



Government of Newfoundland and Labrador  
Environment and Conservation  
Office of the Minister

JUL 03 2008

Mr. Steven Ducey, B. Eng.  
MAE Design Ltd.  
26 Conception Bay Highway  
Conception Bay South, NL  
A1W 3A1

Dear Mr. Ducey:

**Subject: Proposed Long Pond, Conception Bay South Marina**

Your proposal has been reviewed and an opportunity to comment has been provided to the public and government agencies, as required by the Environmental Protection Act. Upon consideration of the comments received, please be advised that this undertaking is released from further environmental assessment.

I refer you to the attached comments, in particular, those from the Department of Human Resources, Labour and Employment regarding employment information during the construction and operation phases. Please provide this information to that particular department for their use.

You may proceed with the undertaking described in your registration document, subject to any other Act or regulations. Please be aware that you are obliged to inform this Department of any significant changes to your project.

A summary of comments received from the reviewing agencies during the review period is attached for your consideration. Please note that the list of permits and approvals may not be complete, and that you are required to comply with all relevant legislation.

If you have any questions concerning these matters, please contact Mr. Bas Cleary, Director, Environmental Assessment Division, at 729-0673.

Sincerely,

A handwritten signature in black ink that reads "Charlene Johnson".

CHARLENE JOHNSON  
Minister

cc. Hon. Shawn Skinner, Minister  
Human Resources, Labour and Employment



FOR THE PROPOSED **COMMENTS RECEIVED DURING THE REVIEW OF THE PROPOSED  
LONG POND CONCEPTION BAY SOUTH MARINA DEVELOPMENT**

**DEPARTMENT OF ENVIRONMENT AND CONSERVATION**  
**Water Resources Management Division**

The Water Resources Division of the Department of Environment and Conservation is responsible for regulating alterations to bodies of water and for allocating uses of waters within the jurisdiction of the province of Newfoundland and Labrador.

**Regulatory Requirements:**

The proponent must obtain a permit under Section 48 of the Water Resources Act prior to the start of the construction of a one-hundred and one (101) berth recreational small boat marina including marginal wharf, finger pier wharfs, boat lift, a slipway, boat storage space, vehicle parking, municipal and utility services, an accessory building and a fuelling station. Contact the Manager of Water Investigations at (709) 729-5713.

The proponent will be required to install a backflow valve on any water connections to municipal water supplies. Pumping of sanitary holding tanks into municipal sewer is not permitted. The proponent must obtain a permit under Section 36 and 37 of the Water Resources Act prior to the start of construction. Contact the Manager of Surface water at (709) 729-2535 (Section 39 Application)

These permits and Licences, if granted, will contain specific terms and conditions to prevent water quality degradation during operation of the project area and may include requirements for water quality monitoring and reporting.

**Pollution Prevention Division**

**General**

- All activities associated with this project are subject to the Environmental Protection Act (EPA) and the Water Resources Act (WRA) and their regulations. Official copies of these may be obtained from the Queen's Printer. Unofficial versions are available through the Government of Newfoundland and Labrador website ([www.gov.nl.ca](http://www.gov.nl.ca)).
- These comments highlight the pertinent issues of these acts and regulations and the PPD's policies and guidelines.

**EPA Part IV - Waste Disposal and Litter**

- All activities associated with the construction and/or operation of this proposal is subject to the EPA and the regulations.
- Waste receptacles shall be installed at all active areas for use by loggers.
- The company shall ensure that all lunch waste and empty oil containers are recovered and disposed of appropriately.
- All waste material shall be considered, prior to disposal, for reuse, resale or

recycling.

- Waste materials not reused, resold or recycled, shall be disposed at an approved waste disposal site, provided the owner/operator is willing to accept such waste and the local Government Service Centre (GSC) has agreed with the disposal of the waste materials at the site.

