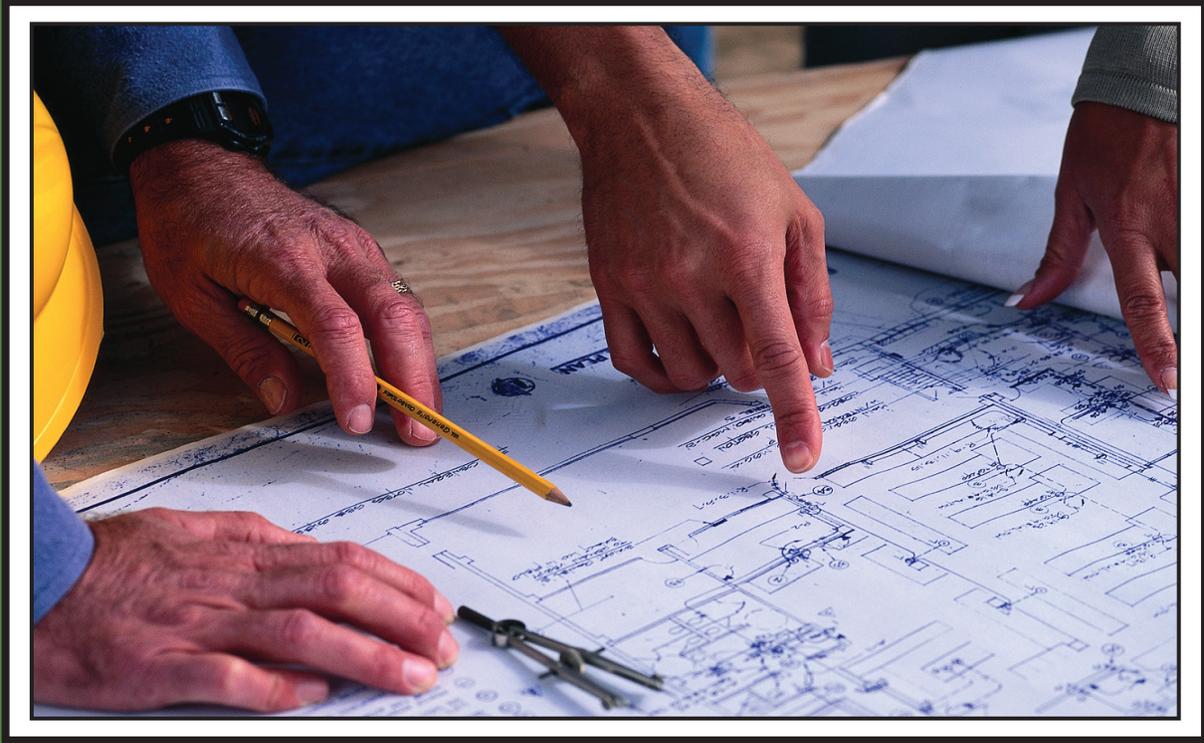


THE CITY OF CALGARY, ENVIRONMENTAL & SAFETY MANAGEMENT



Guidebook to Developing Contaminated Sites

2012 EDITION



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NOTE TO USERS: This guidebook summarizes complex matters and reflects legislation, practices and policies that are subject to change. Users are responsible for making decisions, including compliance with all applicable statutes and regulations. The information here should not be relied upon as a substitute for specialized legal or professional advice in connection with any particular matter. We recommend that users obtain independent legal and/or professional advice when they evaluate or develop any contaminated site.

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WELCOME TO THE GUIDEBOOK

The City of Calgary has written the *Guidebook to Developing Contaminated Sites* to inform participants in the development process about contamination, in particular, its effect on site redevelopment and The City's development approval process. It will help individuals make informed decisions about developing potentially contaminated lands, leading to the more efficient use of time and financial resources by all parties.



The flowchart (left) visually summarizes this guidebook's structure. It takes a practical approach, walking project proponents through the development process from site purchase through to development approval.

Chapter 1: *Introduction to Contaminated Sites* explains contamination and outlines developer and regulator roles & responsibilities. Site contamination can be costly and time consuming to address, and may restrict the site's redevelopment options; thus, it is in the developer's best interest to identify a site's potential limitations prior to acquisition. Environmental site investigations, which determine a site's contamination 'status', are discussed in Chapter 2: *Site Acquisition & Investigation*. Environmental site investigations are recommended due diligence prior to site acquisition, and are required documentation as part of a development application.

What's in this guidebook?

Chapter 3: *Preparing a Development Application* discusses environmental information that The City of Calgary requires from proponents to evaluate whether a site is suitable for the proposed development. The *Environmental Review* undertaken by The City and other environmental regulators as part of the development approval process is discussed in Chapter 4. Chapter 5: *Development Approval* discusses the standard environmental conditions attached to development approvals.

Appendix A presents a glossary of terms applicable to the investigation and redevelopment of potentially contaminated lands, as well as a list of references and applicable legislation, regulations, bylaws and policies. Two case studies are presented in Appendix B; they illustrate the process from site acquisition through to development approval for two common types of contaminated sites. Appendix C provides The City of Calgary's *Site Contamination Statement* form that must be submitted with all Development Applications. Finally, the full text of the standard environmental conditions attached to all development approvals is provided in Appendix D.

1 INTRODUCTION TO CONTAMINATED SITES

Any individual contemplating a land purchase should consider the site's environmental condition and liabilities. If industrial or commercial activities have previously occurred on or near the site, it may be contaminated and/or have its future land use restricted by regulatory-required minimum setbacks (setbacks are discussed in Section 2.3.1). Such problems can be costly and time-consuming to address, and may ultimately restrict a site's redevelopment options; thus, it is in the developer's best interest to identify all potential land use limitations a site may have prior to acquisition or redevelopment.

This chapter overviews contamination and outlines the regulators' and developer's roles and responsibilities relative to potentially contaminated sites.

1.1 CONTAMINATION DEFINED

A site is generally considered "contaminated" if it contains pollutants at concentrations above applicable regulatory criteria. Contaminants, such as those listed in the table below, can seep into soil, groundwater or buildings; cause explosions, fires

Examples of Common Contaminants	
• Petroleum hydrocarbons	• Metals
• Methane & other gases	• Salts
• Pesticides & herbicides	• Solvents

or unpleasant odours; cause water or land to become unusable; and, be harmful to human health. Therefore, contamination can be grounds for regulatory enforcement and lawsuits from adjacent property owners or others who may be negatively impacted.



1.2 POTENTIALLY CONTAMINATED LANDS

Site contamination may result from a number of factors including: historical land uses; accidental discharges, spills or leaks; deposition of by-products or residues; direct application or burial; use of imported fill; subsurface migration; or, cumulative effects of airborne deposition (AIA et al. 2007).

Unexpected environmental contamination on a property can be a barrier to obtaining development approval, result in major time delays and/or substantially increase project costs. Site contamination should be considered:

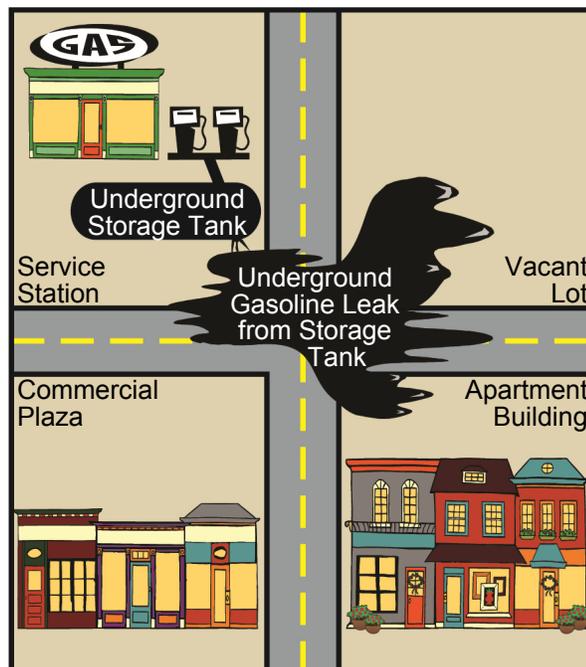
- in the subdivision, development and redevelopment of land;
- during property sales and purchases;
- with changes in land use (e.g., commercial to residential); and,
- where additions and alterations are proposed to existing landforms, structures and/or buildings.



