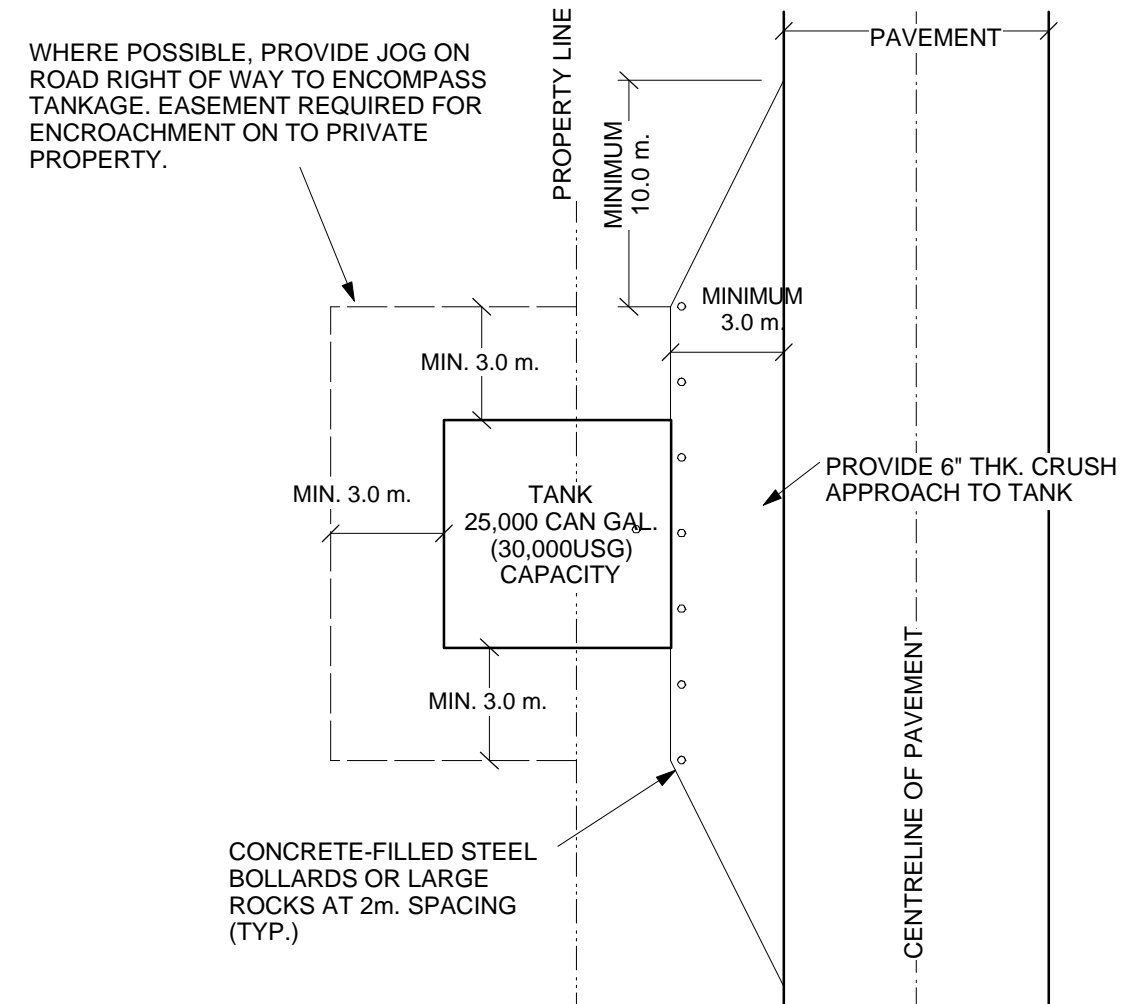


SPECIFICATIONS

1. The large cisterns shall be located no more than 2000 feet (610m) from another approved large capacity water source (large cistern, dry hydrant, etc.).
2. The cistern capacity must be 25,000 CAN gallons (30,000USG) (113,500 L) minimum.
3. The suction piping system must be capable of delivering 1000 gpm (3800 L/min) for three quarters of the cistern capacity.
4. The design of the cistern must be submitted to the Approving Officer or his designate for approval prior to construction. All plans must be signed by a registered Professional Engineer. Plans should identify siting location.
5. The entire cistern shall be rated for highway loading, unless specifically exempted by the Municipality.
6. Cast-in-place concrete must achieve a 28-day strength of 3000 psi (20,700 kpa). It must be placed with a minimum of 4-in. (10.2 cm) slump and vibrated to eliminate any voids.
7. The concrete shall be mixed, placed and cured without the use of calcium chloride.
8. All concrete work shall follow the accepted practices of the latest edition of applicable CSA standards.
9. All suction, vent and fill piping shall be schedule 40 steel.
10. The initial suction connection must be 6 in. NST hose thread. The final connection must be 2 1/2 in. NST hose thread. The final connection must be capped.
11. Suction pipe connection shall be 20 - 24 in. (50 - 60 cm) above the level of the area where vehicle wheels will be located when cistern is in use.
12. Suction pipe must be supported either to top of tank or to a level below frost line.
13. Bottom of suction pipe to pumper connection must not exceed 12 ft. (3.6 m) vertical distance.
14. The filler pipe siamese shall have 2 1/2 in. (64 mm) National Standard female threads with plastic caps.
15. Filler pipe siamese shall be a minimum of 18 in. (45 cm) above final backfill grade.
16. The entire cistern must be completed and inspected before any backfilling is done.