#### **EPA Part VI - Air Quality Management**

- All activities associated with this proposal are subject to Air Pollution Control Regulations, 2004
- Schedule E of the regulations prohibits the open burning of tires; plastics; treated lumber; asphalt and asphalt products; drywall; demolition waste; hazardous waste; biomedical waste; domestic waste; trash, garbage, or other waste from commercial, industrial or municipal operations; manure; rubber; tar paper; railway ties; paint and paint products; fuel and lubricant containers; used oil; animal cadavers; hazardous substances; materials disposed of as part of the removal of decontamination of equipment, buildings or other structures.
- Non-treated woody debris may be disposed of on site through opening burning provided it is in compliance with the Environmental Code of Practice for Open Burning (1992). The Department of Natural Resources shall be contacted to obtain a permit to burn.

#### **EPA Part XI - Approvals**

- A Certificate-of-Approval from the PPD for construction and/or operation is not required.

#### **EPA Part IX - Pesticides**

- All pesticide purchase, storage, and use is subject to compliance with the Pesticides Control Regulations, 2003.
- The regulations stipulate that an applicator must be licensed for the class of pesticide which is intended to be applied. Also, the regulations stipulate that an operator cannot purchase pesticides without the appropriate license(s).
- If the use of a pesticide(s) is required (eg. for the control of insects, diseases, weeds, vegetation), the Pesticide Control Section of the Department must be notified at (709) 729-2556.

#### **EPA - Storage and Handling of Gasoline and Associated Products Regulations**

- Petroleum storage and handling, associated with construction and operation of this project/facility, shall be in compliance with the Storage and Handling of Gasoline and Associated Products Regulations, 2003, as amended.
- All petroleum storage tanks shall be registered with the GSC and all leaks/spills must be reported to the Department.
- Oils, greases, diesel, gasoline, hydraulic and transmission fluids should be stored at least 100 m from any body of water. Re-fuelling and maintenance activities should also occur at least 100 m from any body of water and on level terrain.

- An environmental emergency contingency plan must be developed for all bulk plants, marinas and storage tank systems. This plan details information regarding the location of spill response equipment and a trained contractor, in the event of a spill. A spill kit containing granular absorbents for land spills, synthetic sheet absorbents for recovery of oil from a water surface and open topped barrels for collection of the soiled debris and absorbents, should be available on-site. The barrels shall have appropriate tight fitting covers which are always on except when material is being placed in them.

#### **EPA - Used Oil Control Regulations**

- The proponent shall maintain constant compliance with the Used Oil Control Regulations.
- Waste oils and waste lubricants shall be retained in a tank or closed container, and disposed of by a company licensed for handling and disposing of waste oil products.

#### **EPA - Halocarbon Regulations**

- Any use of regulated substances, for example in fire suppression systems, associated with the proposed activity is subject to the Halocarbon Regulations.

#### **WRA - Environmental Control Water and Sewer Regulations**

- All waters discharged from the proposed site, during construction and operation, are subject to compliance with the Environmental Control Water and Sewage Regulations, 2003.

#### **Land Management Division**

##### **Regulatory Requirements:**

If any of the development is on crown land, then a crown land application will be required with the necessary approvals before any construction can commence. If the proposal is on the shoreline reservation then a public notice must be made under Section 7 of the Lands Act. For further assistance contact the Regional Lands Office at 729-2654.

#### **DEPARTMENT OF GOVERNMENT SERVICES**

##### **Occupational Health & Safety Division**

##### **Regulatory Requirements:**

The proponent must, generally, ensure that activities associated with the construction phase and during the operation of the Marina are conducted in compliance with the Occupational Health and Safety Act and its Regulations. This includes the responsibility for ensuring that contractors hired to perform work also comply with this legislation. In particular, the proponent must:

1. Provide and maintain a workplace and the necessary equipment, systems and tools that are safe and without risk to the health and safety of his or her workers.