It is important to identify potential contamination sources at and nearby a property. Potential sources could be obvious, such as an active landfill or a service station; while others may be more subtle, such as an inactive landfill, a leaking underground storage tank or abandoned infrastructure (e.g., pipelines, well heads, sumps) associated with former oil & gas sites. The graphic, below, shows common land uses that can be sources of site contamination.

Common Land Uses of Potential Concern				
				
Gas Station	Manufacturing or Industrial Plant	Landfill	Oil & Gas Well Site	Dry Cleaner
<ul style="list-style-type: none"> Hydrocarbon contamination of soil and groundwater from leaking storage tanks and product pipelines 	<ul style="list-style-type: none"> Hydrocarbon, metal, solvent and salt contamination from operations, on-site disposal and leaking storage tanks 	<ul style="list-style-type: none"> Hydrocarbons, metals and volatile organic compounds leach into groundwater Landfill gas forms as organic waste decomposes 	<ul style="list-style-type: none"> Hydrocarbon leaks from storage tanks or pipelines Contamination from operations and on-site disposal of drilling fluids 	<ul style="list-style-type: none"> Solvent contamination of soil and groundwater from leaking pipes or inappropriate disposal

1.3 CONTAMINATION CAN SPREAD - OFF-SITE IMPACTS



Contamination can spread from a source property and impact adjacent and nearby properties. The graphic, left, provides an example of this process. In this example, a service station has a leaking underground gasoline storage tank. The gasoline has spread into The City's road right-of-way, a vacant lot and an apartment building property, making The City of Calgary and these other land owners all "impacted third parties". Under law, Alberta Environment & Sustainable Resource Development must be contacted once any one of the impacted property owners discovers contamination (Alberta's 24-Hour Toll-Free Release Reporting line: 1-800-222-6514; release reporting is discussed further in

Section 2.3.2). The “person responsible” (in this case, the service station owner) is legally responsible to address the contamination on all impacted properties. The impacted third parties have the right to take legal action against the service station owner if the situation is not addressed to their satisfaction.

1.4 ROLES & RESPONSIBILITIES

1.4.1 THE REGULATORS’ ROLES

If a property proposed for development is or may be contaminated, several regulatory authorities may become involved including:

- The City of Calgary;
- Alberta Environment & Sustainable Resource Development;
- Alberta Health Services; and,
- Alberta Energy Resources Conservation Board.

Roles and responsibilities are discussed briefly here, and in further detail in Section 4.3: *Involvement of Other Regulators*.



Who are the regulators?

1.4.1.1 THE CITY OF CALGARY'S ROLE

The City of Calgary regulates land development through its land use planning approval processes. Alberta municipalities regulate land use via the *Municipal Government Act* and its regulations, particularly the *Subdivision and Development Regulation 43/2002*. The City of Calgary implements its land use powers through the *Land Use Bylaw 1P2007*; under this bylaw, The City's *Environmental Development Review Policy* requires the applicant to demonstrate that a property is suitable for its intended use with respect to environmental conditions.

1.4.1.2 ALBERTA ENVIRONMENT & SUSTAINABLE RESOURCE DEVELOPMENT'S ROLE

Alberta Environment & Sustainable Resource Development regulates environmental standards and conditions in Alberta. They have established legislation and policy for the management and remediation of environmental contamination, most notably the *Environmental Protection and Enhancement Act*. The current remediation guidelines applicable to the majority of contaminated sites are provided in the *Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines* (AENV 2010a,b).

1.4.1.3 ALBERTA HEALTH SERVICES' ROLE

Alberta Health Services has responsibility under the *Public Health Act* and *Regional Health Authorities Act* to address environmental issues where there is potential for negative impact on human health.

1.4.1.4 ALBERTA ENERGY RESOURCES CONSERVATION BOARD'S ROLE

The Alberta Energy Resources Conservation Board is an independent, quasi-judicial agency that regulates the development of the province's energy resources. One of its roles is to regulate upstream oil and gas projects (e.g., oil or gas wells, batteries, pipelines) from licensing through to abandonment. Typically, their role in Calgary's land use planning process is to:

- indicate if their records show a site history of upstream oil and gas activity;
- confirm whether an Energy Resources Conservation Board setback (setbacks are discussed in Section 2.3.1) applies to the site; and,
- regulate (along with Alberta Environment & Sustainable Resource Development) the clean-up of contaminated upstream oil and gas properties (ERCB 1998a).

1.4.2 THE DEVELOPER'S ROLE

The developer must ensure that the site's environmental conditions are suitable for its intended use, and it meets all legal conditions and requirements. The developer is responsible for following through with appropriate environmental assessments and all required actions that may be necessary, including additional assessment, remediation, on-going risk management and/or gaining approvals from regulatory authorities.

Note that liability for contamination clean-up may transfer to the developer with the purchase of a property; it is a good idea to consult with a legal professional and the "person responsible" before the property officially changes hands.

*What is the
developer's role?*

2 SITE ACQUISITION & INVESTIGATION



The developer is responsible for complying with all applicable conditions when developing a site. It is in the developer's best interest to identify, as early as possible, any potential development restrictions. With this in mind, this chapter discusses the importance of conducting proper environmental due diligence prior to land purchase; specifically, determining a site's existing environmental condition through investigations called "Environmental Site Assessments". This chapter ends with some regulatory notes, including an introduction to setbacks.

2.1 DUE DILIGENCE

Property owners, purchasers and lenders may face financial and regulatory liabilities when dealing with the management and remediation of contaminated sites. These liabilities may arise from actions such as government-initiated orders, loss of land resale value (due to real or perceived contamination) and litigation associated with contamination. Therefore, due diligence prior to a site purchase should include determining the site's existing environmental conditions. This can be achieved by requesting that the vendor provide copies of all historical and current environmental site assessments (discussed below in Section 2.2). A qualified environmental professional (defined in Section 2.2.4) should be engaged to review the existing reports and/or prepare an up-to-date environmental site assessment. As a side note, financial institutions often require an acceptable environmental site assessment as a condition of financing.



2.2 ENVIRONMENTAL SITE ASSESSMENTS

Overview of the Environmental Site Assessment Process
Phase I ESA: Reports whether a site may be contaminated
Phase II ESA: Reports where, what type and how much contamination
Phase III - Risk Management Plan and/or Remedial Action Plan: Develops contamination solutions

Environmental Site Assessments are specific types of reports developed to determine a site's environmental condition. Generally speaking, their objectives are to:

- determine if a site may be contaminated;
- identify the nature & distribution of contaminants;
- determine the risk from contaminant exposure; and,
- evaluate the possibility of mitigating these risks.

The environmental site assessment process consists of three phases, listed in order in the table at left and described in the following subsections.

2.2.1 LOOK BEFORE YOU LEAP - PHASE I ENVIRONMENTAL SITE ASSESSMENTS

What is a
Phase I
Environmental
Site
Assessment?

