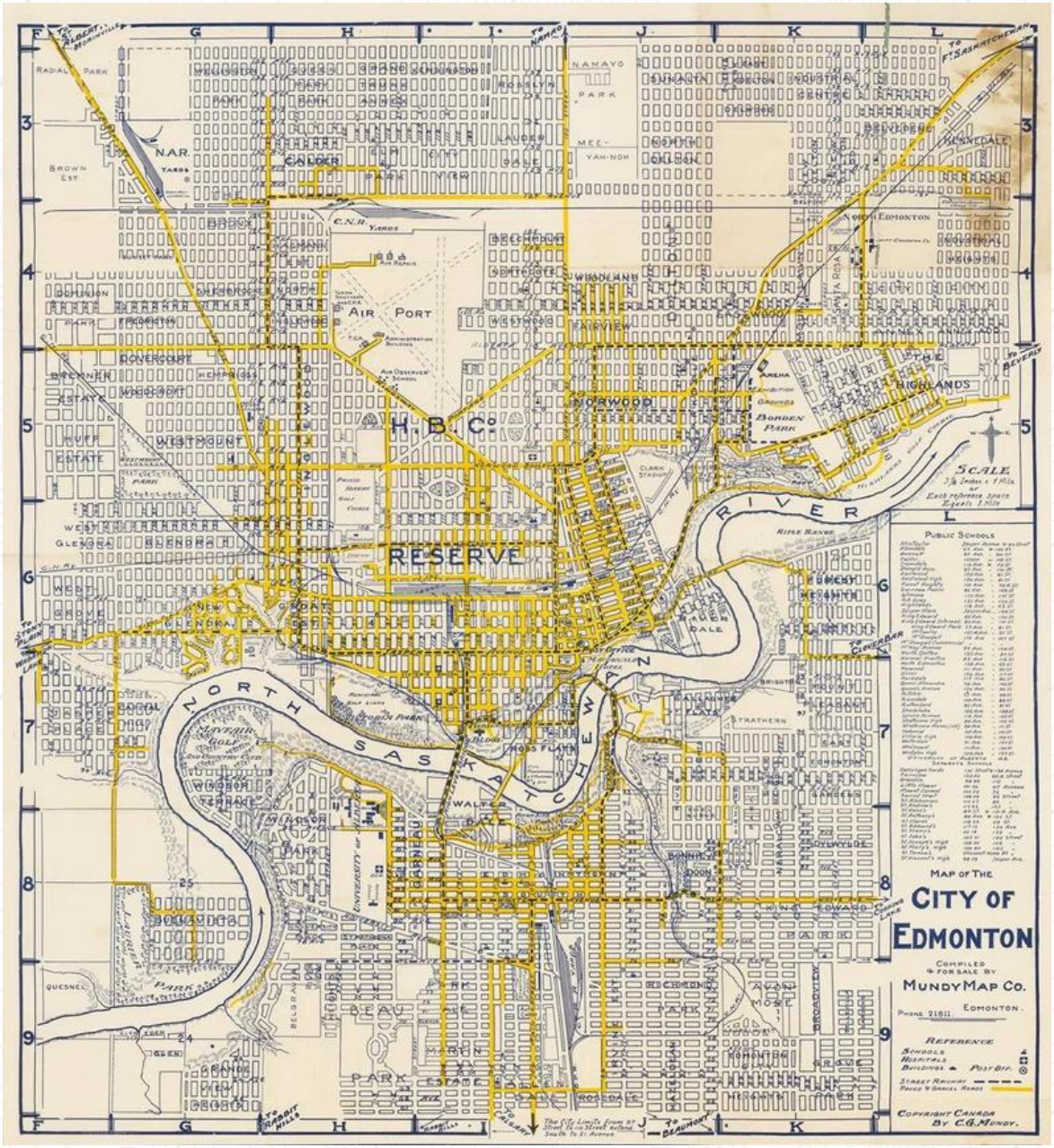
Then Rail…

- As technology grew, overland transport by rail became the system of choice
  - Year-round transport
  - Went where you decided
  - Greater capacity
  - Rail spurs provided some local transport



Then Roads

- Trucks = More flexibility for less $$
- Less reliant on centralized hubs / railway stations
- Could be door-to-door
- Various sized vehicles could provide local transport



