

GENERAL GUIDELINES

New Dikes and Upgrades to Existing dikes

New dikes and upgrades must meet provincial standards. To allow for an efficient review process, the following documentation, as appropriate, should be included in an application for *Dike Maintenance Act* approval¹

1.0 Design Brief

The design brief, prepared by the Professional Engineer, shall provide a comprehensive summary of design parameters and criteria used (with appropriate reference to standards or codes), and any special conditions that apply to a proposed project. The brief shall cover the civil, hydrologic, hydraulic and geotechnical components of the proposed project and be supported by appropriate investigations, studies and design reports prepared by Professional Engineers suitably qualified in their field of expertise. The brief shall also clearly demonstrate that all components of a standard provincial dike have been provided for including;

- A Statutory Right of Way for the dike of sufficient width to carry out maintenance and to accommodate future upgrades (widening, raising etc.)
- Legal and Physical access for equipment to access the dike from the public road system
- An Operation and Maintenance (O&M) Manual²
- A Sediment Management Plan (if applicable)
- Compliance with vegetation standards for the dike (typically trimmed grass only). Note that environmental agencies typically require habitat compensation that is inconsistent with our requirements for dike vegetation.
- Closure or a strategy to achieve closure of the overall diking system
- A Diking Authority in place and willing to accept the long term responsibility for maintenance and operation of the dike (for new dikes and the upgrading of existing orphan dikes to provincial standards, the diking authority must be the local

¹ Please refer to our website http://www.env.gov.bc.ca/wsd/public_safety/flood/structural.html for an up to date copy of the Dike Maintenance Act, general information on the *Dike Maintenance Act* approval process and a *Dike Maintenance Act* approval application form.

² A O&M manual template is available at the following link http://www.env.gov.bc.ca/wsd/public_safety/flood/structural.html

government jurisdiction – see “Diking Authorities for New Dikes” policy document on this web page)

All dike related aspects of the proposed project shall conform to the requirements set out in the ministry guidebook “Dike Design and Construction Guide: Best Management Practices for British Columbia”³

2.0 Project Drawings

- A drawing showing the dike and all proposed improvements in plan view including; adjacent property lines, limits of proposed or existing rights of way (the details of property ownership should be clearly indicated), adjacent utilities, turnarounds, access ramps, and all other relevant features.
- A longitudinal profile of the dike showing existing crest elevations, proposed crest elevations, and a line showing the 1 in 200 year (or other specified design flood) design dike crest elevation including free board
- Representative cross sections (at natural scale) through the dike at each improvement location showing:
 1. existing and proposed sideslopes,
 2. Existing and proposed crest width,
 3. design flood elevation
 4. existing and/or proposed measures for control of seepage under and through the dike (refer to As-built drawings if upgrading an existing dike)
 5. proposed rip rap, filter layer (including thickness)

The project drawings should include material specifications including; gradation limits for filter materials, drainage materials and general fill materials to be placed within the foot print of the dike (for soils, the limits should include the percent passing the #200/0.075mm sieve). Project drawings should include specific instructions for placement and compaction of materials including lift thickness and minimum density criterion for compaction. The drawings should include a size distribution for proposed rip rap materials. Stationing for the dike should be clearly shown and the stationing for the dike should correspond to any existing as-built drawings⁴.

The drawings for the DMA application must be signed and sealed by a qualified Professional Engineer. A condition of the written approval will require the applicant to also obtain approval for the works from the Diking Authority. As a condition of approval under the *Dike Maintenance Act* (at the completion of works) as-built drawings certified by a professional engineer and an updated Operations and Maintenance Manual must be submitted.

³ This document is available at the ministry website:

http://www.env.gov.bc.ca/wsd/public_safety/flood/pdfs_word/aug03_dike_des_cons_guide.pdf

⁴ See the following website for as-built drawings of dikes in the Lower Mainland area
http://www.env.gov.bc.ca/wsd/public_safety/flood/structural.html

3.0 Comprehensive Geotechnical Investigation and Design Report

Please refer to our Guidance Document on Comprehensive Geotechnical Investigation and Design Reports for more detail. In general, significant changes to the configuration of a dike, upgrades made to achieve a new design flood elevation for a dike and works to construct a new dike will require a comprehensive geotechnical investigation and design report as described in the referenced guidance document. Minor changes to the configuration of a dike may require geotechnical involvement to a lesser extent than described in the referenced document. Once the specific details of the application are known the Deputy Inspector of Dikes office can provide further advice on these requirements.

4.0 Hydrologic/Hydraulic Report

Please refer to our Guidance Document on Hydrologic/Hydraulic Report for more detail. In general, significant changes to the configuration of a dike, upgrades made to achieve a new design flood elevation for a dike and works to construct a new dike will require a comprehensive Hydrologic/Hydraulic Report as described in the referenced guidance document. Once the specific details of the application are known the Deputy Inspector of Dikes office can provide further advice on these requirements.