A *Phase I Environmental Site Assessment* is generally used to determine whether a site may be impacted by contamination; it is often required by financial institutions prior to real estate purchases. A Phase I involves the evaluation and reporting of existing information collected through records review, interviews and site visits; it is non-intrusive (i.e., does not include drilling boreholes or sampling soil or water). Phase I Environmental Site Assessments may be used to make informed decisions about additional site assessment; property acquisitions or dispositions; future land use options; and, property management and facility operations.

2.2.2 WHERE, WHAT AND HOW MUCH CONTAMINATION - PHASE II ENVIRONMENTAL SITE ASSESSMENTS

What is a
Phase II
Environmental
Site
Assessment?

If one or more contaminants may have affected the site, or if there is insufficient information to determine the likelihood of contamination at a site, a *Phase II Environmental Site Assessment* is conducted. A Phase II is an intrusive field investigation that typically involves the collection of soil and groundwater samples; analysis of these samples is used to characterize and/or delineate the location and concentration of one or more contaminants. Analytical results are compared to appropriate criteria (e.g., AENV 2010a,b). Each Phase II Environmental Site Assessment is custom designed and implemented to collect the site-specific information necessary to establish the presence or absence of contamination.

If a developer chooses to develop a contaminated property, additional assessment work may be required to obtain a full understanding of the contamination and delineate its physical extent. If assessment is required on adjacent land, permission must be obtained from the land owner. For City-owned land, such as a road or utility right-of-way, a License of Occupation (under the *Environmental Agreements Bylaw* that is administered by The City of Calgary's Environmental & Safety Management business unit) must be obtained prior to installing a monitoring well or a remediation system. Once the vertical and horizontal extent of contamination on a property is fully delineated, a Risk Management and/or Remedial Action Plan for the removal or treatment of contamination can be developed.

2.2.3 SOLUTIONS FOR CONTAMINATION PROBLEMS - RISK MANAGEMENT PLANS OR REMEDIAL ACTION PLANS

What are my
options for
dealing with a
contaminated
site?

Risk Management and *Remedial Action Plans* are conducted to develop solutions to unacceptable levels of contamination. These studies generally include investigating remedial options; developing hazard assessments, exposure models and risk assessments; and, conducting remediation and verifying its success (AENV 2001).

One option for dealing with a contaminated site is remediation; essentially, cleaning a site up to meet applicable regulatory criteria. A *Remedial Action Plan* summarizes site remediation options, which may include: source removal; physical removal of contaminated groundwater and/or soil; natural attenuation; degradation by microorganisms; and/or neutralization with chemicals that react with the contaminants to form benign substances.

A second option for dealing with a contaminated site is risk management. A site-specific risk assessment may conclude that contaminants may be left in place and/or actively managed, based on site characteristics and intended use, at a level of risk that is acceptable for human or ecological receptors. A *Risk Management Plan* is required for non-remediated or partially remediated areas with contamination levels that exceed applicable regulatory criteria. Elements of a Risk Management Plan include, but are not limited to, the following: long-term remediation strategies; protection of receptors; demonstration that any potential adverse risks are being managed; administrative and exposure controls; land use restrictions; groundwater monitoring; and, affected third party acceptance (AENV 2009).

Certain sites may qualify for remediation or reclamation certificates, as discussed below.

2.2.3.1 REMEDIATION CERTIFICATES - CONTAMINATED SITES

Once a contaminated site (e.g., old gas station, abandoned sour gas well site, previous dry cleaner) has been cleaned up (remediated) to meet applicable guidelines, a designated environmental professional can apply for a *remediation certificate* from Alberta Environment & Sustainable Resource Development (AENV 2011a,b). Remediation certificates provide regulatory closure for the portion of the site that has been remediated, ensuring that additional clean-up will not be required if regulations change, provided that the land use does not change to a more sensitive one (AENV 2011a,b). This provides certainty to site owners, managers and other stakeholders involved with contaminated sites. The case studies in Appendix B discuss remediation certificates as part of the assessment, remediation and redevelopment of two common types of contaminated sites.

What is a Remediation Certificate?

2.2.3.2 RECLAMATION CERTIFICATES - UPSTREAM OIL AND GAS SITES

Upstream oil and gas sites (i.e., sites involved with the production and temporary storage of hydrocarbons, such as oil or gas wells, batteries or pipelines) are a 'special' category of lands under the Alberta *Environmental Protection & Enhancement Act*. The *Environmental Protection & Enhancement Act* requires all upstream oil and gas sites to be reclaimed (i.e., "returned to a productive state") and obtain a *reclamation certificate* following site decommissioning. Note that sites with older reclamation certificates may still be contaminated; reclamation certificates issued prior to 1 October 2003 did not assess or address site contamination. For further details on the assessment, remediation and redevelopment of an upstream oil and gas site, see the case study in Appendix B.

What is a Reclamation Certificate?

2.2.4 DOING IT RIGHT - PROFESSIONAL STANDARDS

Development applications to The City of Calgary must include copies of all environmental site assessments and other environmental work completed for the subject site. All up-to-date environmental site assessments submitted to The City must follow its *Phase I and II Environmental Site Assessment Terms of Reference* (The City of Calgary 2005a,b) and the applicable Canadian Standards Association guidance document(s) (e.g., CSA 2000, 2001), in line with current best practice. Note that if existing reports for a property include recommendations for additional environmental assessment, the project will be delayed until the recommended environmental reports are submitted and reviewed to The City's satisfaction.

How do I find a qualified person to do the environmental work?

When conducting any environmental assessment or remediation on a property, it is important to use a qualified, experienced environmental professional. In Alberta, professional responsibilities are specified in the Joint Practice Standard (AIA et al. 2007). The Canadian Standards Association and Alberta Environment & Sustainable Resource Development both require the use of a qualified environmental professional for environmental site assessments (CSA 2000, 2001; AENV 2006); Alberta Environment & Sustainable Resource Development also requires qualified professionals to be used for remediation and reclamation certificate applications (AENV 2010c; 2011a,b). Financial institutions may be able to provide lists of appropriately experienced consultants.

2.3 REGULATORY NOTES

2.3.1 SETBACKS

Setbacks are legally-required buffer areas intended to separate sensitive land uses and specific industrial facilities (e.g., landfills, oil & gas sites). The table below lists the setbacks that are most often encountered in Calgary.

	Industrial Activity	Setback	Restricted Land Uses
Landfill	• Operating ¹	300-450 m	Residences, Schools, Hospitals, Food Establishments
	• Non-operating ¹	300 m	
Wastewater Treatment Plant ¹		300 m	
Oil & Gas	• Operating Oil or Sweet Gas Well ¹	100 m	Residences, Public Facilities
	• Operating Sour Gas Well ^{2,3}	100-1500 m	
	• Operating Sour Gas Pipeline ³	15-1500 m	
	• Abandoned Well ⁴	20 m x 35 m	Structures, Buildings

Notes

1. For more information, see: *Municipal Government Act, Subdivision and Development Regulation 43/2002*.
2. The City may apply an additional 200 m nuisance setback for residential development (The City of Calgary 2009, 2011).
3. The setback distance varies with the H₂S content of the gas; for more info, see: ERCB 1981, 1998b, 2005, 2011.
4. For more information, see: Government of Alberta, Municipal Affairs & ERCB 2010.

2.3.2 SPILLS, RELEASES AND CONTAMINATION DISCOVERY

Contaminant spills and releases can be discovered in many ways, including: witnessing the spill (e.g., leaking gas pump, spill during fuelling); observing signs of contamination (e.g., stained soil, strange odours, stressed vegetation); and, historical releases discovered during construction (e.g., building expansion/demolition, road construction, utility repairs) or by a Phase I or II Environmental Site Assessment.