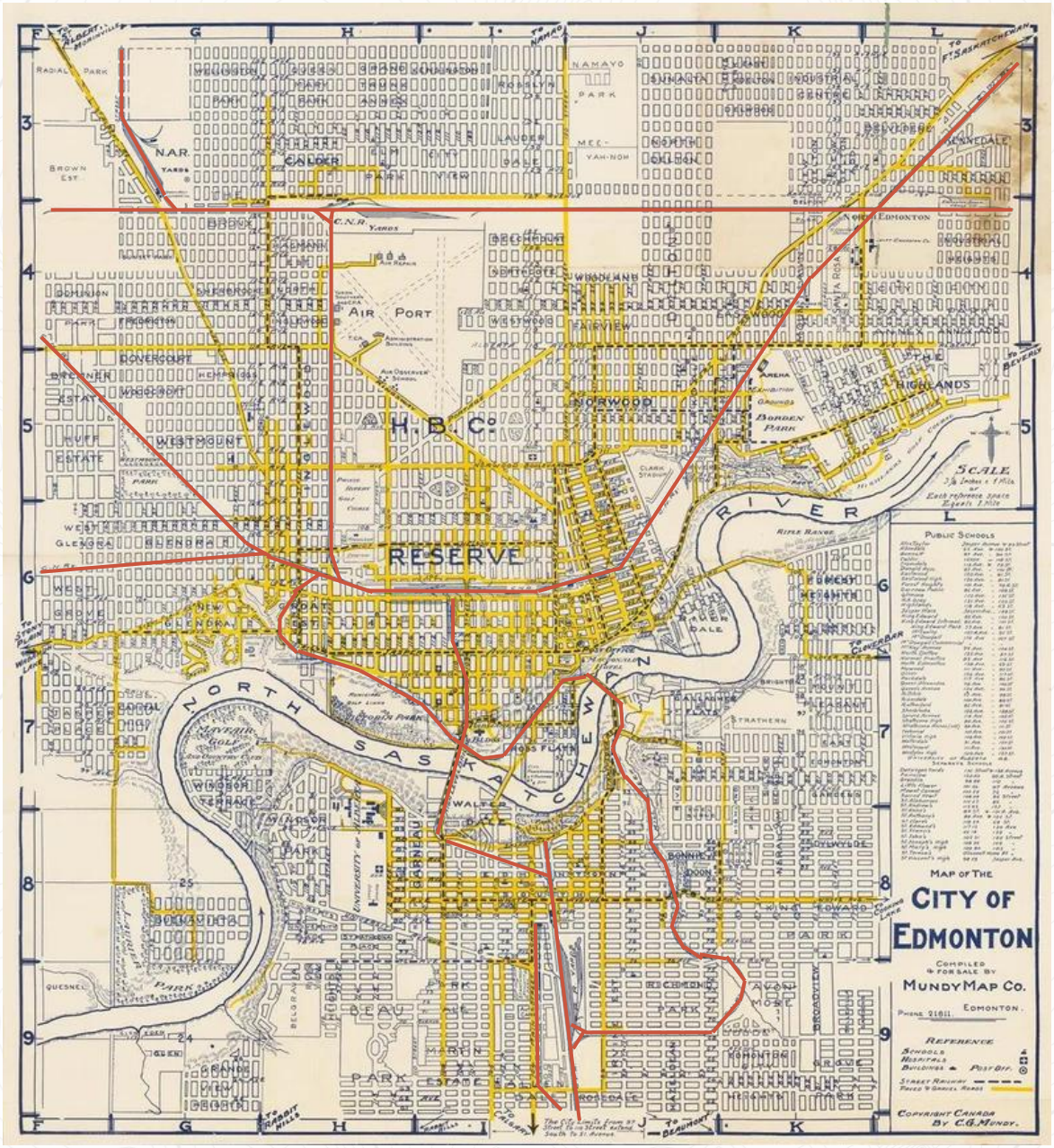
(1940)

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Then Roads

Side Note:

While roads had become important, you can see how much rail was still present



(1940)

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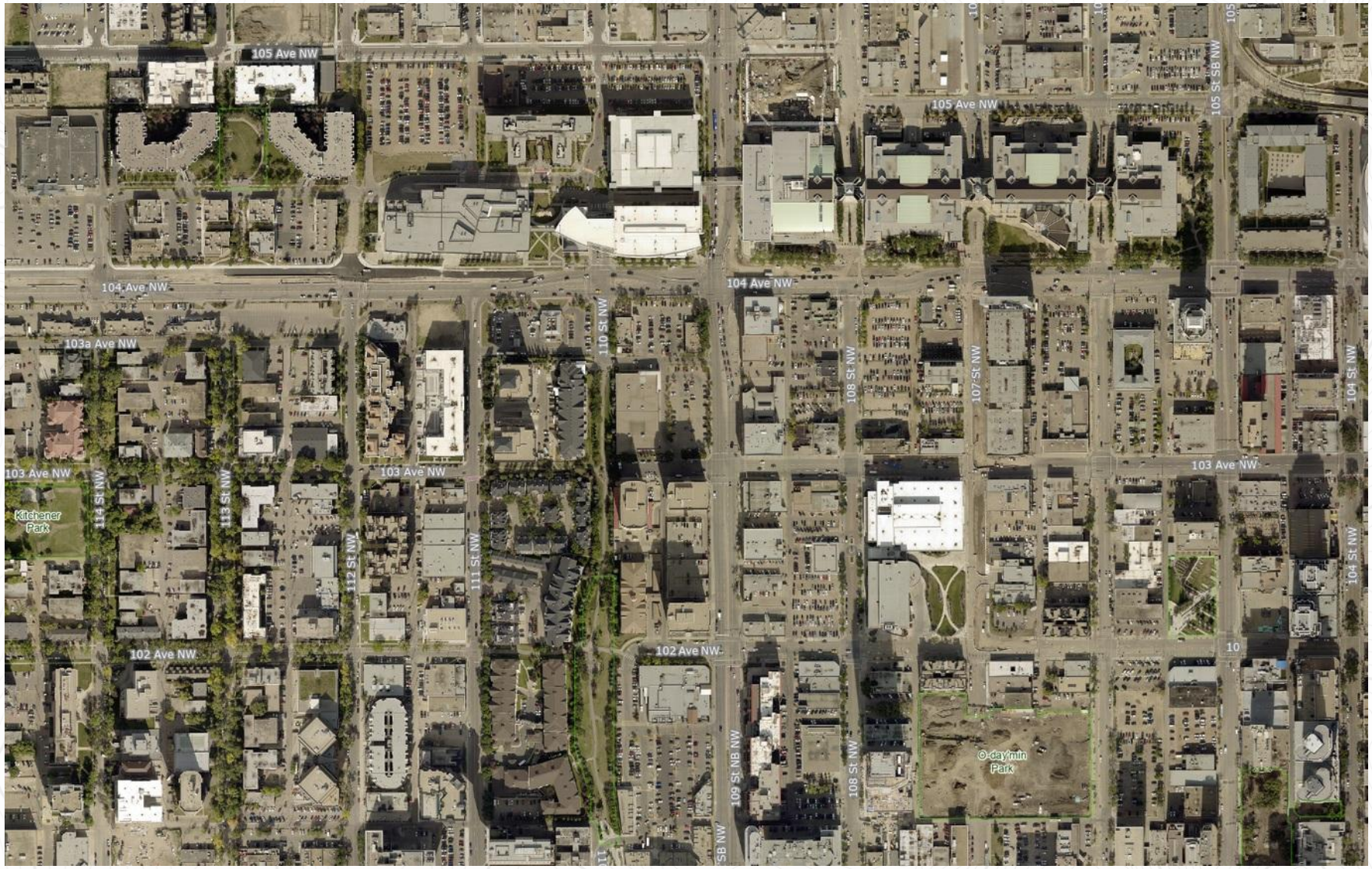
Where issues arise…

