



Eco Industrial Park Information Package



The City of Red Deer
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Table of Contents

Introduction	Page 1
Eco Industrial Requirements	Page 2
Application Process	Page 4
Benefits to Eco-Industrial Development	Page 5
Other Considerations	Page 6
Glossary	Page 7
Appendix	Page 9

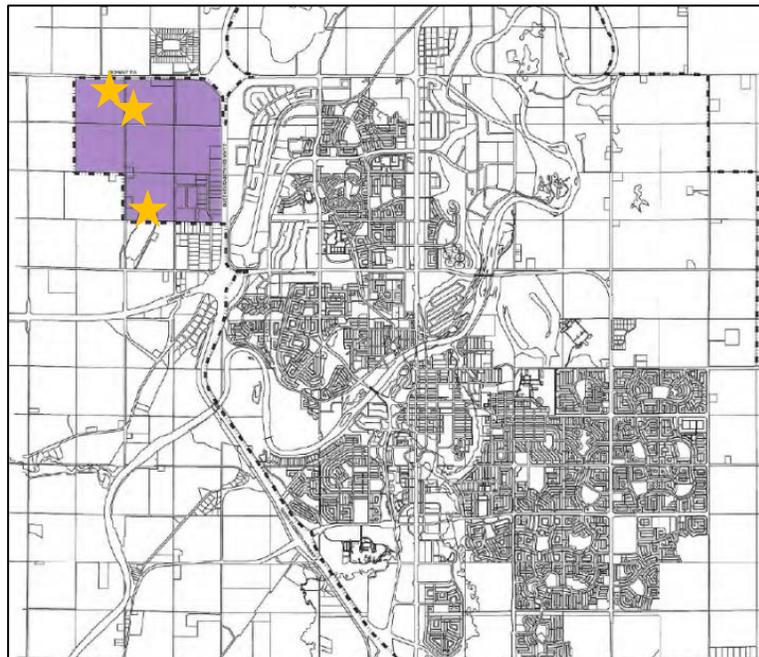
INTRODUCTION

In June 2014, Council approved the Eco Industrial Park Overlay District for the eco-industrial areas in northwest Red Deer. The Overlay District was incorporated into the *City of Red Deer Land Use Bylaw* to provide statutory regulation for eco-industrial development.

Eco-industrial development means industrial development resulting in businesses cooperating with one another and the local community in an attempt to reduce waste, efficiently share resources (such as information, materials, water, energy, infrastructure, or natural resources), and produce sustainable development, with the intention of increasing economic gains and improving environmental quality.

This information package will assist developers, planners, engineers, and architects with the site planning and design of eco-industrial sites to achieve the vision set out in the *West QE2 Major Area Structure Plan*.

-  West QE2 Industrial Area (Queens Business Park)
-  Eco Industrial Parks



The illustrations and pictures used throughout this document are provided to demonstrate examples of methods to achieve the requirements of eco-industrial development.