If contamination is discovered on a development site, and may cause, is causing or has caused an adverse effect, the developer or their representative must immediately report it to Alberta Environment & Sustainable Resource Development (24-Hour Toll-Free Release Reporting line: 1-800-222-6514 or in person at any Alberta Environment & Sustainable Resource Development office). The person responsible for the contamination is required to repair, remedy and confine the effects of the contaminant(s). Failure to report or remediate a release may result in enforcement action under Part 5, Division 1 of the Alberta *Environmental Protection & Enhancement Act*. Additional guidance can be found in Alberta Environment & Sustainable Resource Development's *A Guide to Release Reporting* (AENV 2005).



What is my first step if contamination is discovered on my site?

2.3.3 REGULATORY CHANGE

Contaminated sites regulation is intended to protect human health, ecological health and environmental quality under a variety of land uses and functions. Criteria for specific substances are established to account for the most sensitive or vulnerable condition applicable to a particular land use.

Over time, regulations have changed and become more restrictive, and assessment standards, techniques and technology have evolved as more is learned about the problems associated with different contaminants. This can result in situations where a property previously assessed as 'clean' does not meet current regulatory criteria and thus requires additional remediation or risk management to receive approval for redevelopment.

Note that it is The City of Calgary's practice to require that a site meets all current, applicable regulatory criteria (e.g., AENV 2010a,b).

If regulations, policies or guidelines change during the course of your involvement with a property, or if regulations have changed since the last environmental assessment was conducted, an environmental professional should be retained to provide advice on the best approach to meet regulatory guidelines. The applicable regulator should also be contacted to discuss how regulatory changes might affect your statutory obligations and redevelopment plans.



What should I do if the regulations change?

3 PREPARING A DEVELOPMENT APPLICATION



This chapter discusses development application preparation. Section 3.1 reviews the developer’s responsibilities and changes in project plans that may be necessary to meet regulatory guidelines in light of setbacks or site contamination. Environmental documentation that is required with a development application is presented in Section 3.2. During application review, The City of Calgary will evaluate the proposed project against area land use designation, setbacks and any known environmental contamination issues. To make an informed decision, The City requires the proponent to include all relevant documentation with their application.

3.1 THE DEVELOPER’S OBLIGATIONS

As discussed in Section 1.4.2, the developer must ensure that the site’s environmental conditions have been properly investigated, are suitable for the intended use and meet all legal conditions and requirements indicated by regulators including:

- The City of Calgary;
- Alberta Environment & Sustainable Resource Development;
- Alberta Health Services; and,
- Alberta Energy Resources Conservation Board.

Consideration should be given to these requirements when planning a development, particularly if the property is affected by setback requirements or contamination. If a project budget is insufficient to address potential environmental concerns, the project’s feasibility will need to be re-evaluated. Alternatives may be considered, such as declining the property purchase or evaluating other, less sensitive land uses (e.g., industrial and commercial uses are less sensitive than residential uses).



3.1.1 SITE EVALUATION & PROJECT PLANS

Setbacks were discussed in detail in Section 2.3.1. They may not always be obvious (contrast a landfill setback with a setback from an abandoned oil and gas well that is not identified on current land titles) but are essential to identify before proceeding too far with development plans. A Phase I Environmental Site Assessment should identify setbacks; however, developers need to confirm that their Phase I scope includes setback inquiry. When setbacks are identified early, projects can be planned to meet setback requirements.

Discovery of contamination on a property can have serious implications for redevelopment plans. An environmental professional can provide site-specific advice on how to appropriately remediate or manage contamination risks for the intended land use. Depending on the source of the contamination, risk management may be an acceptable option that limits contamination exposure and decreases costs; however, this option may also introduce long-term management costs. For some properties, altering the site layout or project design may be an option to address contamination; for example, the project's remediation strategy may include removing contaminated material while building an underground parking structure.

3.2 REQUIRED ENVIRONMENTAL DOCUMENTATION

As part of a development application, The City of Calgary requires a completed *Site Contamination Statement* (The City of Calgary, Development and Building Approvals 2010; a copy is provided in Appendix C) disclosing all information that may indicate that a property is potentially contaminated. The application must also include copies of all environmental site assessments and other environmental work completed for the subject site (include all reports, even historical ones). As discussed in Section 2.2.4, up-to-date environmental site assessments submitted to The City must follow its *Phase I and II Environmental Site Assessment Terms of Reference* (The City of Calgary 2005a,b). Additionally, The City requires all environmental site assessments to characterize the current environmental conditions of the site and reference current, applicable regulatory guidelines.

The City of Calgary's
*Site Contamination
Statement Form*

This form is provided in
Appendix C.

What documents
do I need to
submit with my
development
application?

The information provided with the *Site Contamination Statement* assists The City of Calgary's Environmental & Safety Management business unit with its environmental review of the development application. If an existing report includes recommendations for additional environmental assessment or does not meet City standards (The City of Calgary 2005a,b), the *Environmental Development Review Policy* permits The City to request additional information (e.g., additional environmental site assessment, risk management plan, remedial action plan) to ensure that the site is appropriate for its intended use. The City will require the developer to wait until the recommended environmental reports are submitted and reviewed to its satisfaction, which could result in project delays and additional costs.