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2025

What we see today can often hide the past.

It’s part of the reason a Phase 1 ESA is so important...



City of Edmonton Open-Source Portal 2025

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1962

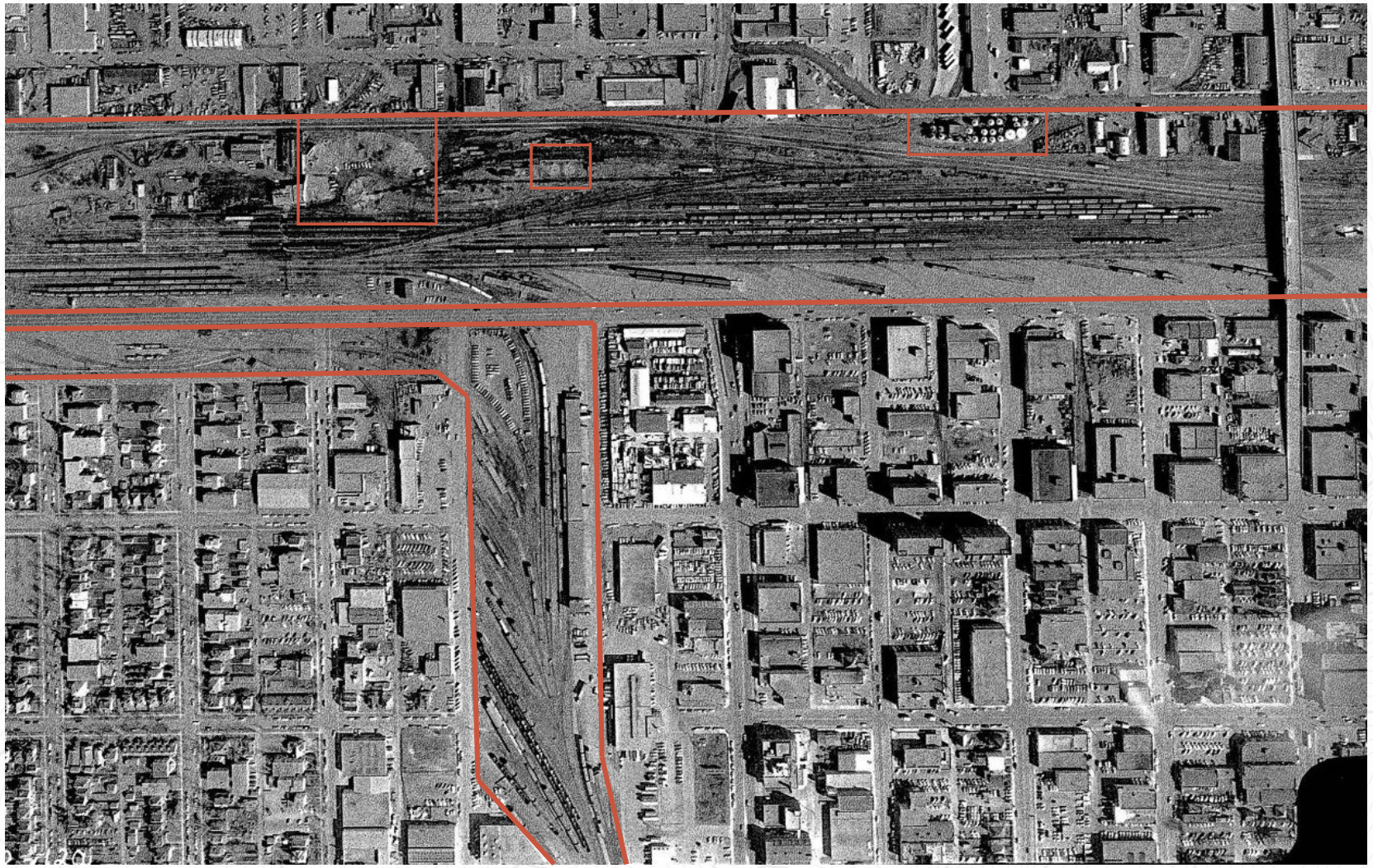