ECO INDUSTRIAL REQUIREMENTS

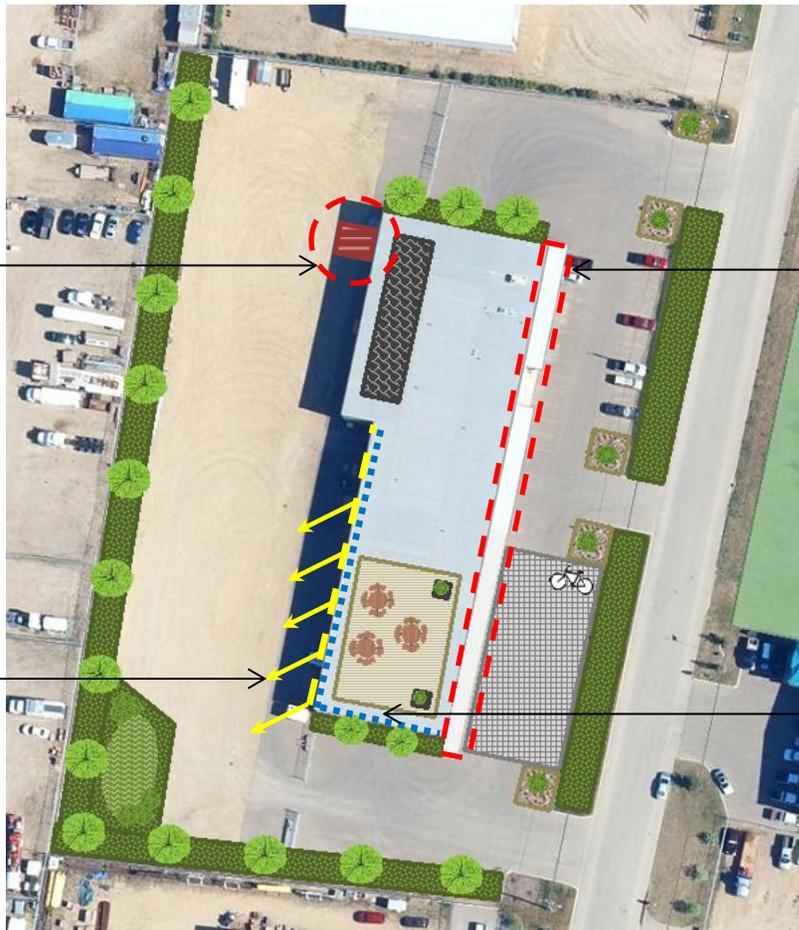
The Eco Industrial Park Overlay District sets out specific requirements for development within the eco-industrial areas. These requirements include site planning and design regulations as well as application documentation specifically for eco-industrial development. An application will need to demonstrate how it is meeting the eco-industrial requirements. A checklist is provided in the appendix section.

Site Planning and Design Regulations

- Provide sidewalks along each side of a building that abuts a parking area.
- If the site abuts a public sidewalk or transit stop, provide a direct sidewalk connection from the main entrance of the building to the public sidewalk or transit stop.
- Design buildings to take advantage of passive solar heating, natural lighting, passive ventilation, or shading for cooling.
- Locate and orient windows to provide building occupants with views to significant natural and/or landscaped areas.
- Designate an area for onsite recycling and/or composting.
- Provide one parking space for a small, alternative, carpool or electric vehicle in a preferential location.



Recycling and composting



Continuous sidewalk along building frontage provides pedestrian connection to and from parking area



Windows oriented to provide occupant views to landscaped area



Windows on south and west side of the building for natural lighting

Figure 1: Example of Eco Industrial Regulations

- g. In shipping and receiving areas, erect at least one sign per loading dock that indicates the area as an “Idle Free” zone.
- h. Use landscape species of plants, trees, or shrubs that are suitable for Xeriscaping, Naturescaping, stormwater management, and/or rear yard screening.
- i. Landscape using a combination of flowers, grasses, mulch, trees, and/or shrubs.
- j. A minimum of 15% of the landscaping shall consist of Naturescaping or Xeriscaping.
- k. Design landscaping to provide shading, climate protection, and windbreaks.
- l. Frame the access to the site with landscaped islands.
- m. Provide landscaping strips adjacent to and along the length of the building on two sides on the building.
- n. Provide a landscaping strip along the entirety of the front yard of the site if the front yard of the site abuts a road.
- o. If the rear yard of the site is visible from a road or highway, provide a landscaping strip incorporating trees and shrubs to screen the view of the rear yard from the road or highway.
- p. Irrigation systems installed at the time of the development shall be high efficiency drip systems.



Figure 2: Example of Eco Industrial Regulations

Application Documentation

In addition to the standard application documentation, each application for development within the Eco Industrial Park Overlay District must include the following two documents:

- a. Green Building Material List
 - i. Each building shall incorporate three green building materials. Refer to the glossary for a definition of green building materials and refer to the appendix section for a sample Green Building Material List.
- b. In-house Recycling and Composting Letter
 - i. Each business shall establish an in-house recycling and/or composting program for organic and material wastes. Refer to the appendix section for a sample In-house Recycling and Composting Letter.

APPLICATION PROCESS

Development permit application information is available from:

<p>Inspections and Licensing Department 3rd floor City Hall, 4914-48 Avenue Ph. 403-342-8190</p>		<p>City of Red Deer Website www.reddeer.ca</p>
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Development permit applications shall be submitted to the Inspections and Licensing Department. Applications for development within an eco-industrial area must include a *Green Building Material List* and an *In-house Recycling and Composting Letter*. Once all the required documentation is received, the application is passed to the Development Authority for review for compliance to the City of Red Deer Land Use Bylaw.