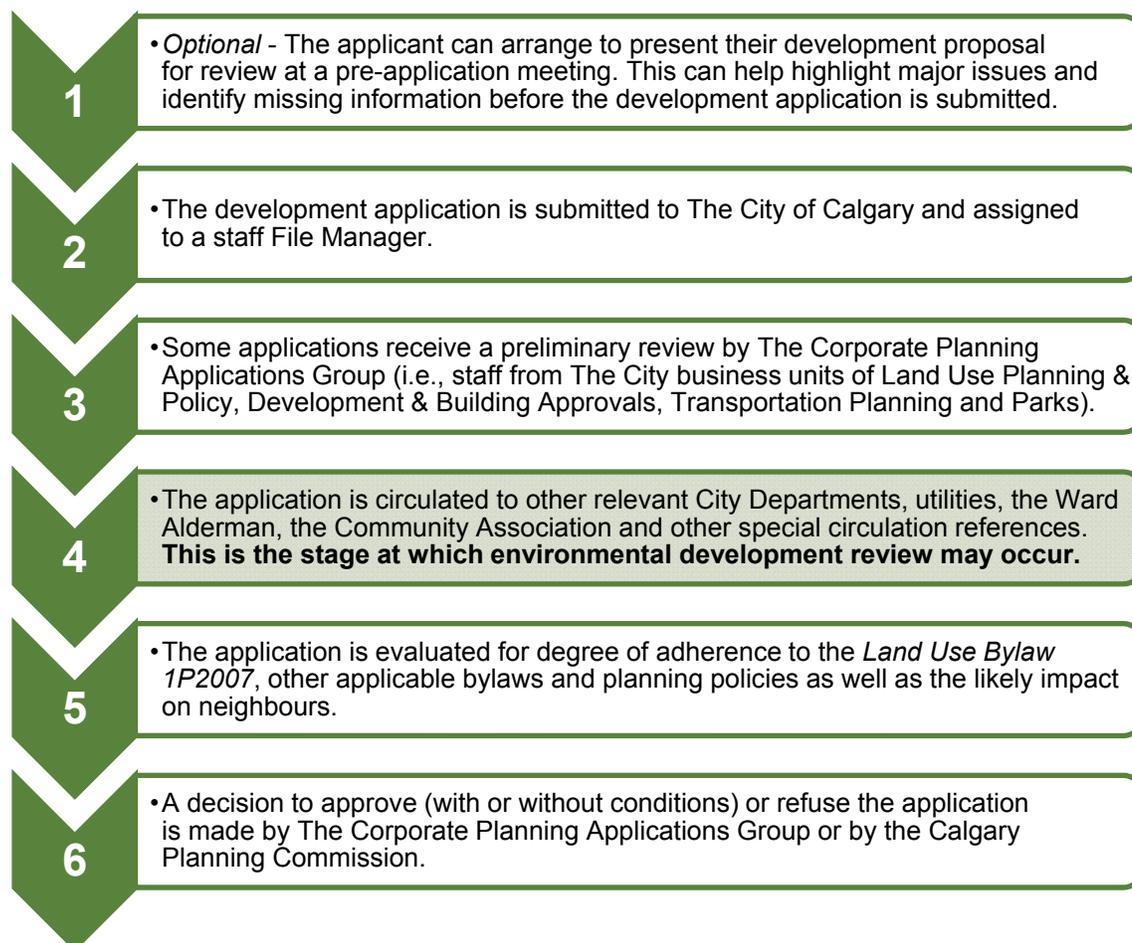
4 THE CITY OF CALGARY'S DEVELOPMENT APPROVAL PROCESS - ENVIRONMENTAL REVIEW



Section 4.1 outlines The City of Calgary's development approval process. More details can be found on The City of Calgary website (www.calgary.ca) and in *A Community Guide to the Planning Process* (Federation of Calgary Communities & The City of Calgary 2008).

This chapter discusses the environmental development review process that occurs within The City of Calgary's larger development approval process (Section 4.2) and the conditions under which other regulators would become involved in this process (Section 4.3).

4.1 OVERVIEW OF THE CITY'S DEVELOPMENT APPROVAL PROCESS



4.2 THE CITY OF CALGARY'S ENVIRONMENTAL DEVELOPMENT REVIEW

Various types of development applications are submitted to The City of Calgary through the Corporate Planning Applications Group; examples are listed in the table at right. These applications may be circulated for review by specialists within various City business units, including Environmental & Safety Management. Environmental & Safety Management is a specialist to the Urban Development representatives within the Corporate Planning Applications Group.

Common Types of Development Applications

- Development Permits
- Land Use Amendments
- Subdivision Applications

What is an environmental review and who conducts it?

The City's Environmental & Safety Management business unit is responsible for reviewing and managing the environmental component of The City of Calgary's land use development review and approval process. Only those applications where site contamination may be present are circulated to Environmental & Safety Management for review. This environmental review has two purposes: (1) determine if a site is suitable for its intended use with respect to environmental conditions, and (2) ensure that environmental conditions are considered as a part of the development approval process to promote public health & safety and sustainable development in accordance with the *Municipal Government Act*.

Environmental & Safety Management conducts its environmental review as per The City of Calgary's *Environmental Development Review Policy*. The main objective of reviews conducted by Environmental & Safety Management during the development approval process is to assess if a site is suitable for its proposed use, and if it is not, to ensure that appropriate actions are taken to address any unacceptable risks presented by the contamination.

4.3 INVOLVEMENT OF OTHER REGULATORS

When would other regulators become involved in my site?

The City of Calgary is responsible for the land use planning within its boundaries; as such Calgary City Council and its designated delegates are the ultimate decision-making authorities for land use planning applications, including development permits, land use amendments and subdivision applications. In instances where development application sites are impacted by contaminants, The City of Calgary's Environmental & Safety Management business unit may request the involvement of provincial regulators including: Alberta Environment & Sustainable Resource Development, Alberta Health Services and the Alberta Energy Resources Conservation Board.

Alberta Environment & Sustainable Resource Development's involvement will be requested in the following situations:

- a site-specific human health risk assessment has been undertaken;
- a risk management plan is proposed;

- the use of modified generic remediation guidelines (i.e., *Alberta Tier 2 Soil and Groundwater Remediation Guidelines* (AENV 2010b)) is proposed;
- a development is located within established setback distances (e.g., landfill);
- contaminant levels on a site exceed *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* (AENV 2010a) and no remedial action or risk management measures are being taken;
- an assessment or release (spill) indicates an immediate risk to human health or the environment;
- an assessment indicates a drinking water supply could be affected; or,
- there is a compliance issue such as a release (spill) where no immediate action has been taken (Alberta Environment & Sustainable Resource Development may issue an enforcement order in matters of non-compliance).

Alberta Health Services may be involved in the development approval process for properties located on or near: known contaminated sites; agricultural and animal operations; natural resource extraction sites; some types of industrial and commercial land uses; and, landfill and wastewater treatment facilities. Alberta Health Services is primarily interested in existing or planned residential developments and other sensitive land uses (e.g., schools, hospitals, child care facilities, long-term care facilities) but has responsibilities whenever public health may be impacted. During the development approval process, The City may seek advice from Alberta Health Services, or Alberta Health Services may become involved as an enforcement authority in response to a third party complaint.

Alberta Energy Resources Conservation Board's involvement would be requested for properties containing or located near upstream oil and gas sites.

5 DEVELOPMENT APPROVAL



Decisions on whether to approve (with or without conditions) or refuse most development applications are made by City staff designated as the Development Authority. Large or complex developments are presented to the Calgary Planning Commission for a decision. The Development Authority or Calgary Planning Commission can decide to *Approve*, *Approve with Conditions* or *Refuse* an application.

Who makes the decision on my application?

5.1 STANDARD CONDITIONS

The City of Calgary requires all approved development applications to meet specific environmental conditions. As discussed below, all development approvals (i.e., those stamped *Approved* or *Approved with Conditions*) will be subject to a *Permanent Condition* and an *Advisory Comment*. An *Approval with Conditions*, as discussed in Section 5.2, may have additional, project-specific environmental conditions attached.

What environmental conditions apply to all approvals?

5.1.1 PERMANENT CONDITION

The purpose of the *Permanent Condition* is to make developers aware of their responsibility to report potential contamination discovery during construction to the appropriate regulatory agency. This may include reporting to Alberta Environment & Sustainable Resource Development, Alberta Health Services and The City of Calgary. (See Appendix D for the full *Permanent Condition* text.)

5.1.2 ADVISORY COMMENT

The *Advisory Comment* is intended to make developers aware of their responsibility to ensure that environmental conditions at their property are suitable for the intended site use. If environmental contamination is identified at a property, it is the developer's responsibility to ensure that all environmental conditions in an approved Remedial Action Plan or Risk Management Plan are met. It is also the developer's responsibility to ensure the development complies with all applicable setback requirements and regulatory approvals. (See Appendix D for the full *Advisory Comment* text.)

5.2 PROJECT-SPECIFIC CONDITIONS



What does
"Approval with
Conditions"
mean?

Development applications that are *Approved with Conditions* may have additional, project-specific environmental conditions attached. The applicant must satisfactorily address these items as a condition of the development approval (i.e., The City of Calgary will require the developer to demonstrate (to The City's satisfaction) that the site is suitable for its intended use before proceeding with site redevelopment). Typical conditions include:

- a request for a Phase I and/or Phase II Environmental Site Assessment
- a request for a Risk Management Plan or a Remedial Action Plan to be prepared in cases where soil or groundwater contaminant levels exceed applicable regulatory guidelines

APPENDIX A. GLOSSARY, REFERENCES & LEGAL MATTERS

A.1 GLOSSARY

Abandoned Oil and Gas Well Site: Abandonment of an oil and gas well occurs by rendering the well incapable of flow, removing the well head, cutting the casing off at least one meter below the surface and plugging the opening. An abandoned well or well site, even one with a reclamation certificate, may be contaminated and have infrastructure (e.g., well casing, pipelines) remaining underground.