1962 Air Photo, City of Edmonton Archives

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1962

Some things immediately stand out in historical air photos…



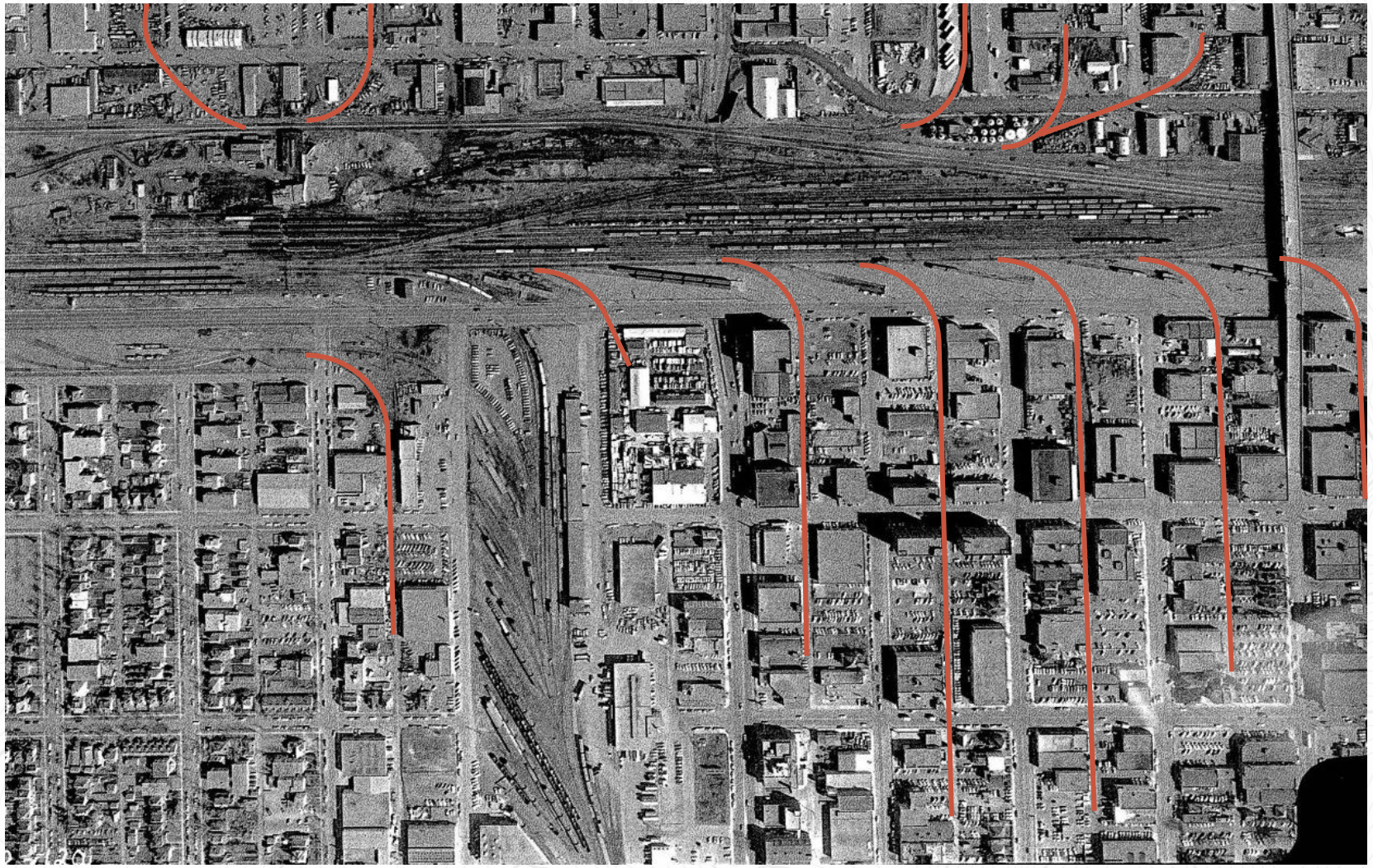
1962 Air Photo, City of Edmonton Archives

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1962

…while others can be far easier to miss.

(i.e. rail spurs / sidings)



1962 Air Photo, City of Edmonton Archives

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“So what? There was a rail yard…”

Materials that can be encountered…



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Materials that can be encountered…



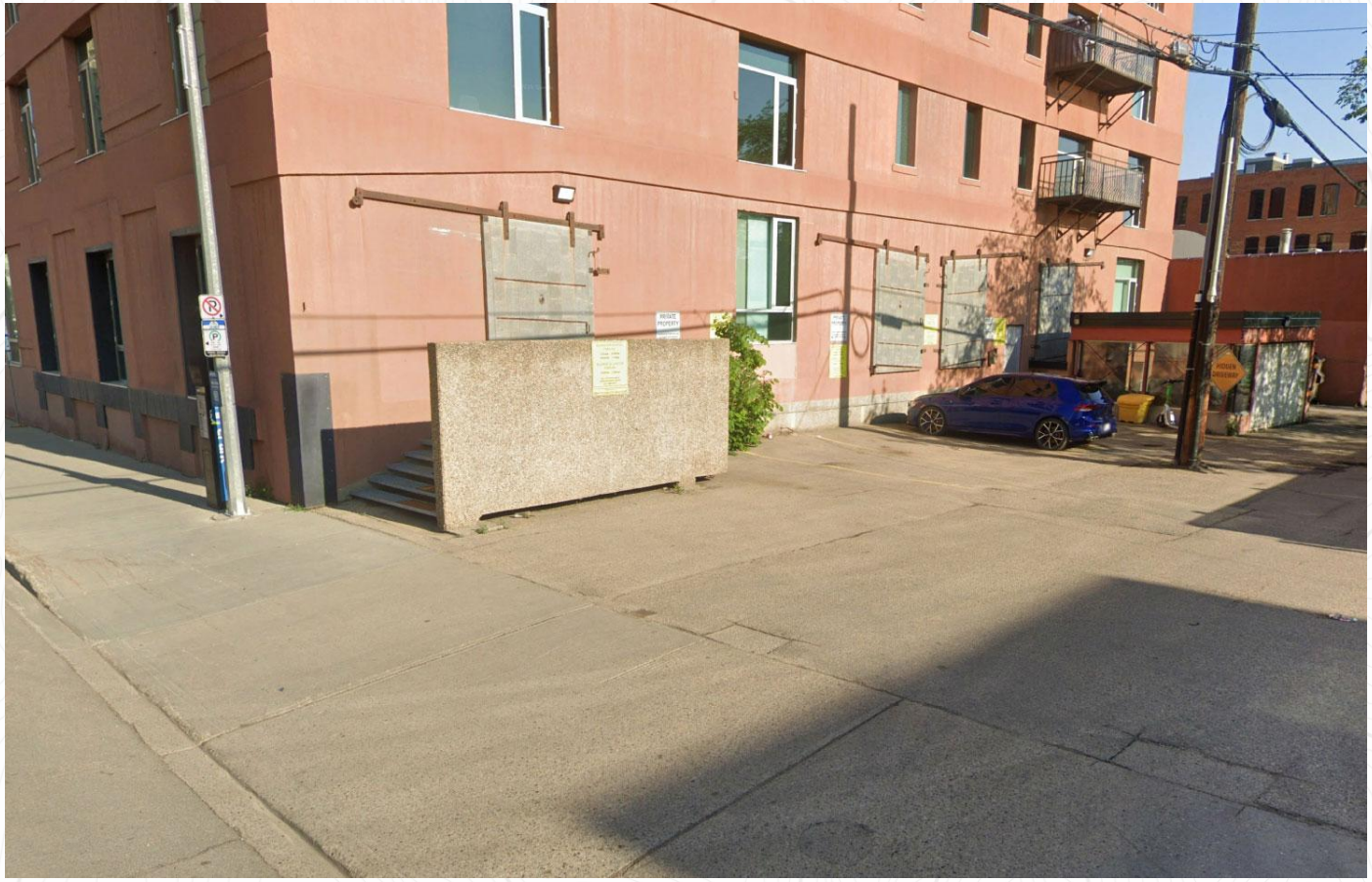
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“But the rail yard was a few blocks away…”

Adjacent Buildings

- Sidings usually provided direct transportation services to nearby businesses.

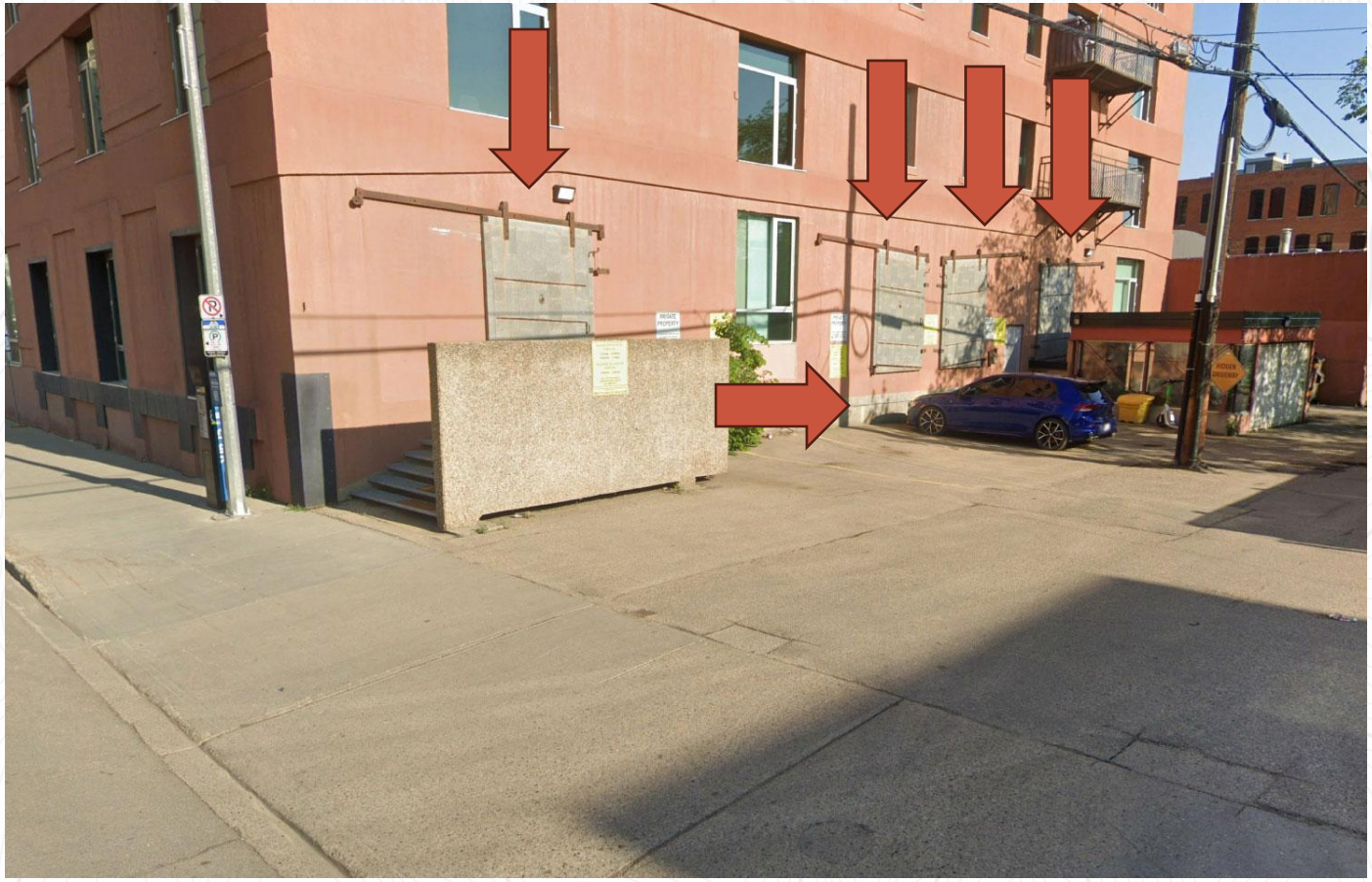


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Adjacent Buildings

- Sometimes clues to past building and railway history remain…

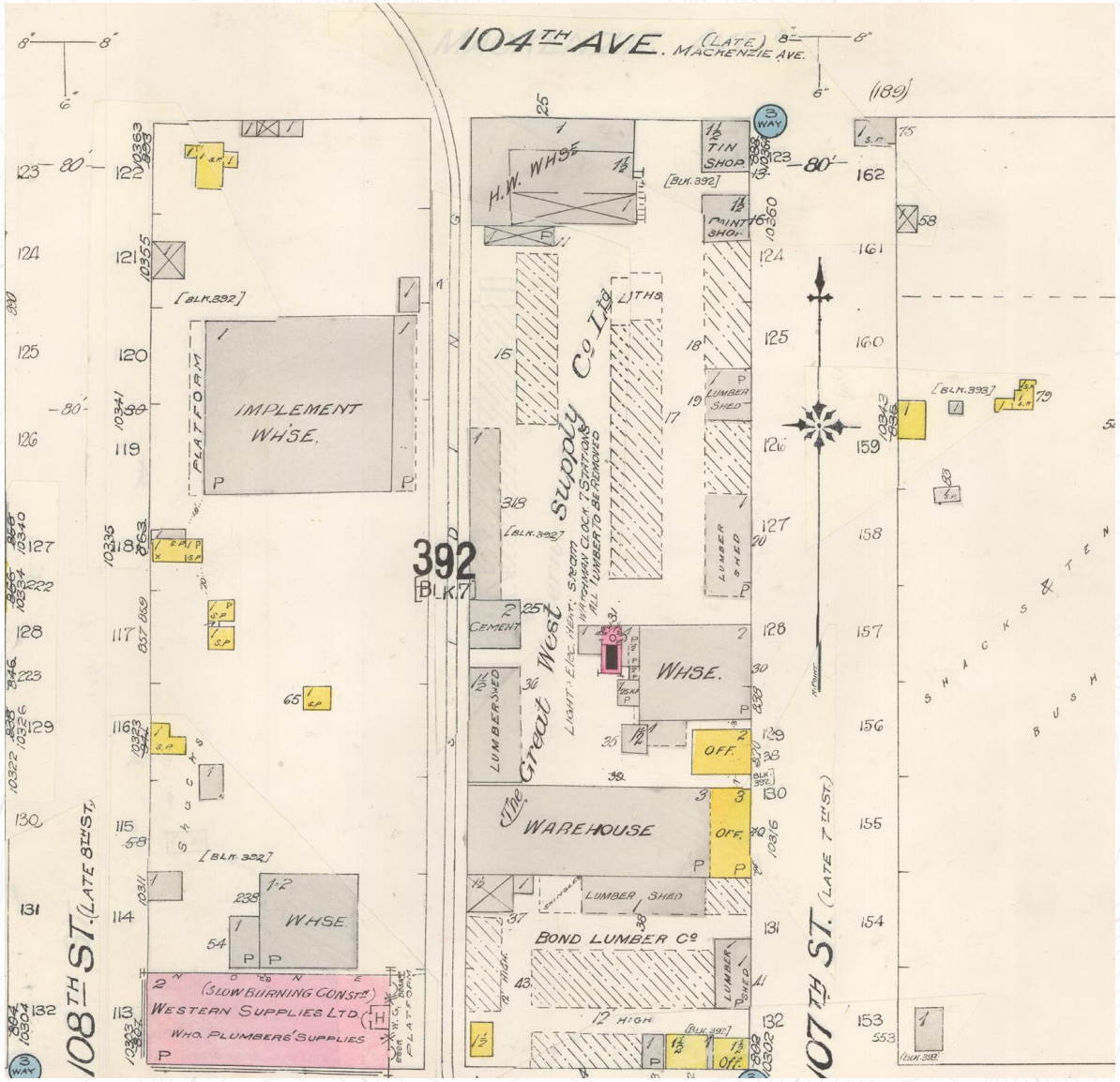


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Adjacent Buildings

- Other times, you need to look at other resources to see what was there.



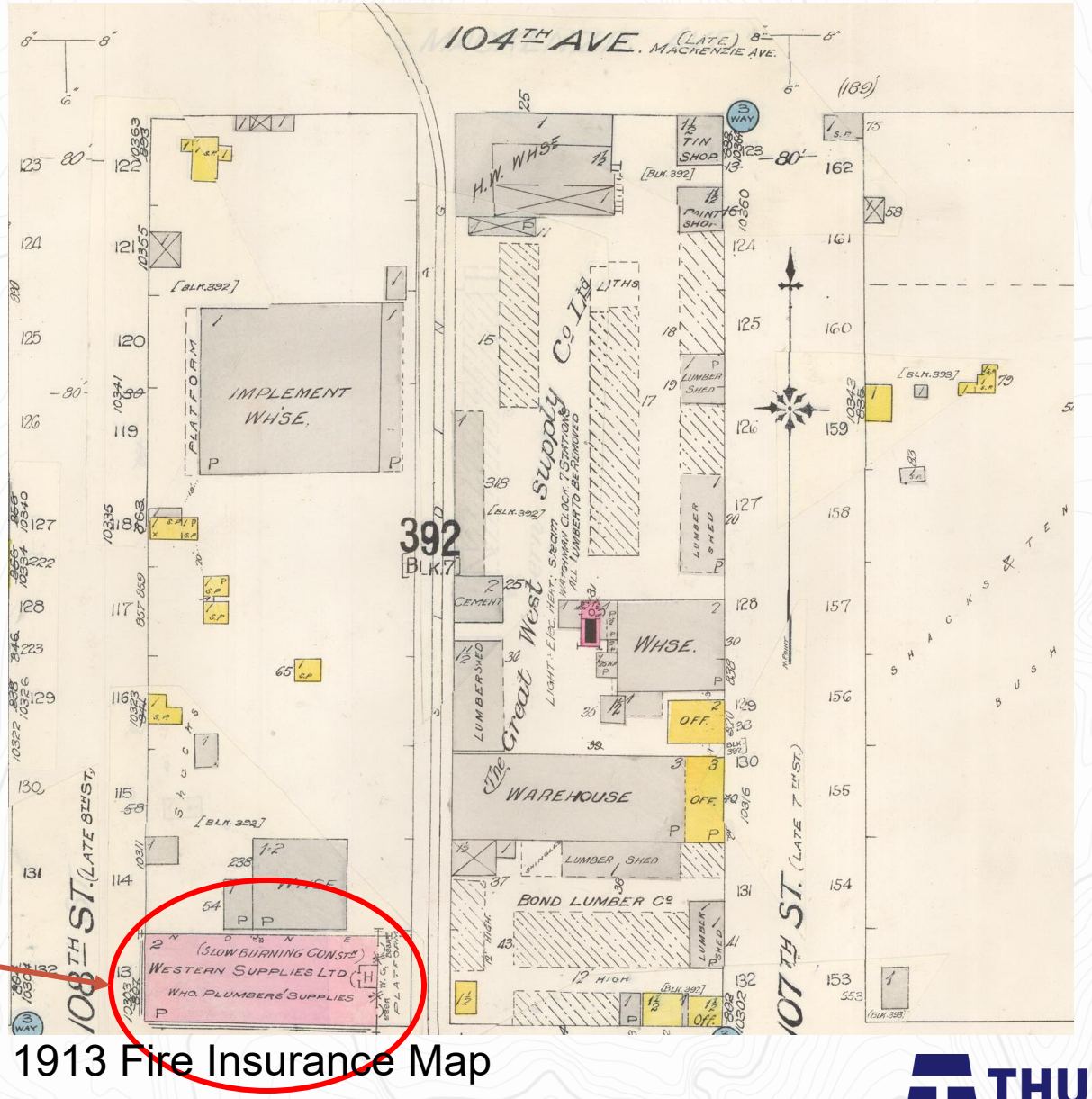
1913 Fire Insurance Map

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Adjacent Buildings

- Other times, you need to look at other resources to see what was there.

