

Environmental Construction Operations (ECO) Plan Framework

Instructions for Preparing ECO Plans for Alberta Transportation, City of Calgary
and City of Edmonton Construction Projects



In partnership with:



TITLE: Environmental Construction Operations (ECO) Plan Framework
Instructions for Preparing ECO Plans for Alberta Transportation, City of Calgary and City of Edmonton Construction Projects

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The City of Calgary
The City of Edmonton

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www.edmonton.ca

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Environmental Construction Operations (ECO) Plan Checklist

Project Name: _____

Contractor's On- Site Representative(s) (Name, Company, Email and Phone Number): _____

ECO Plan submitted to (Name and Jurisdiction): _____

Note: All checklist items are required in the ECO Plan. Explain any deficiencies in the comments section.
Ensure that this three-page checklist is signed and submitted with the ECO Plan.

ECO Plan Framework Step				YES	NO	N/A
Step 1 – Description of Site Activities						
1.1	Site Activities			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Site Drawings			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	Project Schedule			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Step 2 – Potential Environmental Impacts and Controls						
2.1	Permits, Approvals, Authorizations and Notifications			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Impacts and Mitigations			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3	Erosion and Sediment Control			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Step 3 – Hazardous Materials and Waste Management						
3.1	Hazardous Materials			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Step 4 – Environmental Emergency Procedures						
4.1	Environmental Emergency Prevention and Response			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Step 5 – ECO Plan Implementation						
5.1	Training and Monitoring			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2	Communication			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3	Documentation			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4	ECO Plan Update			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Explain any deficiencies in the ECO Plan:

ECO Plan Checklist for City of Calgary and City of Edmonton can be found in Environmental Construction Operations (ECO) Plan Framework Municipal Version.

Contractor Responsibilities

All Contractors must be aware of how environmental policy, regulation and law govern their work. The Contractor is responsible, either by its own actions or through its sub contractors, for providing the resources needed to develop and implement the ECO Plan. The Contractor is responsible for ensuring sub contractors understand their roles and responsibilities and operate in compliance with the ECO Plan.

Contractors must refer to the terms and conditions contained in applicable contractual and regulatory documents to be fully aware of their responsibilities. In general, Contractors must:

- a) Identify the potential environmental issues and develop mitigation measures to prevent or minimize environmental impacts.
- b) Identify and acknowledge permits, approvals, authorizations, notifications, guidelines, standards, policies and programs applicable to the project.
- c) Prepare and update the ECO Plan in accordance with the latest version of the ECO Plan Framework.
- d) Submit copies of the ECO Plan and all other required documentation to the consultant for Alberta Transportation projects or The City Project Manager for municipal projects.
- e) Revise the ECO Plan as required based on reviewer (i.e., The City of Calgary, The City of Edmonton or the consultant for Alberta Transportation projects) comments.
- f) Identify an on site individual to be the Contractor's On-Site Representative to maintain environmental controls and address any environmental issues or questions that arise. The Contractor must identify this individual within the ECO Plan and at the pre-construction meeting.
- g) Train staff and sub contractors to identify, address and report potential environmental problems.
- h) Review the ECO Plan requirements at orientation meetings, the pre-construction meeting, tailgate meetings etc.
- i) Implement and maintain environmental mitigation measures in accordance with the ECO Plan.
- j) Correct and record deficiencies in a timely and appropriate manner.
- k) Take corrective action (e.g., shut down work) upon recognition that an impact to the environment may occur or has occurred.
- l) Ensure that all sub contractors comply with the ECO Plan.
- m) Monitor the work site to ensure that the ECO Plan is effective for all conditions, including inclement weather and shut-down periods. Document all monitoring efforts.

This ECO Plan is complete to the best of our abilities. The undersigned acknowledges and accepts the responsibilities detailed herein.

Contractor Principal-in-Charge Signature

Name (please print)

Date

Introduction

The Environmental Construction Operations (ECO) Plan Framework guides the development of ECO Plans for Alberta Transportation, The City of Calgary, and the City of Edmonton. ECO Plans ensure the following:

- The project is compliant with applicable regulations, bylaws and guidelines
- Environmental considerations are integrated into project decision-making

ECO Plan Process

The Contractor must prepare and implement an ECO Plan in accordance with the current version of the Department's manual entitled "Environmental Construction Operations (ECO) Plan Framework." The ECO Plan must be site specific and address all environmental regulations, conditions and sensitivities.