Battery: A facility that collects oil and gas from one or more wells and passes it through equipment to separate oil, gas, water and other impurities before moving the oil and/or gas further.

Contamination: A site is generally considered “contaminated” if it contains pollutants at concentrations above applicable regulatory standards. Site contamination may result from a number of factors including: historical land uses; accidental discharges, spills or leaks; deposition of by-products or residues; direct application or burial; use of imported fill; subsurface migration; or, cumulative effects of airborne deposition (AIA et al. 2007).

Development Permit: A requirement under The City of Calgary *Land Use Bylaw 1P2007*, a Development Permit is needed for most new construction or changes of use. The purpose of a Development Permit is: to ensure that the proposed use is allowable; to ensure that the Land Use Bylaw rules are met and, if not, to assess the merit of relaxing the rule; to allow an evaluation of the impact on neighbouring properties; to offer affected parties an opportunity to provide relevant information, ensuring informed planning decisions; and, to allow for conditions to be added to the approval of a proposed development.

Downstream Oil and Gas: The oil and gas industry is divided into two major components: upstream and downstream. The downstream sector includes all activities related to refining, selling and distributing crude oil products and natural gas; it includes oil refineries, petrochemical plants, petroleum product distribution, retail outlets (e.g., service stations) and natural gas distribution companies.

Environmental Professional: Within the field of contaminated sites work, an environmental professional is someone who meets and follows the professional responsibilities specified in the *Alberta Joint Practice Standard* (AIA et al. 2007).

Person Responsible: The Alberta *Environmental Protection & Enhancement Act* (s. 1(tt)) identifies a number of people that may be deemed to be a “person responsible” for contamination clean-up, including the site owner, his successors and his agents/trustees.

Petroleum Storage Tank Sites: Sites that include underground and aboveground storage tank facilities that contain or have contained gasoline, diesel, used engine oil, solvents, heating oil or similar petroleum products. Leaky older tanks create environmental damage that may go undetected for years (AESRD 2012). Up to one third of underground petroleum storage tanks installed prior to the 1990's are leaking or

will do so before they are removed (AEW 2012). Appendix B presents a case study of the assessment, remediation and redevelopment of a petroleum storage tank site.

Phase I Environmental Site Assessment: The systematic process by which a qualified environmental professional seeks to determine whether a site is or may be subject to actual or potential contamination (CSA 2001); it is often required by financial institutions prior to real estate purchases. A Phase I involves the evaluation and reporting of existing information collected through records review, interviews and site visits; it is non-intrusive (i.e., does not include drilling boreholes or sampling soil or water) (CSA 2001). All up-to-date Phase I reports submitted to The City must follow its *Phase I Environmental Site Assessment Terms of Reference* (The City of Calgary 2005a) and current Canadian Standards Association guidance (e.g., CSA 2001).

Phase II Environmental Site Assessment: The systematic process by which a qualified environmental professional seeks to characterize and/or delineate the concentrations or quantities of substances of concern related to a site and compare those levels to established regulatory criteria (CSA 2000). A Phase II Environmental Site Assessment is a field investigation that typically involves collecting soil and water samples; it is designed to collect the site-specific information necessary to establish the presence or absence of adverse affects. All up-to-date Phase II reports submitted to The City must follow its *Phase II Environmental Site Assessment Terms of Reference* (The City of Calgary 2005b) and current Canadian Standards Association guidance (e.g., CSA 2000).

Reclamation: The Alberta *Environmental Protection & Enhancement Act* defines reclamation as: the removal of equipment or buildings or other structures or appurtenances; the decontamination of buildings or other structures or other appurtenances, or land or water; the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of land; and, any other procedure, operation or requirement specified in the regulations.

Reclamation Certificate: A certificate issued for reclaimed upstream oil and gas sites, as required under part six of the Alberta *Environmental Protection & Enhancement Act*, which requires all “specified land” (i.e., land that is being or has been used or held for or in connection with the construction, operation or reclamation of an oil or gas well, battery, oil production site and pipeline) to be reclaimed and obtain a reclamation certificate following site decommissioning (AEW 2011). Note that sites with reclamation certificates may still be contaminated; for further details on the assessment, remediation and redevelopment of upstream oil and gas sites, see the case study in Appendix B.

Remedial Action Plan: A Remedial Action Plan is a detailed approach to conduct remediation.

Remediation: Reducing, removing or destroying pollutants in soil, water or groundwater to meet pre-established goals, such as federal or provincial regulatory criteria or alternate concentration limits that are protective of human health and the environment. Remediation may include physical, chemical or biological processes such as: source removal; physical removal of contaminated groundwater and/or soil; natural attenuation; degradation by microorganisms; and/or neutralization with chemicals that react with the contaminants to form benign substances.

Remediation Certificate: A certificate issued by the Alberta government that provides regulatory closure for the portion of the site that has been remediated, ensuring that additional clean-up will not be required if regulations change, provided that the land use does not change to a more sensitive one (AENV 2011a,b). Remediation certificates are now available for all types of contaminated sites, including petroleum storage tank sites and upstream oil and gas sites.

Risk Management Plan: A detailed plan developed to manage risks to human health, ecological health or environmental quality. A Risk Management Plan is required for non-remediated or partially remediated areas with contamination levels that exceed applicable regulatory criteria. Elements of a Risk Management Plan include, but are not limited to, the following: long-term remediation strategies; protection of receptors; demonstration that any potential adverse risks are being managed; administrative and exposure controls; land use restrictions; groundwater monitoring; and, affected third party acceptance (AENV 2009). A Risk Management Plan should also clearly establish roles and responsibilities of the involved parties, including reporting and monitoring requirements and schedules.

Setback: A setback is the minimum distance that must be maintained between current and former industrial facilities (e.g., landfills, wastewater treatment plants, oil and gas wells, pipelines, gas plants) and sensitive receptors / land uses (e.g., residential lands, hospitals, food establishments, schools). Setbacks vary with the type of industrial development and the proposed land use; they are specified under both provincial legislation and municipal bylaw.

Site Contamination Statement: A form required as part of a complete development application to The City of Calgary; it discloses all information that may indicate that a property is potentially contaminated. The Site Contamination Statement (The City of Calgary, Development and Building Approvals 2010) must be accompanied by copies of all environmental site assessments and other environmental work completed for the subject site (i.e., both current and historical reports). Appendix C provides a copy of the 2010 Site Contamination Statement.

Sour Gas: Sour gas is natural gas containing more than one percent hydrogen sulphide (H₂S), and in low concentrations is identifiable by a strong 'rotten eggs' smell (Alberta Energy 2012).

Sweet Gas: Natural gas that contains less than one percent hydrogen sulphide (H₂S).

Upstream Oil and Gas: The oil and gas industry is divided into two major components: upstream and downstream. The upstream sector includes all activities related to the exploration and production of crude oil and natural gas. In this document, "upstream" refers to the point where raw product is being collected, including wells, pipelines, satellites and batteries.

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APPENDIX B. CASE STUDIES

CASE STUDY 1: DEVELOPMENT OF A FORMER GAS STATION SITE

B 1.1 Site Purchase & Land Use Redesignation

A commercial property formerly occupied by a gas station was purchased by a residential apartment developer. The property was purchased with available funds by the developer (a bank mortgage was not required). During the purchase, the developer reviewed the environmental site assessment reports that had been completed during the property's decommissioning in the late 1990's. These reports indicated that the site was 'clean' (i.e., met the regulatory criteria applicable at the time); therefore, the developer assumed that the site would not have any land use constraints.



