

Emerging best performing alternative: Build a new single conductor 400 kV underground cable in one route

Description

For this option, we would build a new 400 kV underground cable to link the Dunstown substation and Woodland substation.

Previously in Step 2 of this project, we were unsure if a cable option would be technically feasible due to the length of the cable involved. During Step 3, we have investigated this further and found that we could address any issues that would arise.

We prefer to install underground cables in the road network (as opposed to through green fields or similar). This allows for easy access if the cable needs repair or maintenance. To achieve electricity transmission using alternating current (AC), three cables would be required for each circuit. We call these phases. This is the same for both overhead line and underground cables. One cable per phase (AC cable) would be needed. This means that three cables would make up one circuit.

These cables would be laid in the same 4 metre wide trench in a road. The trench may be up to 4 metres wide to meet the required power carrying capacity (rating) of the circuit.

We would also need a temporary working area to carry out the installation. The cable would be laid in sections. While we were laying the cables, there would be local traffic restrictions.

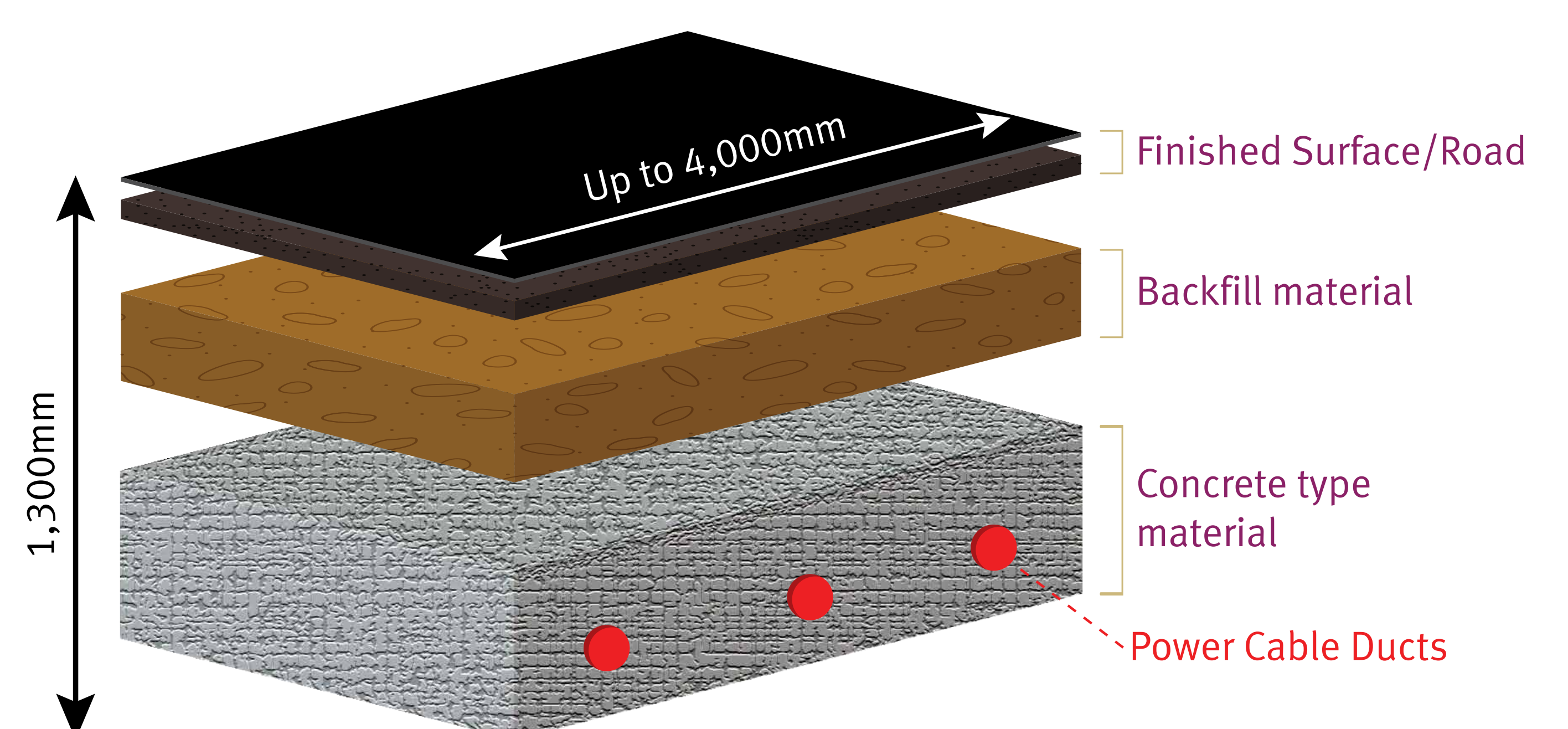
For this option, we would also need to work on the Dunstown and Woodland stations, so we could connect underground cables.

Assessment

Based on our assessments to date, we have identified this option as the emerging best performing alternative option.

This option has the same overall impact on the environmental considerations as Option 2 and Option 3 and this impact is considered to be of moderate significance. This option has some technical performance advantages that other options do not. The amount of cable required for this option is a challenge and a risk, but not to the same level as Option 5.

The operation of underground cables needs more management than overhead lines to make sure they are safe and secure. This can be challenging and is something we consider in our assessments. The deliverability of this option is similar to Option 3. The option's economic performance is good in comparison with the other options.



**Indicative HVAC underground
cable duct arrangement**