17. All backfill material within 5 feet (1.5m) of tankage must be screened gravel with no stones larger than 1 1/2 in. (38 mm) and must be compacted in 12 inch (300mm) layers. Native backfill may be used outside of 5 feet and must be compacted in 18 inch (450mm) layers
18. Bedding for the cistern shall consist of a minimum thickness of 12 in of 3/4 to 1 1/2 inch pit run gravel, compacted to a minimum 95% standard proctor density.
19. Tankage must be designed so that the cistern will not float when empty.
20. Perimeter of tank at floor/wall joint must be sealed with 8 in. (20.3 cm) PVC waterstop or approved equal.
21. After backfilling, tank must be protected by concrete-filled 4 in. (100mm) diameter sch. 40 steel bollards or large rocks spaced at 6.5 feet (2.0 m) apart. Pumper truck must be able to park within 10 feet (3m) of suction pipe.
22. Depending on siting, the tank may have backfill over top. All backfill shall extend 10 ft (3.1 m) beyond the edge of the cistern, and then have a maximum 3:1 slope, loamed and seeded.
23. Pitch of shoulder and vehicle pad from edge of pavement to pumper suction connection shall be from 1 to 6% downhill grade.
24. Shoulder and vehicle pad should be of sufficient length to permit convenient access to suction component.
25. All horizontal suction piping shall slope at 1% away from pumper truck connection.
26. Installer is responsible for completely filling cistern upon acceptance by municipality.
27. Cistern shall have a lockable manway access, of a type approved by the Municipality, extending to the finished grade.
28. Cistern shall have 19mm galvanized iron rungs spaced at 12 inches (300 mm) on centre, grouted into the wall and extending from the access manway to the floor of the tank.



REVISIONS		 HIGHLANDS FIRE DEPT. 1564 Millstream Road Victoria, B.C. V9E 1G6 E. Hall (250) 479-1814 * W. Hall (250) 474-2633 Fax (250) 474-3677	TITLE:
March 4, 2001	by MK		FD-2 Water Storage Tank Detail LARGE CISTERN PLAN
March 20, 2001	by MK	APPROVED:	
April 1, 2001	by MK		
		DATE: 16 July 2000	
		DRAWN: M. Kristiansen	