If the application meets the requirements, the Development Authority will forward the application to relevant City departments for review. The relevant City departments may recommend conditions be attached to the development permit.

The Development Authority will consider the recommended conditions when making their decision to support the application, support it with conditions, or deny the application. The Development Authority may refer applications to the Municipal Planning Commission when deemed necessary or advisable.

If an application receives a development permit, the applicant will be responsible for obtaining additional permits prior to developing. The required permits include a building permit and an occupancy permit.

BENEFITS OF ECO INDUSTRIAL DEVELOPMENT

The concept of eco-industrial development encompasses several benefits for businesses. Some potential benefits associated with eco-industrial development are listed below:

Development Benefits

- Flexible development criteria.
- Additional discretionary uses for the eco-industrial areas to encourage business collaborations and waste to input synergies.
- Based on the degree of commitment to the Eco Industrial Park Design Guidelines, the City of Red Deer may provide non-financial support for businesses applying for 3rd party grants or awards by providing a letter of recognition.
- Based on the degree of commitment to the Eco Industrial Park Design Guidelines, the City of Red Deer may recognize distinguished eco-industrial businesses through marketing, awards, or advertorials.

Industry Benefits

- Enhance company profile and gain a competitive advantage.
- Achieve corporate environmental/green policies.
- Become part of a distinct area that is on the leading edge of industrial development.
- Potential for new market opportunities.
- Gain provincial, national, and even global recognition.

Operational Benefits

- Potential to establish networks and collaborative partnerships.
- Increased efficiency and access to materials using by-product synergies.
- Reduced dependency on raw materials.
- Potential for new technologies to utilize waste stream.
- Opportunity to share services such as job training, warehousing, purchasing, transportation, research and development, administration, health and safety programs, etc.

Economic Benefits

- Lower operating cost, improved profitability, and improved economic vitality.
- Experience immediate and measurable results by saving energy, water, and other resources.
- Gain economic value for waste products or by-products and reduce costs associated with disposing waste.
- Reduced costs associated with transportation, shipping, and other businesses expenses.

Social Benefits

- Potential to create a healthier and cleaner work environment for employees and customers.
- Increased social well-being and provides an aesthetically pleasing place to do business.
- Become part of an environmentally conscious community.



Environmental Benefits

- Potential to reduce company's carbon footprint (GHG emissions).
- Enhance and protect the environment by conserving water and energy and diverting waste.
- Preserve, integrate, and foster natural habitat or features.

OTHER CONSIDERATIONS

There are many other ways to achieve eco-industrial development in addition to the requirements included within the Eco Industrial Park Overlay District. Businesses are encouraged to explore the following suggestions to enhance their site design and business operations:

- Incorporate energy or water efficient fixtures, fittings, and appliances.
- Utilize an onsite renewable energy source. For example: solar, geothermal, wind, biomass, or cogeneration. Renewable energy structures could be oriented to offer public display.
- Incorporate a designated area to prominently display objects and symbols of ongoing industrial activities and/or innovation practices, but these areas will not be used for product display alone.
- Incorporate a designated onsite bike parking area, near employee and customer entrances, where it does not obstruct the walkway or driveway.
- Incorporate landscaped areas and/or islands throughout storage areas to intercept precipitation, reduce surface heating, provide canopy shading, and enhance the overall appearance of the area.
- Incorporate permeable and semi-permeable paving surfaces to improve ground water recharge and reduce storm water runoff.
- Utilize an onsite storm water management strategy to minimize the disturbance of natural areas for storm water infrastructure and to recharge underground water systems. For example: incorporate direct roof runoff into infiltration basins, dry wells, bio-swales, or filter strips, capture roof runoff for irrigation, or develop green roofs.
- Implement a system to capture roof runoff/rainwater for landscape watering. If this system is proposed, the use of roofing materials that do not yield contaminants is recommended.
- Incorporate a water system that uses non-potable water or grey water for processes which do not require potable water sources (i.e. vehicle washing, landscape watering, toilets, cooling, etc.). Use of non-potable water or grey water must correspond with the applicable regulations/code at the time of application.
- Share resources with neighboring businesses, such as, business intelligence (i.e. process improvement methods), training/courses, technologies, by-products, or materials.
- Share community amenities with neighboring businesses, such as, employment amenity areas, a bike sharing program, or community garden.



