

STAFF REPORT

DATE: Sunday, March 17, 2024 **FILE:** \\J. Public Works\5600 Water\240313
firefighting water reserve policy.2.docx

TO: CAO Ross Blackwell MAP, MCIP, RPP

FROM: PWM Karl Buhr

RE: **FIREFIGHTING WATER RESERVE POLICY**

RECOMMENDED COUNCIL RESOLUTIONS ARISING FROM THIS REPORT:

- THAT Council stipulates *Water Short Supply* status shall be any period in which either the Harvey or Magnesia water storage tank will not refill the previous 24 hours of usage in the next 12 hours, and directs that at Water Short Supply status, use of water for firefighting purposes shall cease when either tank reaches 50 percent full; and
- THAT Council stipulates *Water Constrained Supply* status shall be any period in which either the Harvey or Magnesia water storage tank will not refill the previous 24 hours of usage in the next 24 hours, and directs that at Water Constrained Supply status, use of water for firefighting purposes shall cease when either tank reaches 75 percent full.

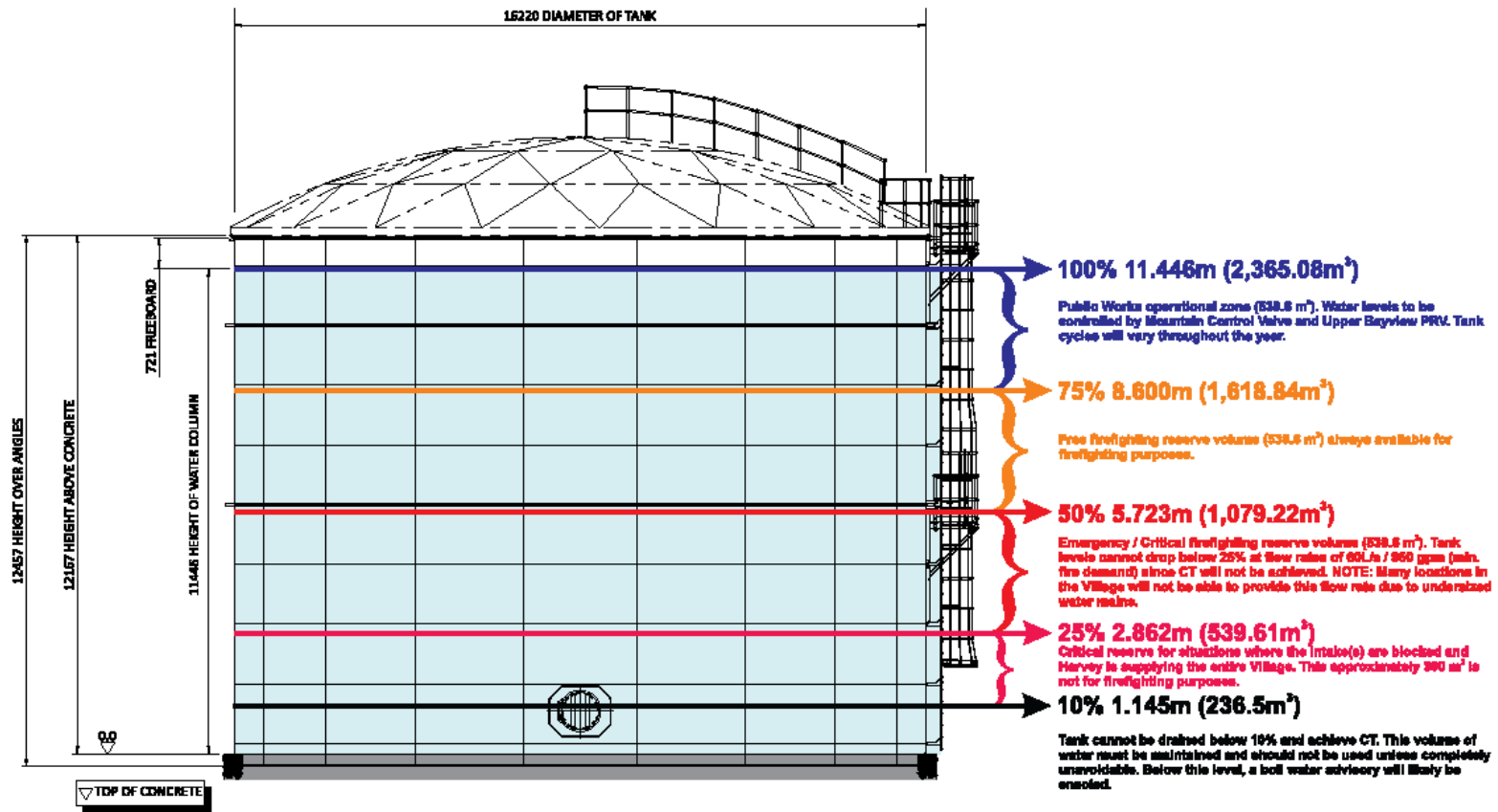
BACKGROUND:

Staff's Feb. 2024 Water Shortage Plan report to Council indicated that the Emergency Program Committee discussed but had not formalised policy around firefighting water reserve in times of short supply. The recommendation for such policy is provided herewith.

DISCUSSION:

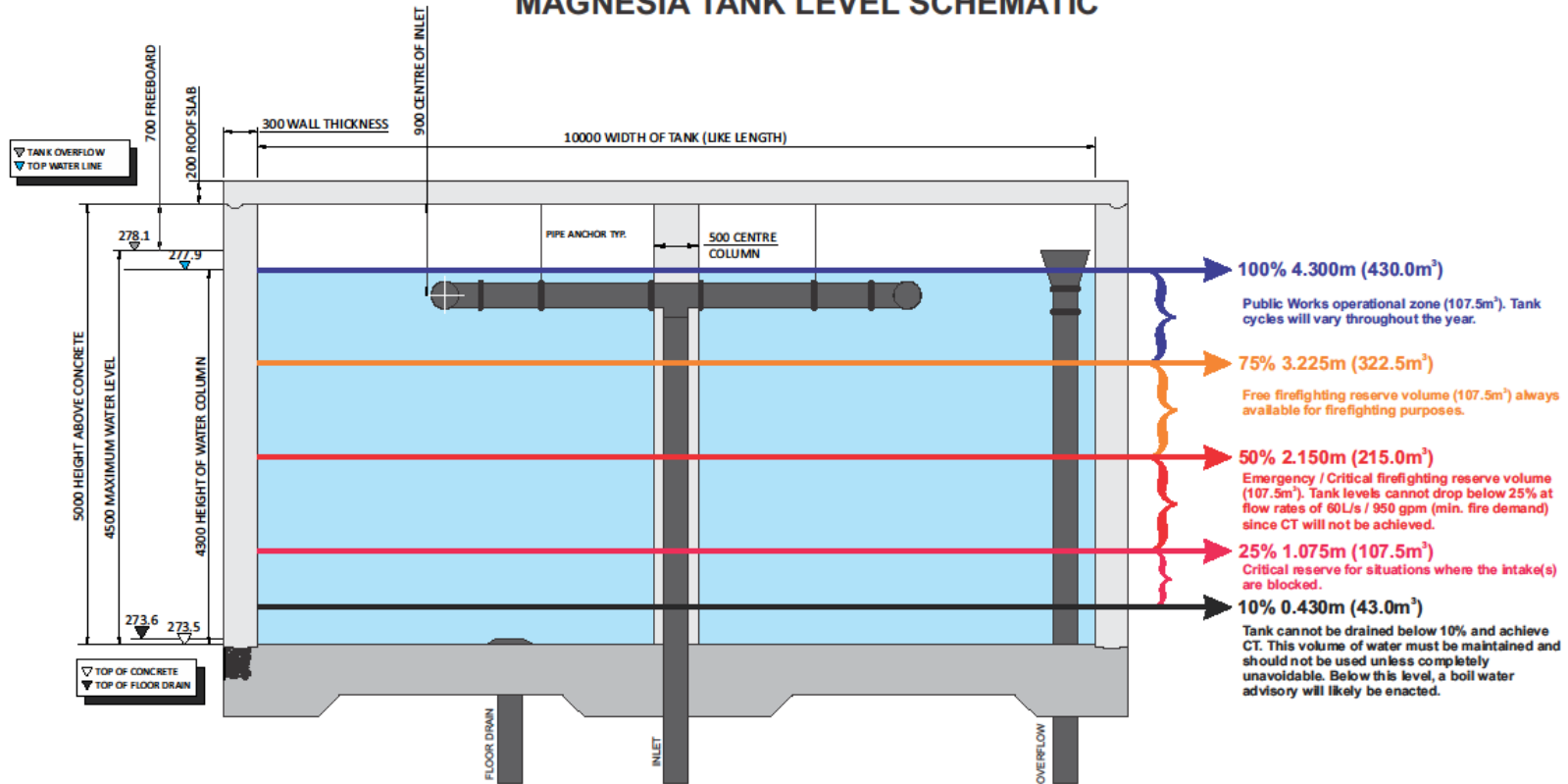
In times of adequate water supply, the operating parameters for Lions Bay's two water storage tanks are provided by the diagrams below. Referring to the Critical Note box, the SCADA upgrades required have been implemented.