The ECO Plan Checklist must be completed and be signed by the Contractor Principal-in-Charge as part of the ECO Plan submission.

No work may begin until the Contractor has an accepted ECO Plan. Contractors must submit their ECO Plans to the appropriate jurisdiction at least 14 days prior to the scheduled start of construction. The reviewer will evaluate the ECO Plan and one of the following will result:

1. **Acceptance** – If the ECO Plan is accepted to the mutual satisfaction of the Contractor and the reviewer (reviewers may include the consultant for Alberta Transportation, The City of Calgary or The City of Edmonton), the Contractor will be advised that the ECO Plan is complete.
2. **Follow-up or Revision** – The reviewer will follow up with the Contractor if deficiencies are identified or questions are raised. Incomplete ECO Plans will be returned to the Contractor for revision. ECO Plans must be completed to the mutual satisfaction of all parties. Changes to accepted ECO Plans must be documented (see Table 5-3) and copies of the updated ECO Plan forwarded to the reviewer and other parties, as applicable.

This Framework provides instructions for developing ECO Plans for Alberta Transportation, The City of Calgary and The City of Edmonton. **Additional requirements** for City of Calgary and City of Edmonton can be found in *Environmental Construction Operations (ECO) Plan Framework Municipal Version*. All ECO Plans must follow the jurisdictional appropriate Framework and adopt the headings and structure provided.

Step 1

Description of Site Activities

1.1 Site Activities

Briefly describe the location and general construction activities that will occur as a result of the Contractor's activities, including any permanent and temporary structures. It is particularly important for the Contractor to describe specific on-site construction activities that could result in environmental impacts (e.g. working in/near a watercourse or wetland).

1.2 Site Drawing(s)

Provide site drawing(s) that contain standard map features (e.g., north arrow, scale, legend) and be at an appropriate scale to accurately show the location of the project components and activities relative to existing features. Annotated photographs can be included in this section. Table 1-1 summarizes some additional details that may be relevant to include on the site drawing(s).

Table 1-1 Example: Potential Details to include on the Site Drawing(s)

Site Location	Site Set-up and Layout	Erosion and Sediment Controls	Environmental Sensitivities
<ul style="list-style-type: none"> • Site location (e.g., municipal address; legal land description) • Project boundaries • Municipal boundaries, historic sites, protected areas (e.g., parks), federal land • Linear and other transportation components (e.g., railways, roads) 	<ul style="list-style-type: none"> • Staging areas/ laydown • Borrow areas • Stockpile locations • Refuelling areas • Detour placement • Spill kits • Hazardous materials storage • Hazardous waste storage • Waste and recycling areas* • Office and parking* • Access/egress* 	<ul style="list-style-type: none"> • Project-specific erosion and sediment controls as appropriate for the jurisdiction (see Step 2.3 and Table 2-3 for more details) including both temporary and permanent measures. • Storm water infrastructure 	<ul style="list-style-type: none"> • Environmentally sensitive areas (e.g., wildlife habitat; waterbodies such as wetlands, and watercourses ; vegetation such as tree stands and rare plants) • Buffers around sensitive areas • Monitoring wells • Known Contamination

*Only apply to City of Calgary ECO Plans

1.3 Project Schedule

The ECO Plan will include a project schedule that presents the sequence and timing of construction activities. It will identify any time-sensitive environmental considerations including scheduled shut-downs and restricted work periods. For example, Restricted Activity Periods (RAP) may restrict the activities of the Contractor unless additional mitigation is completed (e.g. conducting bird nesting surveys prior to clearing within the RAP).

Step 2

Potential Environmental Impacts and Controls

2.1 Permits, Approvals, Authorizations and Notifications

The Contractor must provide instruction to their staff and sub-contractors how environmental conditions and/or restrictions prescribed within permit conditions, approvals, authorizations and the contract govern their work.

List the name and permit number of all required project permits, approvals, authorizations and notifications in this section. Compile all of the environmental conditions and restrictions prescribed by the regulatory agencies, which pertain to the Contractor, in a summary table (e.g., Table 2-1). Tender packages and Environmental Risk Assessments (Alberta Transportation) outline the regulatory requirements that the Contractor must address.

Retain copies of projects permits, approvals, authorizations and notifications (as well as the permit applications when relevant) on site during all activities. These documents, upon request, will be provided to the regulators during site visits and inspections.

