

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 03 41 00 Precast Structural Concrete.
- .2 Section 31 23 20 - Excavating, Trenching and Backfilling.
- .3 Section 01 74 11 – Cleaning.
- .4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .5 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM D698-12e1, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- .3 CSA International
 - .1 CSA A23.1/A23.2-2014, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CSA A23.4-09, Precast Concrete-Materials and Construction.
 - .3 CSA B66-10, Design, Material and Manufacturing Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for utility septic tanks and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
 - .2 Shop Drawings:
 - .1 Indicate on drawings:
 - .1 Design calculations for items designed by manufacturer.
 - .2 Tables and bending diagrams of reinforcing steel.
 - .3 Camber.
 - .4 Formwork.
 - .5 Finishing schedules.
 - .6 Methods of handling and erection.
 - .7 Storage facilities.
 - .8 Openings, sleeves, inserts and related reinforcement.

1.4 QUALITY ASSURANCE

- .1 Manufacturers of precast concrete elements are to be certified by CSA as meeting requirements of CSA A23.4.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect utility septic tanks from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse of pallets, crates, padding, packaging materials as specified in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 DESIGN REQUIREMENTS**

- .1 Design precast concrete septic tank in accordance with CSA B66, and ensure any concrete and/or plastic tanks can carry handling stresses and indicated service loads.
- .2 Depending on treatment unit manufacturer's recommendations, the required tank size could be 1x or 3x the design flow of 36,000L
 - .1 If 1x design flow:
 - .1 Tank requirements: Single septic tank (36,000L)
 - .2 If 3x design flow
 - .1 Tank requirements: Septic Tank #1: 68,000L.
Septic Tank #2: 45,500L

2.2 CONCRETE MIXES AND MATERIALS

- .1 Concrete mixes and materials: to CSA B66, CSA A23.1/A23.2.
- .2 Use type 1 cement.
- .3 Concrete exposure classification: C-3, C-4, S-1, S-2 or S-3.

2.3 MANUFACTURE

- .1 Manufacture units in accordance to CSA A23.4.

2.4 FINISHES

- .1 Finish tanks to CSA A23.4, commercial grade.

2.5 SIPHON CHAMBER

- .1 Construct siphon chamber to meet design requirements for septic tanks.

- .2 Include siphon chamber vents.

2.6 ACCESS

- .1 Include access holes to surface to facilitate cleaning and inspection.

2.7 TANK BEDDING AND SURROUND MATERIAL

- .1 Granular A material in accordance with OPSS 1010.

2.8 BACKFILL MATERIAL

- .1 As indicated.
- .2 Type 3, in accordance with Section 31 23 20 - Excavating, Trenching and Backfilling.

2.9 MODULAR WALL SEALS

- .1 Include modular wall seals: silicone with 316 stainless steel hardware and corrosion resistant sleeves.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for utility septic tank installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 ABANDONMENT OF EXISTING SEPTIC TANK

- .1 Pump out existing septic tank.
- .2 Crush lid/top by mechanical means if existing tank is in conflict with extension of existing pipe from building.
- .3 Fill existing septic tank with sand.
- .4 Reinstall and disturb areas to existing condition or better in accordance with Section 31 23 20 – Excavating, Trenching and Backfilling.

3.3 INSTALLATION

- .1 Place bedding and surround material in unfrozen condition.
- .2 Do excavation in accordance with Section 31 23 20 - Excavating, Trenching and Backfilling.
- .3 Place tank bedding material in accordance with details as indicated.
 - .1 Compact to 95% corrected maximum dry density.

- .4 Make inlet and outlet joints of septic tank watertight, using modular wall seals.
- .5 Conduct leakage test on septic tank in presence of Departmental Representative, before backfilling.
 - .1 Fill tank to level of effluent pipe, and allow to stand for 24 hours.
 - .2 Allowable leakage is zero.
 - .3 If leakage occurs, remove seal materials and reseal as directed by Departmental Representative.
- .6 Do backfilling in accordance with Section 31 23 20 - Excavating, Trenching and Backfilling.
 - .1 Compact to 90% corrected maximum dry density.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION