Unique Technical Issues and Solutions related to Redeveloping a Major Urban Shopping Centre in Victoria

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Introduction

Why redevelop a mall?

I. Stay competitive
II. Neighborhood revitalization (in co-operation with municipality).
III. Attract profitable, sustainable tenants

BUT ... legacy environmental issues can impede redevelopment
Old to New.....
Objectives:
1) Obtain Closure
2) Greenlight to Redevelop
Site Layout / Challenges
Complex legacy issues compounded by multiple investigations and remediation and an incoherent data set, and many exceedances in groundwater.

NOW WHAT?
Regulatory Landscape

<table>
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<tr>
<th>BC</th>
<th>Stage 1/2 PSI</th>
<th>DSI</th>
<th>Remediation</th>
<th>MOE Instrument</th>
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<tr>
<td>Alberta</td>
<td>Phase 1/2 ESA</td>
<td>Supp’l Phase 2</td>
<td>Phase 3</td>
<td>Remediation or Reclamation Certificate</td>
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Major Obstacle: DW Standards
Figure 1. Water Use Boundary
Challenge & Solution: Physical Obstacles

- Concrete slab prevents drilling at APEC
- Current building prevents drilling down-gradient of APEC

Creative SV probe scheme
Substitute soil vapour data for soil, groundwater data
Challenge & Solution: Delineating Zinc

- Zinc exceeding CL in soil
- Not delineated to the south
- Costly to drill inside mall

Identified mall and bedrock as physical barriers and argued delineation complete
Challenge & Solution: Groundwater at PL

Hydrocarbon impacts in on-site and off-site wells adjacent to property lines

- Evaluated contaminant characteristics
- Used existing MW network
- Avoided off-site drilling
- Avoided Off-site Management Area

Off-site Source
Challenge & Solution: Soil Impacts in SW Corner

- Historically non-exceeding soil sample became an exceedance under current standards. Surprise!

  Replaced soil sample as per TG12
  Avoided off-site drilling

Technical Issues

Solved
Challenge & Solution: Development Permit

- Schedule for start of construction versus Instrument process

Hope for the best, plan for the worst

Address audit uncertainty - apply for AG6 prior to CofC submission

AG 6

CofC Submission

AUDIT !!!

Development Permit
You would like to change what?

- SLRA no longer sufficient
- CofC must wait for parkade
- Need CSRA
- Limited hydrocarbon contamination in soil
  - BUT
  - Likely widespread salt exceeding standards

- ↑ Cost ($$)
- ↑ Delay
- ↑ Cost ($), ↑ Delay
  - Requires disposal at permitted landfill
  - Limited nearby disposal options
  - ↑ Cost ($$$$$$)
Project Summary

• Started with 116 historical locations + 6 excavations
• Filled in data gaps
• Limited the applicability of DW standards
• AG6
• CofC submission

Development Permit

CofC - any day now!!
Thank you. Questions?

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