2. Provide the information, instruction, training and supervision and facilities, as necessary, for the health and safety of his or her workers.
3. Ensure that his or her workers, and particularly his or her supervisors, are made familiar with any health or safety hazards that may be encountered by them in the workplace.
4. Conduct his or her undertaking so that persons not in his or her employ are not exposed to health or safety hazards as a result of the undertaking.
5. Ensure that personal protective equipment and devices are worn according to the work being performed and that his or her workers are given operating instruction in the use of such equipment and devices provided for their protection.
6. Consult and co-operate with the occupational health and safety committee at the workplace, where one has been established, or the worker occupational health and safety representative or designate where one has been elected or appointed.
7. Ensure that machinery and/or equipment are operated by competent persons.
8. Ensure that traffic control is implemented when heavy equipment is active.
9. Ensure that powered mobile equipment is equipped with:
  - a fire extinguisher;
  - protective screens, windows and doors;
  - a back-up alarm; and
  - a roll-over/fall-on protective structure.
10. Ensure that precautions are taken to address the hazards presented when working near water (e.g. personal flotation devices, engineered floating work platforms, etc.)
11. If sediments are being sampled via diving, ensure the appropriate CSA occupational diving standards are followed.
12. Ensure that an emergency response plan is in place that details measures to be taken to effectively respond to any foreseeable mishap that may occur as a result of the undertaking. The following minimum items should be considered when developing such a plan:
  - a proper first-aid kit, and other requirements of the First Aid regulations;
  - communication devices;
  - a list of emergency names and numbers, appropriately placed; and
  - an action plan (with the crew aware of their roles and responsibilities).

#### **Government Service Centre - Avalon**

The Government Service Centre would have no objection to this proposal provided the following stipulations are adhered to:

#### **Waste**

1. All waste material generated during the construction and operation of the facility is to be placed in suitable refuse containers and removed to an approved waste disposal site on a weekly basis, with the approval of the site owner/operator.
2. Derelict vehicles, scrapped equipment and other debris is not to be stored on site. Such material is to be removed to an approved waste disposal site or scrap yard on a regular basis, with the approval of the site owner/operator.
3. The site is to be kept neat and tidy at all times.

4. Measures shall be implemented to contain floating debris during any construction at the facility. All floating debris is to be collected on a daily basis and placed in secure storage for subsequent disposal.
5. The Licence shall not revert to the Crown until such time as the site is restored to a condition acceptable to the Minister of Government of Services and/or the Minister of Environment and conservation.

#### **Gasoline and Associated Products**

1. All fuel storage tank systems, other than those connected to a heating appliance of capacity of 2,500 litres or less, and any proposed fuel cache will require approval by the Government Service Centre prior to installation.
2. All fuel storage tank system installations other than those connected to a heating appliance of a capacity of 2,500 litres or less are subject to the Storage and Handling of Gasoline and Associated Products Regulations and will require approval by the Government Service Centre prior to installation.

#### **DEPARTMENT OF HUMAN RESOURCES, LABOUR & EMPLOYMENT - Labour Market Development**

##### **Regulatory requirements:**

A project of this magnitude and duration could have a lasting impact on the socio-economic environment of the study area. While most impacts may be positive, more information on the labour force requirements is needed to properly assess this project.

It is the Department of Human Resources, Labour and Employment recommendation that the proponent provide an environmental preview report on the proposed undertaking. The preview report is to include the following additional information.

##### **Additional information required on the project and/or environmental planning of the project:**

A more detailed breakdown is needed for the positions associated with the construction phase(s) of this undertaking. The breakdown should include appropriate timelines (e.g., approximate start and end dates) for each required position during the proposed four year construction period. The breakdown should also include information related to duration of seasonal employment (if appropriate).

A more detailed breakdown is also needed for the positions associated with the operational phase of this undertaking. Each position should be noted with appropriate occupational codes (NOC). The breakdown should include information related to worker employment including approximate start date and duration of seasonal employment (if appropriate).

Emphasis should be placed on making every effort to employ local area residents/contractors as well as equal opportunity to qualified persons.

## **DEPARTMENT OF NATURAL RESOURCES - Mines Branch**

### **Regulatory requirements:**

#### **Mines Branch:**

The proposal cannot be an impediment to mineral or quarry exploration and/or development.

The proponent or successful contractor for supplying rock aggregate will require a quarry permit(s) for source of aggregate material used for the construction phase of the project.

## **DEPARTMENT OF MUNICIPAL AFFAIRS**

### **Regulatory Requirements:**

The proposed development is located within the Town of Conception Bay South. The Town of Conception Bay South has a Municipal Plan and Development Regulations which came into legal effect on May 11, 2001. The Town prepared an amendment that came into legal effect in 2007 which creates a Commercial Marine Recreation (CMR) Land Use Zone, and rezones the subject property CMR. Marina is listed as a permitted use.

