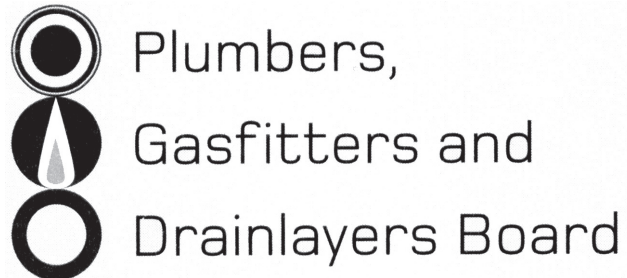


No. 9198



REGISTRATION EXAMINATION, NOVEMBER 2017
CERTIFYING DRAINLAYER

ANSWER SCHEDULE

ANSWER 1

- (a) (i) • 100 mm (1 mark)
- (ii) • 600 mm (1 mark)
- (iii) • 100 mm (1 mark)
- (iv) • 300 mm (1 mark)
- (b) • Cross at an angle not less than 45 degrees.
- Have a vertical separation of not less than 100 mm.
- Be marked along its length at least 1 m either side of the drain crossing.

(3 marks)

Total 7 marks

ANSWER 2

- Surface water (3 marks)
- Main vent (1 mark)
- Overflow relief gully (1 mark)
- Grease trap (2 marks)
- Inspection openings (2 marks)
- Economical and practical (3 marks)

Total 12 marks

ANSWER 3

- 150 mm

Total 1 mark

ANSWER 4

Any FOUR (½ mark each)

- Exit the digger and turn it off if safe to do so.
- Warn people in the area that there is a possible gas leak and a danger of fire.
- Ring the Fire Brigade.
- Ring the local gas utility operator.
- Close windows of the nearest buildings to prevent gas entering the buildings.
- Extinguish any ignition sources.

(½ mark each)

Total 2 marks

ANSWER 5

- (a) Any TWO (1 mark each)
- Lack of oxygen/asphyxiation.
 - Poisonous gases.
 - Flammable gases.
 - Contaminated soils
- (2 marks)
- (b) Any FOUR (½ mark each)
- Obtain copies of a past and current works permit.
 - Locate services.
 - Isolate any electrical service apart from that necessary.
 - Wear appropriate PPE.
 - Carry out site inspection.
 - Locate safety shut off valves.
 - Complete a task analysis.
- (2 marks)
- (c) Any TWO (1 mark each)
- Remove sources of ignition.
 - Wear respiratory devices.
 - Keep area well ventilated.
 - Erect barriers and signs.
 - Use gas detection equipment.
 - Isolate the area.
 - Have spotters.
- (2 marks)

Total 6 marks

ANSWER 6

- (a) Drawing to include any EIGHT (1 mark each):
- Disconnection point for pump.
 - Haunching towards pump.
 - Air tight lid.
 - Access ladder.
 - Pump(s).
 - Pump(s) submersible.
 - Devices to turn pump(s) on and off.
 - High level alarm sensor.
 - Isolating valves on pump outlets at ground level.
 - Chain/guide for removing pumps for service.
 - Vent.
 - Inlet/outlet.
 - Check valves.
 - Mechanical disconnection of pump from discharge line.
- (8 marks)

- (b) • A wet well installation has submersible pumps installed at the base of the chamber. A dry well installation has pumps installed above or adjacent to the liquid level with pipes extending into the liquid. (2 marks)

Total 10 marks

ANSWER 7

- (a) • To prevent a surcharge or backflow. (1 mark)

(b) Any ONE (1 mark)

- Answer describing a situation where surcharging from a sewer occurs and an ORG trap cannot be installed, e.g. sewage ejecting system or pumping system.
- In tidal areas. (2 marks)

- (c) • Immediately downstream from the outlet of the boundary trap.

(1 mark)

Total 4 marks

ANSWER 8

- Have waste pipes sealed when they enter through the side or back of the gully dish.
- Have the top of the gully dish 25 mm above paved surfaces.
- Have the top of the gully dish 100 mm above unpaved surfaces.