Table 2-1 Example: Project Permits, Approvals, Authorizations and Notifications

Legislation	Environmental Conditions That Apply to the Contractor's Activities
Fisheries and Oceans Canada Fisheries Act Authorization	No in-stream work will occur between May 1 and July 15
	Operate machinery on land in a manner that minimizes disturbance to the bed and banks of the watercourse
	A fish rescue shall be undertaken in the isolated area and shall be released unharmed to an area containing sufficient flow and cover outside of the construction area
	etc.
Alberta Environment and Parks Water Act Approval	The Contractor shall not release sediment into any wetland or watercourse
	Develop a temporary erosion and sediment control plan prior to construction
	etc.
Notification under the Code of Practice for Watercourse Crossings	Where isolating the location of a works, the isolation must be carried out in a manner that isolates the location of the works from the flowing water in the water body, and eliminates the flow of surface water through the construction site.
	During a restricted activity period, when fish are spawning or migrating, an isolation method that blocks the entire width of a water body must not be in place for longer than 3 consecutive days, unless upstream and downstream fish migration is accommodated
	etc.

2.2 Impacts and Mitigations

The Contractor must identify environmental sensitive features and mitigate all project-related impacts. The Contractor and all sub-contractors must understand how to comply with all regulatory requirements and identify, mitigate, and monitor project related impacts. The Contractor must ensure that all project regulatory requirements and environmental impacts are complied with and mitigated.

The Contractor must identify specific regulatory requirements (other than permits, approvals, authorizations and notifications) and project impacts over which they have reasonable control. Identify project related impacts and mitigation measures that the Contractor must implement to remain compliant In Table 2-2.

The Contractor must refer to the Environmental Risk Assessment and the Tender Package to guide the development of Table 2-2 for Alberta Transportation projects. Municipal projects should refer to Contractor Environmental Responsibilities Package, Standard General Conditions, Special Conditions and Standard Specifications identified in the tender.

Table 2-2 Example: Project Regulatory Requirements and Environmental Sensitivities (other than permits, approvals, authorizations and notifications)

Legislation / Environmental Sensitivity	Regulatory Requirement / Environmental Sensitivity	Contractor's Mitigation
Migratory Birds Convention Act and its regulations	Avoid engaging in potentially destructive or disruptive activities during the Restricted Activity Period in order to reduce the risk of affecting migratory birds, their nests or eggs.	If vegetation removal is required during the Restricted Activity Period, the Contractor will have pre clearing surveys conducted by a qualified professional biologist to confirm that birds are not impacted by vegetation clearing and wetland disturbance activities. If active bird nests are found, a buffer will be established and no work shall be completed in that area until further surveys clear the area.
	etc.	
Dust Management	The Contractor shall manage dust during the construction period to reduce the impacts to neighbouring communities.	Throughout construction, haul roads will be regularly watered during dry conditions. Tackifiers and interim cover crops will be applied to soil stockpiles and completed.
	etc.	
City of Calgary Community Standards Bylaw 5M2004	A Person shall not engage in any activity that is likely to allow smoke, dust or other airborne matter to escape the Premises without taking reasonable precautions to ensure that the smoke, dust or other airborne matter does not escape the Premises.	Ensure equipment on site is in good working order. Remove equipment from site that is blowing black smoke. Do not haul or strip soil during windy conditions. Use water truck to suppress dust.
	etc.	

2.2.1 Care of Water

2.2.1.1 Turbidity Monitoring

Turbidity monitoring is required if the Contractor has planned instream construction activities below the ordinary high water mark of the waterbody, or if it was identified in the tender package. The Contractor shall follow the latest version of Alberta Transportation's Turbidity Special Provision. The Turbidity Monitoring Plan shall form a part of the ECO Plan.

The Contractor will provide the following information in the ECO Plan:

- Type of watercourse, as per the special provisions definitions;
- Locations of transects, sampling points and frequency of monitoring; and
- Relationship between Total Suspended Solids (TSS) and turbidity in the watercourse.

Records of monitoring activity shall be provided to the Consultant weekly. The Contractor must immediately call the Environmental Response line at 1-800-222-6514 and must notify the applicable jurisdiction within 24 hours in the event of a reportable release.

2.2.1.2 Fish Capture and Release

The Contractor shall follow the latest version of Alberta Transportation's Fish Capture and Release Supplemental Specification found in the Standard Specifications for Highway Construction if fish capture and release is required. A Fish Capture and Release Management Plan must be developed and shall form part of the Contractors ECO Plan.