Section 2 of the Municipalities Act specifies that any marinas or other structures attached to the shoreline of the town is located within the community.

## **WOMEN'S POLICY OFFICE**

### **Additional information required on the project and/or environmental planning of the project:**

The proponent does not provide information regarding employment and occupation impacts related to this undertaking. This information is required by the Women's Policy Office to assess: (i) the impacts of the undertaking on employment equity and the status of women in the province; and (ii) the need for recommendations regarding measures designed to prevent, reduce or eliminate disadvantages respecting services, facilities, accommodation or employment that may be or are suffered by women.

## **TRANSPORT CANADA - Navigable Waters Protection**

### **Regulatory Requirements:**

Following its review of the environmental registration document, Transport Canada has determined that a Formal Approval under Section 5(1) of the Navigable Waters Protection Act (NWPA) is required. Transport Canada is currently in the process of preparing an environmental assessment pursuant to the Canadian Environmental Assessment Act (CEAA).

**Comments based on your experience and expertise, but not directly related to your Departmental mandate:**

The above comments are based upon Section 5 of the Navigable Waters Protection Act only. The proponent should be advised that no work shall be built or placed in, on, over, under, through or across any navigable water unless the work, site and plans have been approved pursuant to ss. 5(1) or exempted pursuant to ss. 5(2) of the Navigable Waters Protection Act (NWPA). For additional information on requirements under the NWPA, the proponent should contact Transport Canada.

**FISHERIES AND OCEANS CANADA - Marine Environment & Habitat Management**

**Regulatory Requirements:**

Following its review of the environmental registration documentation, the Department of Fisheries and Oceans (DFO) has determined that the proposed project area will likely result in the harmful alteration, disruption or destruction (HADD) of fish habitat. As such, an Authorization pursuant to sub section 35(2) of the Fisheries Act is required. Prior to issuance of a subsection 35(2) Fisheries Act Authorization, DFO must ensure that an environmental assessment is conducted as per the Canadian Environmental Assessment Act (CEAA).

Following preliminary sites investigations conducted on October 15, 2007 and April 23, 2008 by the Area Habitat Biologist - Eastern, it was determined that sensitive fish habitat was located within the project area. As such, DFO recommends that an Environmental Impact Statement (EIS) be prepared for the proposed undertaking in order to address the potential impacts upon fish and fish habitat.

For further information, please contact Elizabeth Bennett at the address below:

Elizabeth Bennett  
Regional Habitat Biologist  
Fisheries and Oceans Canada  
P.O. Box 5667  
St. John's, NL A1C 5X1  
Tel: (709) 772-0853; Fax: (709) 772-5562

**Additional information required on the project and/or Environmental planning of the Project:**

Additional information required to adequately identify and assess the potential impacts of the proposed undertaking upon fish and fish habitat should include detailed information on the following:

- A description of fish, fish habitat and any fisheries that occur in the area of the proposed marina construction;

- Detailed information on the proposed dredging operations, including potential impacts to fish, fish habitat, and fisheries in the area;
- Detailed information regarding the proposed infilling, including potential impacts to fish, fish habitat, and fisheries in the area;
- A description of fish, fish habitat, and any fisheries that occur in areas adjacent to the proposed project area, including any streams, rivers, or ponds; and
- A description of the oceanographic conditions within the proposed project area (water depth, exposure, freshwater input, etc.).

**Comments based on your experience and expertise, but not directly related to your Departmental mandate:**

The above comments are based upon Sections 20-22, 26-30, 32 and 34-35 of the Fisheries Act only. Issues related to Section 36 (i.e. Deposition of Deleterious Substances into Fish Habitat) of the Fisheries Act will be commented upon by Environment Canada.

**ENVIRONMENT CANADA - Environmental Protection**

**Regulatory Requirements**

The proponent should be aware of the general applicability of Section 36(3) of the federal Fisheries Act to the proposed undertaking. Deleterious substances (e.g. sewage, dredge spoil effluent, petroleum products, etc.) cannot be deposited into water frequented by fish. Drainage from construction and operational drainage must not be harmful to fish. The proponent indicates that dredge spoils may be temporarily stored onshore, if so, drainage from the spoils pile must not be harmful to fish if it is allowed to enter the waters frequented by fish or migratory birds.