The previously shown building



1913 Fire Insurance Map

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Materials that can be encountered…



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Materials that can be encountered…



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Sometimes things are hiding in plain sight…



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Sometimes it’s hiding in plain sight…



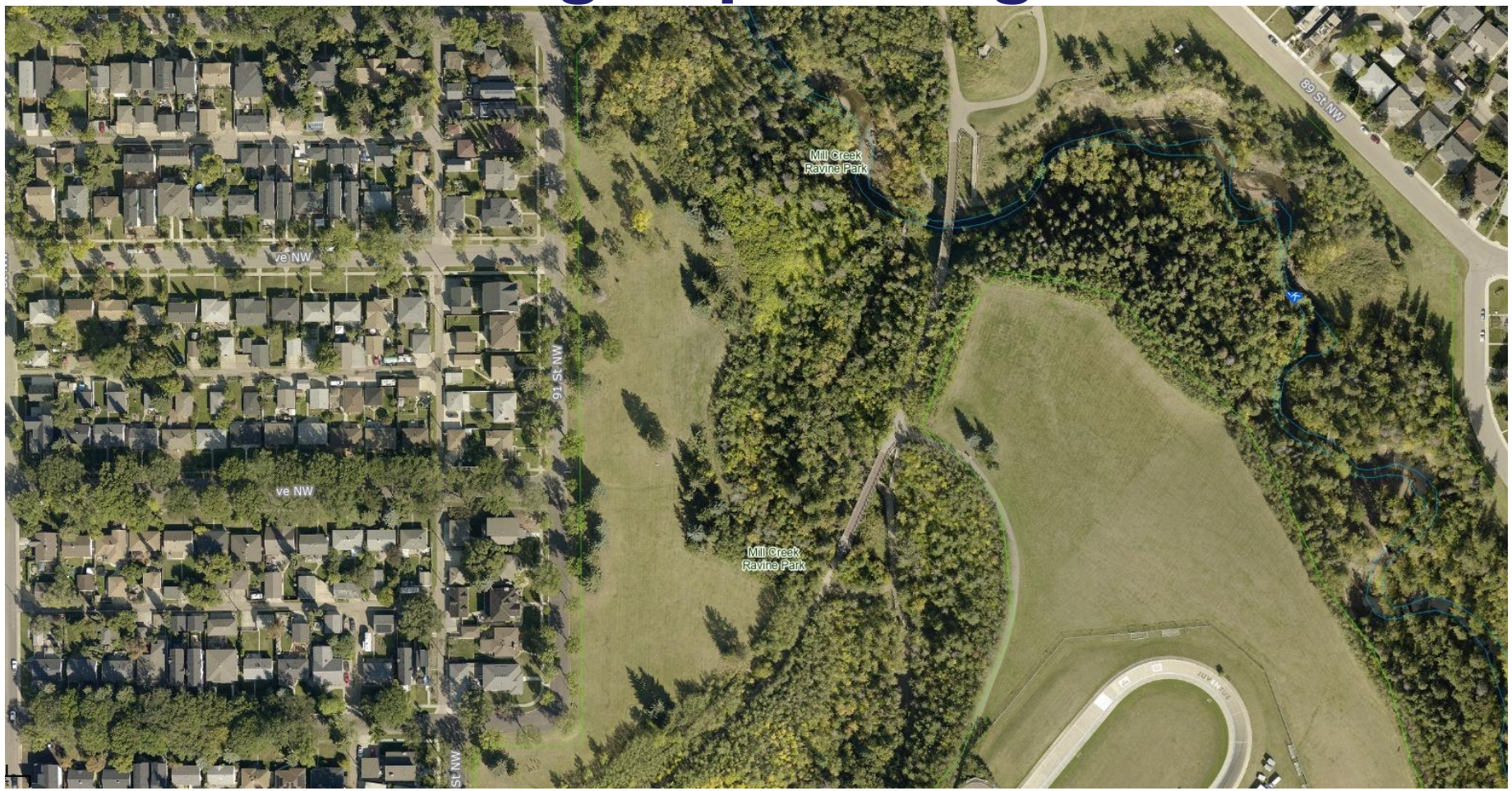
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Sometimes it’s hiding in plain sight…



Google Earth, 2026

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Sometimes it’s hiding in plain sight…



1965 Air Photo, City of Edmonton Archives

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Ok…so sometimes there’s “train stuff” left

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Direct Contaminants of Concern

- PAHs
  - Treated ties / treatment products
  - Ash, clinker and coal
- Metals
- Hydrocarbons
  - Diesel+++
  - Lubricating oils / grease
  - Kerosene-soaked coal
- Solvents
- Coolants

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Other potential hazards…

- Asbestos (esp. if redeveloped for alleys / services)
- Lead
- Abandoned services
- Building and structure foundations
- On-site disposal areas
- Residual rails
- Adjacent businesses



Photo credit: Hana Matova, MacEwan University

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Summary

- Rail was a primary and extended transportation system for more than a century
- Rail yards are usually well known and easy to spot, but sidings, spurs, and reliant businesses are easier to miss in air photos
- Businesses along rail spurs were typically materials heavy and could include oil / gas companies, foundries, heavy equipment dealers, and construction companies (not always in search databases)
- Convenient redevelopment of former rail infrastructure can hide the history and/or introduce new challenges

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Questions?

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Thank you

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