The Contractor will provide the following information in the ECO Plan:

- Fish Research Licence Number
- Locations for fish capture;
- Locations for cofferdams, nets and other isolation structures; and
- Fish release location.

2.2.1.3 Decontamination Protocol

If the decontamination protocol is required for the project the Contractor must describe how they will comply with:

- Alberta Environment and Parks (AEP) most current decontamination protocols as found on the Stop the Spread of Whirling Disease website for construction equipment.
- AEP's Decontamination Protocol for all other non-construction related equipment (i.e., personal gear, turbidity monitoring equipment, etc.).

2.2.1.4 Planned Dewatering

A Dewatering Plan shall be developed and form part of the Contractors ECO Plan if dewatering and/or isolation of the work is planned. This plan must include, but is not limited to:

- Location and size of pumps;
- Screen or mesh size if required due to fish presence (e.g. DFO End of Pipe Screen Guidelines);
- Discharge location(s); and
- Monitoring method to ensure sediment laden water is not released into a receptor.

2.3 Erosion and Sediment Control

Alberta Transportation and the Cities of Calgary and Edmonton require Erosion and Sediment Control Plans, including drawings on construction projects; however, each jurisdiction has its own specific requirements. Alberta Transportation projects refer to the latest version of the Alberta Transportation Erosion and Sediment Control Manual.

The Contractor must implement, inspect and maintain appropriate and site specific erosion and sediment control measures for the contract term. If project shut-downs are expected the Contractor must explain how they plan to monitor/maintain ESC during that period. The erosion and sediment control plan shall form a part of the ECO Plan.

Step 3

Hazardous Materials and Waste Management

3.1 Hazardous Materials

In Table 3-1, the Contractor must identify and describe in their ECO Plan material-specific handling, storage, containment and disposal procedures; these procedures must comply with all regulatory requirements (e.g. setback distance from a waterbody). The Contractor must keep all hazardous waste disposal receipts and manifests. All waste storage locations must be shown on the site drawing (Step 1.2).

Table 3-1 Example: Hazardous Materials and Associated Handling Procedures

Hazardous Material	Handling Procedure	Storage Location	Containment	Disposal
Diesel	On-site fuelling will follow best management practices.	Refuelling station (see Site Drawing, Step 2.3)	Double-walled fuel tank located on impervious tray with capacity to hold 110% of stored liquid volume. Concrete barriers, fire extinguisher and no smoking sign erected.	Empty storage container will be re-filled. If fuel is no longer needed it will be transported off site for use elsewhere.
Lubricating Oil	Contractor will provide secondary containment with capacity to hold 110% of stored liquid volume when lubricating oil is used.	Storage locker in laydown area (see Site Drawing, Step 2.3)	Fire-proof containment locker.	Used lubricating oils will be stored and removed from site, to an appropriate eco station, on a regular basis (e.g. weekly)

Step 4

Environmental Emergency Procedures

4.1 Environmental Emergency Prevention and Response

The ECO Plan must identify potential project-related incidents that may impact the environment. These incidents could be the result of natural events, accidents, human error or improper work practices.

The Contractor will develop a Spill Response and Disposal Plan as a part of their ECO Plan. The immediate reporting of environmental releases and spills is a requirement of provincial and federal environmental legislation.

Examples of potential incidents include:

- Contaminant spills and releases to land, water and air from fuels, oils, lubricants and chemicals
- Discovery of historic contamination
- Erosion and scour events of land (e.g., water, wind) and watercourses (e.g., bank erosion, flooding, berms and coffer dam failures)

The ECO Plan must provide emergency procedures to prevent and respond to potential incidents that may impact the environment. The emergency response procedures must include:

- Training provisions to make Contractor staff and sub contractors aware of their responsibilities during emergency situations
- A list of hazardous materials available on site including their location
- Initial response to an emergency, describing the steps to be taken to address a situation
- Immediate reporting of environmental incidents to appropriate authorities
- Post-emergency review, proper disposal, follow-up and improvement of procedures as needed

The Contractor is responsible to ensure that each emergency response procedure reflects current, regulatory requirements and any jurisdiction specific conditions.

The ECO Plan must include a current emergency contact list and describe where it will be posted on site; this list must include names and contact details for key personnel and applicable regulatory agencies.