Migratory birds, their nests, eggs, and young are protected under the Migratory Birds Convention Act and Regulations. The proponents should be reminded that they are expected to comply with the Migratory Birds Convention Act and Regulations during all project phases. Migratory birds include those species listed in the CWS Occasional Paper Birds protected in Canada under the Migratory Birds Convention Act.

Under the Migratory Birds Convention Act and Regulations no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds. In addition, no person shall disturb, destroy, or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird. Migratory birds include those species listed in the CWS Occasional Paper "Birds Protected in Canada under the Migratory Birds Convention Act."

The proponent should be aware of the potential applicability of the Canadian Environmental Protection Act (CEPA). The Canadian Environmental Protection Act enables protection of the environment, and human life and health, through the establishment of environmental quality objectives, guidelines and codes of practice and the regulation of toxic substances,

nutrients, emissions and discharges from federal facilities, and ocean dumping.

It is understood that there will be no redistribution or disposal of material on the bottom. However, should it be determined that these or any other activities will involve disposal of material below the ordinary high water mark, a permit may be required from Environment Canada under the Canadian Environmental Protection Act. If such a permit is required, EC is responsible for ensuring an environmental assessment is conducted in accordance with the Canadian Environmental Assessment Act before deciding whether an ocean disposal permit can be granted.

#### **Information Required on the Project and/or Environmental Planning of the Project**

In order to ensure compliance with Section 36 (3) of the Fisheries Act and with the Migratory Birds Convention Act and their Regulations, it will be necessary to prevent deleterious substances, such as petroleum products, contaminated effluent, and other hazardous materials, from entering waters frequented by fish and migratory birds. The following mitigations are offered as suggestions which, when employed, may minimize impacts to nearby receiving waters:

#### **Migratory Birds**

The registration indicates that dredge material will be deposited onshore for use as infill material at a later stage. If dredging and depositing of material is to take place during the breeding season then the area proposed for deposition should be surveyed to ensure that no nests or fledglings of Terns or other migratory birds would potentially be affected. The presence of breeding or chick-rearing migratory birds should be determined by a professional ornithologist or an extremely skilled birder. Should Terns or other migratory birds be found nesting or rearing chicks then mitigation measures would need to be implemented. Most likely, activities would have to be postponed until birds have naturally migrated south.

Even small spills of oil can have very serious effects on migratory birds. Therefore, every effort should be taken to ensure that no oil spills occur in the area. The proponent should ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponents should ensure that contractors are aware that section 5.1 of the Migratory Birds Convention Act prohibits persons from depositing harmful substances in waters or areas frequented by migratory birds.

Fueling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas (including wetlands, beaches, and shorelines).

If vegetation clearing is necessary for construction, this will cause disturbance to migratory birds and their habitat. Many species use trees, as well as brush, deadfalls and other low-lying vegetation for nesting, feeding, shelter and cover. This would apply to songbirds throughout the region, as well as waterfowl in wetland areas. Disturbance of this nature would be most critical during the nesting period; from May to around mid-July in this region.

To help reduce any such impacts on migratory birds, the Canadian Wildlife Service recommends that vegetation clearing be undertaken outside of the breeding season. If this is not possible, and a nest is found:

- the nest site and neighbouring vegetation should be left undisturbed until nesting is completed; and
- construction activities be minimized in the immediate area until nesting is completed.

### **Species at Risk**

The Responsible Authority should be reminded that the Species at Risk Act (SARA) amends the definition of "environmental effect" in subsection 2(1) of the Canadian Environmental Assessment Act (CEAA) to clarify, for greater certainty, that EAs must always consider impacts on a listed wildlife species, its critical habitat or the residences of individuals of that species.

SARA also requires that the person responsible for a federal EA must, without delay, notify the competent minister(s) in writing if the project being assessed is likely to affect a listed wildlife species or its critical habitat. Notification is required for all effects, including adverse and beneficial effects, and the requirement to notify is independent of the significance of the likely effect. The person must also identify adverse effects of the project on listed species and their critical habitat. And if the project is implemented, the person must ensure that measures are taken to avoid or lessen adverse effects and that effects are monitored. Mitigation measures must be consistent with recovery strategies and action plans for the species.