Total 3 marks

ANSWER 9

Diagram to show:

- Silt collection area. (1 mark)
- Rodding (access) point. (1 mark)
- Trapping system. (1 mark)
- Grate. (1 mark)

Total 4 marks

ANSWER 10

(a) Any FOUR (4 marks)

- Oxygen level.
- Possible toxic fumes.
- Possible flammable contaminants.
- Temperature within the chamber.
- Rainfall in catchment area.
- Tidal movements if the drain is discharging to the sea. (4 marks)

(b) Any TWO (4 marks)

- A co-worker on lookout above.
- Communication method.
- Harness with retrieval rope, with co-workers to operate.
- Adequate oxygen supply. (2 marks)

Total 6 marks

ANSWER 11

- (a) Ground levels correct. (3 marks)
- (b) Fall correct (3 marks) and depths of drain invert below datum correct (3 marks). (6 marks)
- (c) Depths of drain invert below ground correct and to correct scale. (3 marks)

Total 12 marks

ANSWER 12

- (a) • Work that does not require a building consent. (1 mark)
- (b) Any FOUR (1 mark each)
- Opening an existing access point to clear a blockage and resealing that access point.
 - A kitchen benchtop is replaced and the kitchen sink is moved to an adjacent wall. The existing gully trap servicing the kitchen needs to be shifted a short distance to receive the discharge from the repositioned sink wastepipe.
 - A toilet pan has been repositioned in an existing bathroom and it is reconnected into the existing drain at a different point.
 - Installing a new access or rodding point for unblocking drains.
 - A short extension to a storm-water drain to collect water from a new downpipe.
 - Connecting a new gully trap on an existing drain to receive discharge from a redirected waste pipe.
 - Sealing off a branch drain following the removal of sanitary fixtures from an outbuilding associated with a dwelling.
 - Extending, for a short distance, the drain from a dwelling to connect to a new council sewer lateral installed at the boundary by the NUO due to the original lateral being damaged by tree roots (provided no new connections to a NUO system are made).
- (4 marks)
- (c) Any FOUR (1 mark each)
- Certifying drainlayer.
 - Tradesman drainlayer.
 - Journeyman drainlayer.
 - Trainee drainlayer.
 - Exempted person under supervision.
 - Provisional drainlaying licence holder.
- (4 marks)

Total 9 marks

ANSWER 13

- (a) Any FOUR (½ mark each)
- Toxic gas in trench.
 - Low oxygen levels in trench.
 - Personal health issues of co-worker (heart attack, stroke etc).
 - Accident e.g. fall.
 - Electric shock. (2 marks)
- (b) (i) Any ONE (1 mark)
- Assess risk to personal safety – trench stability, toxic gas levels and oxygen levels.
 - Call for help. (1 mark)
- (ii)
- Put a backup/spotter person at the trench site.
 - Contact emergency services.
 - Make safety equipment, recovery system available before approaching co-worker.
 - Provide first aid. (½ mark each, 2 marks)
- (c) Any TWO (1 mark each)
- Incident form.
 - Accident investigation form.
 - Notification of Accident or Serious Harm form. (2 marks)

Total 10 marks

ANSWER 14

Sketch to show:

- slab over concrete (1 mark)
- measurements such as concrete thickness (2 marks)
- compacted fill. (1 mark)

Total 4 marks

SECTION B

1. C To supply oxygen to the bacteria within the tank.
2. D An unplanned incident in the workplace that endangers the health and safety of workers.
3. C Extra weight from soil or vehicles near the edge of the trench.
4. E WorkSafe New Zealand.
5. A 24 hours.
6. A Once in 10 years.
7. D The certifying drainlayer.
8. B 12 months.
9. A When the drain is receiving 18 mm or more fixture discharge unit.
10. D The height difference between the inlet and the outlet.
11. C Persons conducting a business or undertaking.
12. A The company.
13. D The company's directors.

Total 10 marks