Step 5

ECO Plan Implementation

5.1 Training

The Contractor must describe how they will train staff, including sub-contractors, to comply with the ECO Plan.

ECO Plans must be included as a topic in site orientations, pre-construction meetings and regular site meetings. Minutes of these meetings must be retained and available upon request. Topics for training and awareness sessions may include (but are not limited to) those listed in Table 5-1.

Table 5-1 Potential Topics for ECO Plan Training and Awareness Sessions

ECO Plan Training and Awareness — Potential Topics
ECO Plan Content and On-site Location
ECO Plan Team Roles and Responsibilities
Locations of Environmental Restrictions (e.g., wetlands, rare plants, bird nests, riparian areas)
Requirements of Project Permits, Approvals, Authorizations and Notifications
Potential Environmental Impacts, Mitigation Measures and Best Management Practices
Erosion and Sediment Control
Hazardous Materials and Waste Management
Monitoring and Reporting Procedures
Environmental Emergency Response Procedures (including locations of spill kits, contact information, etc.)

5.2 Monitoring

The Contractor will develop methods to monitor and inspect compliance with their ECO Plan.

The monitoring and inspection procedures must satisfy regulatory and contractual requirements and must also be appropriate for the nature and scale of the project and must consider the site characteristics, work activities and potential site specific environmental risks.

The Contractor is responsible for understanding and complying with reporting requirements and ensuring that all of the environmental controls are working and effective.

The Contractor must include the following project specific information in this section:

- Locations and items to be inspected
- Monitoring frequency
- Monitoring during scheduled shut downs
- Reporting requirements related to permits, approvals, authorizations and notifications

Deficiencies identified during monitoring activities must be immediately addressed.

5.3 Documentation

A copy of the most up-to-date ECO Plan and related documents (e.g. permits and regulatory documentation) must be retained at the construction site and available for inspection at all times. These documents must be kept current and be available to all personnel. Table 5-2 provides a non-comprehensive list of the types of documents that should be maintained as up-to-date copies on the project site.

Table 5-2 Example Types of Documentation to be Retained on the Project Site

Example — Documentation to be Retained on the Project Site
Current ECO Plan
Current Erosion and Sediment Control Report and/or Drawing(s)
Regulatory Permits, Approvals, Authorizations and/or Notifications, as well as their applications when relevant (often the application forms part of the approval)
Record of Environmental Incidents (e.g., spill and release records)
Hazardous Materials Inventory
Hazardous Waste Materials Inventory
Completed Environmental Monitoring Records
Site Orientation, Tailgate Meeting and Project Progress Minutes
Fuelling Logs
Relevant Memos Relating to Environmental Matters

5.4 ECO Plan Update

Provide ECO Plan update procedures in this section and include a circulation list for updated ECO Plans.

ECO Plans must be updated when the project, its site conditions and/or its activities change in a way not anticipated in the original document. For example, in the case of an unplanned winter shut-down, the ECO Plan must be revised to include the procedures and environmental protection measures required for the shut-down period. At a minimum the ECO Plan must also be reviewed for multi-year projects in advance of freeze-up in the fall and melt in the spring.

The Contractor is responsible for notifying (as appropriate) Alberta Transportation, The City of Calgary and/or The City of Edmonton of the changes once the ECO Plan is updated and prior to implementation. Modifications to the ECO Plan must provide an equal or better level of avoidance or mitigation. The Contractor shall communicate the changes to employees and relevant sub-contractors, and provide the necessary training before implementing the changes.

All subsequent changes must be documented once the initial version of the ECO Plan is approved (include a revision summary table such as Table 5-3). Clearly summarize what the changes are and where they are located in the document, referencing applicable sections, pages, drawings and/or table numbers. This revision summary table should be located at the front of the revised ECO Plan (just after the cover page). Forward the revised ECO Plan to the reviewer (i.e., The City of Calgary, The City of Edmonton or the consultant for Alberta Transportation projects) and other applicable parties.

Table 5-3 Example: ECO Plan Revision Summary Table

Date	ECO Plan Section	Specific Document Reference (Page #, Drawing # or Table #)	Description of Change
25 Jun. 2020	2.2	Page 4	Modify erosion and sediment control plan to further protect an environmental sensitive feature. See the updated site drawing.
	1.2	Site Drawing	Add Spill Kit location updated Site Drawing.
28 Aug. 2020	Table 3-2	Page 32	Updated to include solvent that is now required for the bridge work.