

# NOSE CREEK WATERSHED INTERNAL DRAINAGE AREAS POLICY STATEMENT

## RUNOFF VOLUME CONTROL TARGETS AND MAXIMUM ALLOWABLE RELEASE RATES

The Nose Creek Watershed Management Plan (NCWWMP, 2008) recommends that internal drainage areas should remain isolated from the effective watershed areas as much as possible as they play an important role in maintaining the hydrological regime, in particular for groundwater recharge and evapotranspiration processes. The NCWWMP specifically states:

*“For extreme events, where precipitation exceeds local infiltration capacity, runoff may be directed toward the Creeks via conveyance methods designed to promote retention and infiltration, provided that the Runoff Volume Control Target has been achieved”.*

This Internal Drainage Areas policy statement applies to undeveloped areas that are currently not serviced by stormwater infrastructure. The policy statement has been developed to clarify the required runoff volume control targets and maximum allowable unit area release rates in internal drainage areas at a time when development occurs. These requirements allow a discharge to Nose Creek and West Nose Creek during prolonged rainfall or snow melt events and thus minimize the need for evaporation ponds in these areas.

The Nose Creek internal Drainage Areas Study, MPE Engineering Ltd., April 2013 (MPE, 2013), analyzed stream erosion potential. Its findings were used to set runoff volume control targets that balance the option to discharge flow from the internal drainage areas during prolonged rainfall or snow melt events with minimizing erosion impacts in the main tributaries of Nose Creek and West Nose Creek. The table below provides the recommended runoff volume control target and the maximum allowable release rates for Nose Creek and West Nose Creek based on a phased implementation approach.

Date of Implementation	Average Runoff Volume Control Target (mm)			Maximum Allowable Unit Area Release Rate (L/s/ha)
	2013	2017	2021	2013
Nose Creek	16	11	6.1	1.257
West Nose Creek	26	17	9.6	0.99

The average annual runoff volume control targets will ultimately be equal to the predevelopment runoff volumes for Nose Creek and West Nose Creek as given in the NCWWMP. The maximum allowable unit area release rates have been set at the same rate as development that contributes directly to Nose Creek or West Nose Creek to provide consistency across the catchment.

The Nose Creek Internal Drainage Areas Study (MPE, 2013) identified that the sizing of infrastructure and the timing of discharges cannot be equated to a specific single “extreme” event as described in the NCWWMP, (e.g., a 24 hour 1:100 year event), but needs to consider the accumulation of runoff over time. Therefore, a continuous water balance simulation is the only appropriate method for the sizing of the drainage infrastructure and for demonstrating that the average annual volume control targets have been satisfied.

Prior to commencing the preparation of Master Drainage Plans for proposed development within the internal drainage areas, a Lake or Wetland Management Plan shall be prepared to provide guidance on the expected water levels and operation of the ponds, lakes or wetlands that are the terminus of the drainage within internal drainage areas and from where excess runoff is diverted to Nose Creek and West Nose Creek. The required content of these plans is summarized in Section 4.0 of the Nose Creek Internal Drainage Areas Study (MPE, 2013).

For areas upstream of Airdrie, the option of discharge from the lake, pond or wetland, during low-flow periods in Nose Creek shall be considered during the preparation of the Lake or Wetland Management Plan.