Once the purchase was completed, the developer applied to The City of Calgary to rezone the property from commercial to residential, in order to build the apartment complex. The developer submitted a completed *Site Contamination Statement* (see Appendix C) and attached copies of all previously completed environmental reports.

B 1.2 Gas Stations - An Environmentally High-Risk Land Use

Careless waste disposal, fuel spills and storage tank leaks at gas stations can cause soil and groundwater contamination both on and off site. In particular, leaks from underground storage tanks and product pipelines can cause serious problems, since they often go undetected for years. Contaminants of concern include gasoline, diesel and lube oil.

B 1.3 Environmental Development Review

The City flagged the application for an Environmental Development Review because the site had been previously occupied by a environmentally high risk land use (i.e., gas station) and was proposed to be redeveloped to a sensitive land use (i.e., residential).

The Environmental Development Review found that contaminant levels on the property (as reported in the environmental reports completed during site decommissioning in the 1990's) exceeded present-day regulatory standards for residential land use. Given the age of the reports and the regulatory exceedances, The City requested a new Phase II Environmental Site Assessment to determine if the soil and groundwater on site met current standards.

The new Phase II Environmental Site Assessment confirmed the regulatory exceedances and recommended measures to make the site suitable for residential development. The application and its environmental reports were circulated to Alberta Environment & Sustainable Resource Development.

B 1.4 Conclusion

The City of Calgary required the developer to demonstrate (to The City's satisfaction) that the site was suitable for its intended use before proceeding with site redevelopment. The project was delayed and costs increased as the developer completed both Remedial Action and Risk Management Plans; removed and properly disposed of the contaminated soil; and, completed the first groundwater monitoring report (and committed to long-term biannual groundwater monitoring reports).

B 1.5 Lessons Learned

If the developer had engaged an environmental professional and completed new environmental work prior to completing the site purchase, the developer would have had additional options, such as:

- Requesting professional advice on whether the site was suitable for its intended use (based on professional review of the environmental site assessment reports and site redevelopment proposal);
- Negotiating for further site remediation with the seller (the purchaser could even have requested a remediation certificate (AENV 2011a); once granted by Alberta Environment & Sustainable Resource Development, these certificates provide assurance that the site has been remediated and will not need to be re-visited if guidelines change);
- Planning a development that suited the existing commercial land use; or,
- Deciding not to purchase the property.

A current Phase II Environmental Site Assessment would also have allowed the developer to minimize delays by establishing an appropriate plan to deal with the site contamination prior to applying to The City.

CASE STUDY 2: DEVELOPMENT OF AN ABANDONED SOUR GAS WELL SITE

B 2.1 Site Purchase & Land Use Redesignation

A farmer's field, a site that includes an abandoned sour gas well, was purchased by a residential subdivision developer. A Phase I Environmental Site Assessment was conducted as due diligence prior to the purchase; it did not recommend any further site investigation. The former well was identified based on historical aerial photos. Alberta Energy Resources Conservation Board records indicated that the well operated for 25 years and was abandoned in 1996¹. Alberta Environment & Sustainable Resource Development issued a reclamation certificate for the site in 1997.



¹ After surface reclamation is complete and Alberta Environment issues a reclamation certificate, the well site lease notation may be removed from the land title. At this point, there is nothing visible on the surface or on the title to indicate the presence of an abandoned well (Government of Alberta, Municipal Affairs and ERCB 2010). Information about abandoned well locations can be obtained by contacting the Alberta Energy Resources Conservation Board.

Once the purchase was completed, the developer applied to The City of Calgary to redesignate the property from S-FUD (a special land use designation for Future Urban Development parcels) to Residential R-1 (i.e., Residential Single-Detached District), in order to build the residential subdivision. The developer submitted a completed *Site Contamination Statement* (see Appendix C) and attached copies of all previously completed environmental reports. The application included an outline plan; the abandoned sour gas well is located in the middle of the Municipal School Reserve (i.e., future school and recreation facility) portion of the land.

B 2.2 Abandoned Sour Gas Wells - An Environmentally High-Risk Land Use

Soil and groundwater contamination at upstream oil and gas sites can result from spills, leaks from production infrastructure (e.g., storage tanks, well bore, pipelines) and on-site disposal of drilling fluids in sumps and flare pits. Contaminants of concern include hydrocarbons, solvents, metals, herbicides and glycols (see AENV 2001 for detailed discussion on contamination sources and types at upstream oil and gas sites).

Issues that are common to former upstream oil and gas sites and that complicate their redevelopment include:

- Unknown and/or unaddressed contamination (upstream oil and gas sites require specialised assessment techniques and even then, items like flare pits and sumps can be missed, particularly on sites with poor records. In general, records associated with older sites are unreliable. Even sites with reclamation certificates may be contaminated; reclamation certificates issued prior to 1 October 2003 did not assess or address site contamination.)
- Buried infrastructure (e.g., pipelines) and/or debris (e.g., concrete) left on site at greater than 50 cm depth
- Abandoned well bores still in place (Note that the term "abandoned" refers only to the actual well and does not imply that any surface improvements have been made. Abandonment of an oil and gas well occurs by stopping the flow from the well, removing the well head, cutting the casing off at least one meter below the surface and plugging the opening.)

B 2.3 Environmental Development Review

The City of Calgary flagged the application for an Environmental Development Review because the site had been previously occupied by an environmentally high-risk land use (i.e., sour gas well) and was proposed to be redeveloped to a sensitive land use (i.e., residential). The City was also concerned about the inclusion of the abandoned well site on land that would be dedicated for a Municipal School Reserve.

The City of Calgary approved the land use redesignation and subdivision "with conditions"; essentially, this means that The City required the developer to demonstrate (to The City's satisfaction) that the site was suitable for its intended use before proceeding with site redevelopment. Specifically, The City requested the information in the following table:

Information Requested	Rationale
1. Identification of the well lease area, including the presence and/or location of flare and sump pits.	<ul style="list-style-type: none"> • These areas are the most likely to be contaminated. Sump pits contain drilling waste and may be some distance from the well itself.
2. Surveyed location of well head and any applicable setbacks.	<ul style="list-style-type: none"> • At a minimum, a 20 m x 35 m setback applies between an abandoned well head and any permanent structure (Government of Alberta, Municipal Affairs & ERCB 2010).
3. Identification of location and condition of remaining pipelines.	<ul style="list-style-type: none"> • Underground pipelines may remain on site and development setbacks may apply.
4. A plan for removing any abandoned pipelines within developable areas (e.g., building footprints, deep utilities) and a confirmatory sampling plan for the pipeline right-of-way.	<ul style="list-style-type: none"> • The pipeline right-of-way may contain contamination. Abandoned pipelines need to be removed in developable areas before construction starts.
5. A Phase II Environmental Site Assessment of the lease area and, if required, a Phase II Environmental Site Assessment of the off-lease area.	<ul style="list-style-type: none"> • The soil and groundwater must be sampled and analyzed to determine if the site meets applicable regulatory guidelines. The assessment may indicate that contamination extends beyond the lease boundaries; if so, an off-lease Phase II would be required.
6. A Remedial Action Plan for any identified contaminants above “residential” regulatory criteria.	<ul style="list-style-type: none"> • Contamination must be remediated and confirmatory sampling must demonstrate that the land is suitable for residential use.