The complete text of SARA, including prohibitions, is available at [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca). For guidance on SARA and EA, the proponents may wish to make use of the Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada available at: [http://www.sararegistry.gc.ca/virtual\\_sara/files/policies/EA%20Best%20Practices%202004.pdf](http://www.sararegistry.gc.ca/virtual_sara/files/policies/EA%20Best%20Practices%202004.pdf)

### **Management of Hazardous Materials and Waste**

In order to ensure compliance with Section 36 (3) of the Fisheries Act and with the Migratory Birds Convention Act and their Regulations, provisions for the management of hazardous materials (e.g., fuels, lubricants) and wastes (e.g., waste oil) should be identified and implemented so as to ensure the risk of chronic and accidental releases is minimized. It is therefore recommended that all necessary precautions be undertaken to prevent a fuel spill from occurring, as even small spills can have deleterious effects. The following mitigations are offered as suggestions which, when employed, may minimize impacts to nearby receiving waters:

### **Site Preparation and Construction Activities**

#### **Vegetation Removal**

Existing vegetation should be preserved where possible and vegetated buffer zones should be maintained as appropriate to protect resources at risk. Where possible, other vegetation could be used to create or restore lost habitat. Vegetative debris should be chipped on-site, away from surface waters, for use as mulch or compost feedstock.

## **Construction Materials**

At the planning stage of the project, it is important the proponent consider all available construction material alternatives (e.g., untreated hemlock, tamarack or cedar, treated wood, pre-cast concrete, corrosive-resistant steel, plastic lumber), and select those materials which are best suited to the conditions and intended use of the structure. Analysis of the preferred construction material should include a consideration of the full life-cycle of the material (ease of use, design factors associated with the construction material, maintenance requirements, and final disposal). Environmental implications (e.g. storm and ice damage) associated with each life-cycle phase should also be considered.

If pressure treated wood (e.g. CCA) is determined to be the most suitable material for the project, the proponent is expected to incorporate the following standards into the planning and management of construction activities:

- only proper construction techniques should be used (e.g. keep as much of the product above the high water mark as possible, capture sawdust to avoid entry into water bodies, etc.);
- only wood treated according to the Best Management Practices (BMP/Es) should be used;
- pressure treated wood should not be used in freshwater environments with low flow/flushing or in sensitive environments;
- wood treated with pentachlorophenol must not be used in aquatic environments.

Regarding the final disposal of pressure treated wood, the proponent should be aware that the only disposal option available at present is disposal at a landfill with permission from the owner or reuse of the material for another purpose. Although new technology is being developed to remove the preservatives from used pressure treated wood, this procedure may not be economically viable at present.

## **Management of Rock Backfill**

The project description indicates the potential reuse of dredged sediments as backfill. Any backfill should be from an uncontaminated source and the proposed sediment sampling should indicate the sediments are uncontaminated prior to use. Precautions should also be taken to prevent or limit excessive siltation of the harbour due to infilling and spreading of bottom sediments.

## **Use of Concrete in the Aquatic Environment**

- If concrete is to be produced on-site, the location and design of the concrete production area and yard should be described with provisions for environmental protection.
- Drainage from a concrete production area and yard, and wash water from the cleaning of batch plant mixers, mixer trucks, conveyors and pipe delivery systems, are very alkaline and may be harmful to fish. Drainage and wash water also contain sediment, and concrete additives and agents, which may be harmful to fish. Therefore, appropriate mitigation should be employed to ensure such drainage does not enter receiving waters. All drainage from the concrete production area and yard,

including wash water, should be directed to a settling pond for control and treatment, as appropriate.

- Aggregate used in the production of concrete may be stored and processed on site. Sediment-laden drainage from an aggregate storage area, and any wash water from the processing of aggregate may be harmful to fish. All drainage from an aggregate storage area should be directed to a drainage control device such as a settling pond.
- Effluent should be treated as appropriate before release to receiving waters, or alternatively, effluent should be recycled for reuse after treatment. Solids that accumulate in a settling pond should be removed on a regular basis to ensure the settling pond remains effective.

