

INSTALLATION MANUAL:

SMARTLOCK DRY UNDERGROUND DISTRIBUTION CHAMBER

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2. SMARTLOCK DRY UNDERGROUND DISTRIBUTION



ITEM NO.	DESCRIPTION	QTY.
2	DRY UNDERGROUND DISTRIBUTION CHAMBER	1



3. INSTALLATION PROCEDURE

This instruction prescribes the recommended excavation and bedding practice that should be followed for the installation of the Smartlock Dry Underground Distribution Chamber.

3.1. BEDDING PRACTICE FOR NORMAL SOIL CONDITIONS

3.1.1. Excavation

a. Excavate to the required specification of 1500 (L) x 1500 (W) x 1300mm (D). Ensure that all other service piping is not damaged, and that there are about 120mm clearance for the fibre ducting not to interfere during and after installation. (Figure 1 & 2)



Figure 1



120mm Clearance below service piping

Figure 2

b. A slope to the entry of the chamber is necessary so that the fibre ducting will not bend and get damaged during installation and operation. (Figure 3)



Duct Entries on manhole

Figure 3

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c. In the bottom of the excavation, prepare a true and level bed 50-100mm thick of river sand, crusher sand, fine clean gravel (particle size < 6 mm) or cement stabilized topping material. (*Figure 4*)



Figure 4

Place the chamber carefully on the bed ensuring proper and even seating and flush alignment of the lid with the ground level. (Make sure that the gas tight end plugs (Supplied by Smartlock) & fittings (Not supplied by Smartlock) are all installed on the pipes to the chamber – Plugs on non-use entry/ exit pipe, fittings or connectors on usable entry/exit pipe) (Figure 5 & 6)



Gas tight end plugs & Fittings

Figure 5



Lid align with ground level

Figure 6

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e. Adjust the position of the chamber to ensure that the service holes are in the correct position for the ducts being used. Connect the chamber entry/exit piping to required ducting for fibre population using the correct gastight fittings & connectors (*Not supplied by Smartlock*). Push/pull the connected ducting in the 110mm corrugated sleeve to required chamber or position. Seal the complete entry & exit of the chamber with the 110mm corrugated sleeve and end seal. (*Figure 7,8 &9*)



f. Before starting the backfilling, make sure that all entries on the chamber that will not be populated are sealed with correct gas tight end plugs (*Supplied by Smartlock*), so no moisture will progress to the chamber, which can result in leakages and all warranties will be void. (*Figure 10*)



Figure 10



3.1.2. Backfilling

a. Proceed with backfilling in 300 mm layers. (Figure 11)



Figure 11

b. Compaction should be done using hand tools only as machine compaction may damage the chamber. (*Figure 12*)



Figure 12

c. Only selected, inert granular material should be used as compacted backfill. Remove stones and rocks bigger than 60mm in diameter by hand. It is especially important that the excavated material consisting of rock, peat or clay should not be used as backfill material. (*Figure 13*)



Figure 13

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d. Backfill to where the drain holes are located on the chamber, bed 50mm crusher stone, no bigger than 30mm in size around these drain openings, when all drain openings are covered by stone, backfilling with soil can continue to the surface. (*Figure 14 & 15*)



Figure 14

Figure 15

e. Compact to the same compaction and consistency as the surrounding soil. (Figure 16)



Figure 16



3.2. BEDDING PRACTICE FOR ROCKY AREAS

- 3.2.1. Excavation
 - a. Same as for normal soils.

3.2.2. Backfilling

- a. Backfilling should be done with sifted virgin soil delivered to site.
- b. Proceed with backfilling in 300 mm layers.
- c. Backfill to where the drain holes are located on the chamber, bed 50mm crusher stone, no bigger than 30mm in size around these drain openings, when all drain openings are covered by stone, backfilling with soil can continue to the surface. (*Figure 14 & 15*)



Figure 14

Drain holes



50mm bed of crusher stone

Figure 15

d. Compaction should be done using hand tools only as machine compaction may damage the chamber.

3.3. BEDDING PRACTICE FOR CLAY SOIL AREAS

- 3.3.1. Excavation
 - a. When excavation for chamber in clay conditions are preformed, the trench shall not be left open for longer than 2-3 weeks to prevent the soil from drying out
 - b. Continue with excavation as for normal soils. Backfilling and concrete encasing
 - c. Backfilling should be done with natural gravel as clay soil expands and contracts substantially in the wet/dry cycle. The expansion / contraction cycle directly against the sides and floor of the chamber can over time lift the installation. The backfill is intended to prevent moisture from penetrating clay adjacent to the sides and floor of the chamber.
 - d. Proceed with backfilling in 300 mm layers.

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e. Backfill to where the drain holes are located on the chamber, bed 50mm crusher stone, no bigger than 30mm in size around these drain openings, when all drain openings are covered by stone, backfilling with soil can continue to the surface. (*Figure 14 & 15*)



Figure 14

Figure 15

- f. Compaction should be done using hand tools only as machine compaction may damage the chamber.
- g. Encase the 110mm pipe connection fully in concrete, box using plywood shutters and cast to well below and above the level of the pipe to stabilise the connection.
- h. Wait for the concrete to set sufficiently before continuing backfilling.
- i. In extreme clayey conditions a geotechnical engineer should be consulted.