- l. Share, where possible, joint infrastructure with neighboring businesses, such as, energy systems (i.e. heating, cooling, or electrical), waste systems, water systems, or drainage systems.
- m. Establish by-product exchange (waste to input synergies) with neighboring businesses.
- n. Incorporate a formalized outdoor employee amenity area. For example: a lunch area, rooftop patio, gathering space, open/park space, or community garden.
- o. Incorporate a waste management plan which outlines the recycling of construction waste in order to divert reusable or recyclable materials from the landfill. Materials, such as, cardboard, metal, brick, mineral fibre panel, concrete, plastic, clean wood, glass, gypsum, wallboard, carpet, and insulation may be recycled.
- p. Incorporate hybrid or electric vehicles in the corporate fleet.



GLOSSARY

Biomass: plant and animal material, especially agricultural waste products, used as a source of fuel.



Bio-swales: landscaped element designed to remove silt and pollution from surface runoff. Swaled drainage with sloped slides generally less than 6% and filled with vegetation, rock armour, or rubble. Bio-swales can be designed with a straight or meandering alignment.

By-product: means a secondary product, or waste product, derived from a manufacturing process that can be used as an input material for another operation.

Cogeneration (also combined heat and power, CHP): is the use of a heat engine or a power station to simultaneously generate both electricity and useful heat. It is one of the most common forms of energy recycling.

Dry Well: means a dry well is a small, excavated pit filled with stone or gravel that temporarily stores storm water runoff until it soaks into the surrounding soil. A dry well connects either directly or indirectly to a roof downspout to collect storm water from rooftops. It is a passive system. Water flows through it under the influence of gravity.



Development Authority: means the individual(s) with the authority to approve an application, approve it with conditions, or deny an application. The Development Authority may be a Development Officer or it may be the Municipal Planning Commission.

Eco-industrial: means a type of industrial park in which businesses cooperate with one another and the local community in an attempt to reduce waste, efficiently share resources (such as information, materials, water, energy, infrastructure and natural resources), and produce sustainable development, with the intention of increasing economic gains and improving environmental quality.

Filter strips: vegetated strips designed to treat sheet flow from adjacent surfaces.

Geothermal Energy: a renewable source of power derived from the earth's internal heat. Geothermal energy uses escaping heat from the earth's core to produce electricity, and to heat and cool buildings.

Green Roof: means a building's roof which allows vegetation to grow in a growing medium. The green roof may be partially or completely covered in plants.



Green Building Materials: means salvaged, refurbished, or recycled building materials (pre and post-consumer products).

Grey Water: means domestic waste water collected from sources like washing machines and bath tubs, but does not include waste water from toilets, urinals or kitchen sinks as they contain large amounts of organic matter which may cause health and environmental risks.



Infiltration basin: shallow artificial pond designed to allow the infiltration of stormwater through permeable soils into a groundwater aquifer.

Naturescaping: means the modification and enhancement of a lot or development to promote water efficiency and reduce the dependence on fertilizers and pesticides. The use of native central Alberta non-invasive vegetation is preferred.

Non-potable Water: means water from a lake, river, stream, dugout, or collected rainwater.

Potable Water: means clean high quality water that is safe for human consumption.

Recycling: means the reuses of materials, goods and energy to produce consumer goods.

Xeriscaping: water conservation through landscaping. A sustainable garden where plants survive dry periods on their own, without heavy reliance on supplement watering, fertilizer, or other maintenance.



Figure 3: Example of Eco Industrial Development

APPENDIX

GREEN BUILDING MATERIAL LIST EXAMPLE



SAMPLE

GREEN BUILDING MATERIAL LIST

APPLICANT: SUSTAINABLE INDUSTRIAL COMPANY

PROPOSED DEVELOPMENT: INDUSTRIAL BUILDING

ADDRESS: #111, STREET, RED DEER

PROPOSED BUILDING MATERIALS:

PRODUCT	DESCRIPTION	PRODUCED
All Weather Windows	Help reduce energy usage and reduce outside noise. Recognized by ENERGY STAR	Red Deer
Dura-soft Loading Dock Bumper	Bumper pads made from recycled tires	Outside Canada
Luminessence Lighting for Outdoor Signage	Cold weather rated luminaries, use T5 fluorescent high output electronic technology, are low-profile, making them architecturally pleasing, and minimizes light trespass and light pollution.	Edmonton
Enershield Energy Saving Air Barrier	The design recirculates facility air in a smooth uniform flow, creating up to a 90% seal on the doorway.	Edmonton
Aeroseal Duct Sealing	Seals ducts from the inside, using a nontoxic water-based sealant. The non-invasive process allows heated or cooled air to reach the rooms as designed, providing better comfort and air quality. Sealed duct systems save energy and reduce emissions.	Calgary

IN-HOUSE RECYCLING & COMPOSTING LETTER EXAMPLE

SAMPLE

INDUSTRY LIMITED



IN-HOUSE RECYCLING & COMPOSTING PROGRAM
ADDRESS: #123, STREET, RED DEER
PICK-UP CONTRACTOR: WASTE & RECYCLING CARRIER LTD.

OVERVIEW:

Industry Limited will establish and promote the recycling and composting of materials within the business. Recycling bins will be provided onsite near the rear exit of the building. There will be indoor recycle bins provided within the staff lunch area, administration desk, and mechanic shop. Staff will also be equipped with individual recycling bins and will be encouraged to take recyclables to the outside bins provided.

A designated bin for composting materials will also be provided next to the recycle bin. Staff will be encouraged to sort organic waste from non-organic waste and dispose of such waste in the organic waste containers provided in the staff lunch area. Staff will empty the organic waste containers from the lunch area into the composting bin located to the rear of the building.

Waster & Recycling Carrier Ltd. will be contracted to empty the recycling bin on a bi-weekly basis. The compost material from the composting bin will be used in the onsite flower beds and landscaped areas.

MATERIALS TO BE RECYCLED AND COMPOSTED

- Paper
- Cardboard
- Bottles and cans
- Organic materials such as fruit and vegetable peels

PROPOSED RECYCLING AND COMPOSTING BIN LOCATION:

Refer to site plan for onsite bin locations and refer to floor plan for interior bin locations.



ECO INDUSTRIAL DEVELOPMENT REQUIREMENTS CHECKLIST

Eco Industrial Development Requirements	Suggested Documentation
a. Provide sidewalks along each side of a building that abuts a parking area.	Site plan
b. If the site abuts a public sidewalk or transit stop, provide a direct sidewalk connection from the main entrance of the building to the public sidewalk or transit stop.	Site plan
c. Design buildings to take advantage of passive solar heating, natural lighting, passive ventilation, or shading for cooling.	Site plan and elevation drawings
d. Locate and orient windows to provide building occupants with views to significant natural and/or landscaped areas.	Elevation drawings and landscaping plan
e. Designate an area for onsite recycling and/or composting.	Site plan
f. Provide one parking space for a small, alternative, carpool or electric vehicle in a preferential location.	Site plan
g. In shipping and receiving areas, erect at least one sign per loading dock that indicates the area as an "Idle Free" zone.	Elevation drawings
h. Use landscape species of plants, trees, or shrubs that are suitable for Xeriscaping, Naturescaping, stormwater management, and/or rear yard screening.	Landscaping plan
i. Landscape using a combination of flowers, grasses, mulch, trees, and/or shrubs.	Landscaping plan
j. A minimum of 15% of the landscaping shall consist of Naturescaping or Xeriscaping.	Landscaping plan
k. Design landscaping to provide shading, climate protection, and windbreaks.	Landscaping plan
l. Frame the access to the site with landscaped islands.	Landscaping plan
m. Provide landscaping strips adjacent to and along the length of the building on two sides on the building.	Landscaping plan
n. Provide a landscaping strip along the entirety of the front yard of the site if the front yard of the site abuts a road.	Landscaping plan
o. If the rear yard of the site is visible from a road or highway, provide a landscaping strip incorporating trees and shrubs to screen the view of the rear yard from the road or highway.	Landscaping plan
p. Irrigation systems installed at the time of the development shall be high efficiency drip systems.	Landscaping plan
q. Incorporate three green building materials.	Green Building Material List
r. Establish an in-house recycling and/or composting program for organic and material wastes.	In-House Recycling and Composting Letter