### **Suspension of Sediments**

The disturbance of substrate during dredging increases sediment concentrations and turbidity in the water column. This disturbance may alter light penetration, temperature and water chemistry regimes, and may affect photosynthesis.

- Special attention is required if the bottom substrate contains a high percentage of fine particles (smaller than 0.075 mm), such as those found in silt and clay, since this characteristic enhances the potential for disturbed sediment to remain in suspension. Material containing less than two percent fine particles generally presents no problem (Rochon and Sarazin, 1987).
- Appropriate barriers (geotextile silt curtains, gabions, wooden retaining walls, cofferdams) should be installed to protect the integrity of streams, rivers, lakes or estuaries. Any techniques used should remain in place until suspended solids within the impacted area return to accepted levels. A silt curtain suspended from the water surface to the bottom enclosing the entire area to be impacted is especially effective in controlling siltation. Coffer dams or wooden retaining walls partially mitigate, but do not totally alleviate, siltation.
- Work should be conducted at low stream flow. Activities in water and near water should be restricted, or completed, as rapidly as possible. If possible, dredging activities should be limited to calm conditions and slack water to minimize dispersion.

If a silt curtain or any kind of retention wall is unlikely to be effective because of high river currents, the following procedure is recommended to minimize the impact of dredging on important ecological and economic habitats:

*The proponent should identify nearby resources at risk and ecologically important habitat and species. The identification of critical areas which may be affected will help to define a desired maximum zone of impact. If no resources have been identified, a maximum zone of impacts should be defined arbitrarily (e.g., two or three hundred meters). The proponent should then monitor regularly during dredging to ensure water quality does not fall below standards outside the designated zone of impact. The size of this zone may be adjusted during dredging activity depending on whether complaints are received or problems detected.*

### **Site Disturbance**

In general, impacts related to onshore disturbance should be designed so as to:

- place a priority on pollution prevention;
- facilitate compliance with the general prohibition against the deposit of a deleterious substance into waters frequented by fish (Section 36 of the Fisheries Act); and
- respect applicable Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines.

In terms of site disturbance the following "best practices" should be reflected in efforts to manage impacts so as to respect the above-noted objectives:

- install siltation control structures (e.g. silt curtains, cofferdams, sediment fences) prior to beginning any activities involving disturbance of the site and work along the shoreline;
- design and install siltation control structures to enclose an area from the water surface to the bottom;
- schedule work to avoid periods of heavy precipitation;
- maintain a vegetated buffer zone, as appropriate, to protect surface waters;
- immediately stabilize any disturbed areas along the shoreline to prevent erosion;
- monitor the integrity and effectiveness of the siltation control structures daily for the duration of the project; and
- upon completion of the project, only remove silt control structures when suspended sediment concentrations within any contained water have returned to background conditions.

The CCME (Canadian Council of Ministers of the Environment) Canadian Environmental Quality Guidelines (1999) recommend that, for protection of marine waters, human activities should not cause suspended solids levels to increase by more than 10% of the natural conditions expected at the time. The guidelines also recommend that no solid debris, including floating or drifting materials or settleable matter, be introduced into marine and estuarine waters.

#### **Transport, Storage, Use and Disposal of Petroleum Products and Toxic Substances**

- Refueling and maintenance activities should be undertaken on level terrain, at least 30m from any surface water, on a prepared impermeable surface with a collection system to ensure oil, gasoline and hydraulic fluids do not enter surface waters. Waste oil should be disposed of in an approved manner.
- Drums of petroleum products or chemicals should be tightly sealed against corrosion and rust and surrounded by an impermeable barrier in a dry, water-tight building or shed with an impermeable floor.
- In order to ensure that a quick and effective response to a spill event is possible, spill response equipment should be readily available on-site. Response equipment, such as absorbents and open-ended barrels for collection of cleanup debris, should be stored in an accessible location on-site. Personnel working on the project should be knowledgeable about response procedures. The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.

The proponent should report any spills of petroleum or other hazardous materials to the Environmental Emergencies 24 Hour Report Line (St. John's 709-772-2083; Other areas 1-800-563-9089).

### **Contacts**

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