HARVEY TANK LEVEL SCHEMATIC



TANK ELEVATIONS

MAGNESIA TANK LEVEL SCHEMATIC



CRITICAL NOTE

With incoming summer flows of 200 gpm or 12.5L/s and fire flow requirement of 60L/s, the drawdown flow rate will be 47.5L/s. The tank will drain to 25% in just under 2 hours. This does not consider normal or even peak demand. The two-hour time factor is a critical milestone as, for example, if the fire occurs outside of normal hours, staff will have 2 hours (much less during peak demand periods) to respond from their residences to the Works Yard, then to the Mountain Control Valve (MCV) to feed the Magnesia Creek side of the system from the Harvey Tank. Once SCADA has been installed and online control of the MCV is active, the switch can be done remotely without operators having to attend the scene. Consideration should be given to boosting chlorine injection in the event of a fire to maintain CT. That said, if a fire event occurs during the summer months, during peak demand periods, and we have a communications failure or power loss at either Magnesia or Harvey, Fire will need to notify Public Works to respond and manually transfer the Mountain Control Valve so that water can be fed from the Harvey Reservoir to the Magnesia Creek side of the system. A manual transfer could take up to an hour depending upon response time for Public Works Operators.

In times of low water supply, the operating considerations above are irrelevant: with water mains in service, *at zero inflow*, both tanks would be depleted in under 24 hours at last summer's 750,000 GPD peak consumption, or in under two days at current (March 2024) consumption, or in three days *on current leakage alone*.

But, as outlined in the Water Shortage Plan presented to Council on Feb. 20, reserving water in the tanks to recharge mains and hydrants against the *possibility* of a fire¹ would *ensure* mains ran dry in the meantime. That event is the worst-case scenario:

- **Mains would only be able to be flushed and hyper-chlorinated once supply was assured, maybe late September.**
- **Even though approx. 550 known property line curb stop valves could be closed, there would be no certainty that non-potable water was not inadvertently used in premises where curb stop valves are unlocated or leak².**

THE BEST OPTION IS TO USE ALL AVAILABLE SUPPLY TO KEEP THE MAINS OPERATIONAL, DESPITE HIGH LEAKAGE. In consequence, staff recommend Council adopt the water supply statuses presented as resolutions above.

OPTIONS ARISING FROM THIS REPORT (PREFERRED UNDERLINED):

- (1) Resolve as recommended
- (2) Provide other explicit and specific direction to use available resources and timelines
- (3) Receive report for information only.

FINANCIAL CONSIDERATIONS:

None: policy only.

LEGAL CONSIDERATIONS:

Advise Vancouver Coastal Health, Fire Underwriters Society, mutual aid partners, BC Wildfire of this policy.

¹ As has been previously reported to Council, the Fire Department has advised the Emergency Program Committee that unless a fire is within hose range of a water reserve holding tank, lacking a water tanker to act as a tender, the department could not utilise water reserves because fire engines, which hold only 500 USG of water, can't be pulled off scene to go to refill. However, the department is now investigating whether a suitable tanker can be rented or leased for the summer, in which case the mothballed Oceanview and Brunswick water tanks will be refurbished to store and deliver non-potable firefighting water.

² Effort is already being made to locate 30 missing curb stops.