B 2.4 Conclusion

The project was put on hold while the developer obtained the required information to demonstrate to The City that the site was suitable for the intended use. The project was delayed and costs increased substantially as the developer completed all six environmental information requests to The City's satisfaction.

B 2.5 Lessons Learned

Phase I Environmental Site Assessments are *not* all created equal. Urban investigation protocols do not directly translate as effective upstream oil and gas investigation protocols. The questions to ask; the information sources and agencies to consult; and, the regulations against which to assess information can all be different. As well, oil and gas development practices vary regionally and have changed

substantially over time. It is important to hire a qualified environmental consultant experienced in dealing with upstream oil and gas sites, and to proceed with caution.

If a high quality, rigorous, oil and gas-specific Phase I Environmental Site Assessment (and Phase II, if required) had been conducted prior to the site purchase, the developer would have had additional options, such as:

- Negotiating for further site assessment and remediation (if required) with the seller (the purchaser could even have requested a remediation certificate (AENV 2011b); once granted by Alberta Environment & Sustainable Resource Development, these certificates provide assurance that the site has been remediated and will not need to be re-visited if guidelines change);
- Negotiating for infrastructure removal (e.g., pipeline removal and confirmatory sampling) with the seller;
- Evaluating whether it was economical to adapt the site redevelopment plans to suit the challenges presented by the oil and gas site;
- Consulting with The City of Calgary (and other regulators, as appropriate) to discuss options for site redevelopment; or,
- Choosing not to purchase the property.

A current Phase II Environmental Site Assessment would also have allowed the developer to plan to deal with the site contamination as part of the redevelopment.

APPENDIX C. SITE CONTAMINATION STATEMENT FORM



THE CITY OF
CALGARY
DEVELOPMENT & BUILDING APPROVALS

Site Contamination Statement

PL 1146 (2010-07)

Application # _____

For office use only

Site Address: _____

Legal Description: _____

The information provided in this disclosure statement will assist the Development, Land Use and Subdivision Authorities in processing planning applications. The Authorities rely on the information provided in this statement to assist in determining the potential for site contamination, which may have been caused by current or historic activities.

You are responsible for the accuracy of the information provided in this statement. The questions must be answered to the best of your knowledge based upon diligent inquiry and the thorough inspection and review of all documents and other information pertaining to the subject property. **Please be aware that further site assessments may be required as part of the review of your application.**

1. Are you aware of any environmental investigations (audits, assessments, tests, surveys or studies) for this site?

Yes No

If yes, please provide copy(s).

2. Are you aware of any environmental requirements associated with any previous planning applications on this site? (i.e. development permit, land use redesign or subdivision)

Yes No

If yes please provided a brief description and the associated development application number(s):

3. Has there been site remediation or a request for such on the site?

Yes No

If yes, please provide a brief description:

Page 1 of 2

APPENDIX C - SITE CONTAMINATION STATEMENT FORM, CONT'D

4. Are you aware of any regulatory actions, past or current, which have been applied to this site? Yes No

Examples include (but are not limited to):

- Environmental Protection Orders
- Reclamation Orders or Certificates
- Control / Stop Orders, fines, tickets or prosecutions
- Violations of environmental statutes, regulations and bylaws
- Administrative penalties and warning letters

If yes, please describe and provide copies of relevant documents:

5. Have any permits been issued or are you currently operating under a license or approval issued by federal or provincial authorities or the Calgary Fire Department for activities which may impact the property? Yes No
(e.g. certificates of approval, storage tank regulations, plant operating permits)

If yes, please describe:

6. Has there been contact with Alberta Environment or Calgary Regional Health Authority regarding possible contamination on the site? Yes No

If yes, please provided a brief description:

Note: This form is to be signed by the titled owner(s) of the property or their authorized agents or consultants.

I, the owner, authorized agent, authorized consultant, state that, to the best of my knowledge, the information provided in this statement is accurate, complete and is based on diligent inquiry and thorough inspection and review of all the documents and other information reasonably available pertaining to the subject property. I am not aware of any other information that may indicate that the subject property is potentially contaminated.

Date

Applicant Signature

Applicant Name (Please Print)

Company Name (Please Print)

The personal information is collected under the authority of the Alberta Municipal Government Act, Section 640, The Calgary Land Use Bylaw 1P2007, and the Freedom of Information and Protection Act, Section 33(c). It will be used to communicate with the applicant during the permit application, review & inspection processes and will be circulated to relevant Portfolios, Calgary Police Services, Enmax, pertinent Community Association(s), Business Revitalization Zone(s), adjacent land owners, the property owner if he is not the applicant of record, Alberta Ministry of the Environment and Alberta Health Services. It may also be submitted to the Calgary Planning Commission (CPC) and/or Subdivision and Development Appeal Board (SDAB). Correspondence received regarding the application may be included in public agendas. The personal information and the nature of the permit will be publicly available, in accordance with Section 40(1) of the Freedom of Information and Protection of Privacy Act. If you have any questions regarding the collection of this information, please contact the FOIP Program Administrator, Development & Building Approvals, PO Box 2100, Station M, Calgary, AB T2P 2M5. Telephone 3-1-1.

APPENDIX D. ENVIRONMENTAL CONDITIONS OF DEVELOPMENT APPROVALS

All approved development applications will be required to meet some specific environmental conditions as the project proceeds. A set of *Standard Conditions* consisting of a *Permanent Condition* and an *Advisory Comment* will be attached to all development approvals provided by The City of Calgary; the exact text is provided below. An *Approval with Conditions* may have additional, project-specific environmental conditions attached.

D.1 PERMANENT CONDITION

If during construction of the development, the developer, the owner of the titled parcel or any of their agents or contractors becomes aware of any contamination,

- a. the person discovering such contamination shall immediately report the contamination to the appropriate regulatory agency including, but not limited to, Alberta Environment & Sustainable Resource Development, Alberta Health Services and The City of Calgary (within Calgary: call 3-1-1; outside Calgary: call (403) 268-2489)
- b. on City of Calgary lands or utility corridors, The City of Calgary's Environmental Assessment & Liabilities division shall be immediately notified (within Calgary: call 3-1-1; outside Calgary: call (403) 268-2489)

D.2 ADVISORY COMMENT

The developer is responsible for ensuring that:

- a. The environmental conditions of the subject property and associated utility corridors meet appropriate regulatory criteria and appropriate environmental assessment, remediation or risk management is undertaken.
- b. Appropriate environmental assessment(s) of the property has been undertaken and, if required, a suitable Remedial Action Plan and/or Risk Management Plan has been prepared, reviewed and accepted by the appropriate regulatory agency(s) including but not limited to Alberta Environment & Sustainable Resource Development and Alberta Health Services.
- c. The development conforms to any reviewed and accepted Remedial Action Plan / Risk Management Plans.
- d. All reports are prepared by a qualified professional in accordance with accepted guidelines, practices and procedures that include but are not limited to those in the most recent versions

of the Canadian Standards Association and The City of Calgary *Phase I & II Environmental Site Assessment Terms of Reference*.

e. The development complies with applicable environmental approvals (e.g., Alberta Environment & Sustainable Resource Development Approvals, Registrations); Energy Resources Conservation Board approvals and related setback requirements; and, landfill setback requirements as set out in the *Municipal Government Act, Subdivision and Development Regulation 43/2002*.

If the potential for methane generation or vapours from natural or contaminated soils and groundwater has been identified on the property, the developer is responsible for ensuring appropriate environmental assessment(s) of the property has been undertaken and appropriate measures are in place to protect the building(s) and utilities from the entry of methane or other vapours.

Issuance of this permit does not absolve the developer from complying and ensuring the property is developed in accordance with applicable environmental legislation.