Straightened sections of earth tape must therefore be transported from a manufacturing plant to the project site where the earth tape is being installed. This transportation of lengths of straightened earth tape is difficult and costly.

The present invention seeks to provide an improved system and method for installing an earth tape.

According to one aspect of the present invention, there is provided a system for installing an earth tape along an elongate surface, the system comprising a moveable support arrangement which is configured to be moved relative to the elongate surface; a coil of earth tape, the earth tape having a solid metal core and a rectangular cross section; a coil support apparatus which is configured to support thea coil of earth tape; and a straightening apparatus which is configured to receive successive sections of earth tape from the coil of earth tape, straighten the successive sections of earth tape and output straightened sections of earth tape, wherein the coil support apparatus and the straightening apparatus are carried by the support arrangement and configured to be moved by the support arrangement relative to the elongate surface so that the straightened sections of earth tape can be installed along at least part of the elongate surface.

Preferably, the earth tape has a width of between 10mm and 70mm and a thickness of between 1.5mm and 15mm.

Preferably, the coil support apparatus comprises a planar surface which supports at least part of the coil of earth tape, the planar surface being rotatable about an axis which is generally perpendicular to the planar surface.

Conveniently, the coil support apparatus comprises a spindle which extends generally perpendicularly from the planar surface, the spindle being configured to be received within an aperture positioned at the centre of the coil of earth tape.

Advantageously, the system further comprises at least one further wheel assembly, the first and second wheels in each wheel assembly being

configured to contact an inclined surface to moveably support the support arrangement.

Preferably, the system is dimensioned to fit inside and move along the inside of a tunnel having a diameter of between 4 and 8 metres.

Conveniently, the moveable support arrangement comprises a raised support platform which supports the coil support apparatus and the straightening apparatus in a raised position relative to the base of the moveable support arrangement.

Preferably, the system further comprises a hoist apparatus which is configured to hoist a coil of earth tape up and onto the raised support platform.
Advantageously, the support platform is raised by between 2 and 4 metres from the base of the moveable support arrangement such that the straightening apparatus outputs straightened sections of earth tape for installation at a raised position.

According to another aspect of the present invention, there is provided a method of installing an earth tape along an elongate surface, the method comprising: providing a coil of earth tape, the earth tape having a solid metal core and a rectangular cross section; rotatably mounting thea coil of earth tape on a coil support apparatus, the coil support apparatus being carried by a moveable support arrangement which is configured to be moved relative to the elongate surface feeding one end of the earth tape into a straightening apparatus which is carried by the support arrangement activating the straightening apparatus to pull successive sections of earth tape through the straightening apparatus to straighten the successive sections of earth tape moving the support arrangement adjacent to and along the support surface; and installing the straightened sections of earth tape along at least part of the length of the elongate surface.

Preferably, the earth tape has a width of between 10mm and 70mm and a thickness of between 1.5mm and 15mm.

CLAIMS:

1. A system for installing an earth tape along an elongate surface, the system comprising:

a moveable support arrangement which is configured to be moved relative to the elongate surface;

a coil of earth tape, the earth tape having a solid metal core and a rectangular cross section;

a coil support apparatus which is configured to support thea coil of earth tape; and

a straightening apparatus which is configured to receive successive sections of earth tape from the coil of earth tape, straighten the successive sections of earth tape and output straightened sections of earth tape, wherein the coil support apparatus and the straightening apparatus are carried by the support arrangement and configured to be moved by the support arrangement relative to the elongate surface so that the straightened sections of earth tape can be installed along at least part of the elongate surface.

2. The system of claim 1, wherein the earth tape has a width of between 10mm and 70mm and a thickness of between 1.5mm and 15mm.

32. The system of claim 1 or claim 2, wherein the coil support apparatus comprises a planar surface which supports at least part of the coil of earth tape, the planar surface being rotatable about an axis which is generally perpendicular to the planar surface.

43. The system of claim 32, wherein the coil support apparatus comprises a spindle which extends generally perpendicularly from the planar surface, the spindle being configured to be received within an aperture positioned at the centre of the coil of earth tape.

54. The system of any one of the preceding claims, wherein the straightening apparatus comprises at least two drive rollers which are spaced apart from one another, the drive rollers being configured to rotate and contact the successive sections of earth tape such that the rollers exert a force on the

earth tape to uncoil the successive sections of earth tape from the coil of earth tape.

65. The system of any one of the preceding claims, wherein the straightening apparatus comprises at least two straightening rollers which are spaced apart from one another, the straightening rollers being configured to contact the successive sections of earth tape and to exert forces on the earth tape to straighten the earth tape.

76. The system of claim 65, wherein the straightening apparatus comprises five straightening rollers, wherein three of the five straightening rollers are positioned adjacent one side of the straightening apparatus and two of the five straightening rollers are positioned adjacent an opposite side of the straightening apparatus.

87. The system of claim 65 or claim 76, wherein the distance between each of the straightening rollers is adjustable so that the distance between the rollers can be set to match the thickness of an earth tape.

98. The system of any one of claims 54 to 76, wherein the straightening apparatus comprises a motor which is configured to drive at least one of the rollers to exert a force on the earth tape to pull the earth tape through the straightening apparatus.

109. The system of any one of the preceding claims, wherein the support arrangement comprises at least one wheel assembly, each wheel assembly incorporating a first wheel which is configured to rotate about a first axis and a second wheel which is configured to rotate about a second axis which is not parallel to the first axis such that the first and second wheels are configured to contact an inclined surface simultaneously.

1110. The system of claim 109, wherein the system further comprises at least one further wheel assembly, the first and second wheels in each wheel assembly being configured to contact an inclined surface to moveably support the support arrangement.

1211. The system of any one of the preceding claims, wherein the system is dimensioned to fit inside and move along the inside of a tunnel having a diameter of between 4 and 8 metres.

1312. The system of any one of the preceding claims, wherein the moveable support arrangement comprises a raised support platform which supports the coil support apparatus and the straightening apparatus in a raised position relative to the base of the moveable support arrangement.

1413. The system of claim 1312, wherein the system further comprises a hoist apparatus which is configured to hoist a coil of earth tape up and onto the raised support platform.

1514. The system of claim 1312 or claim 1413, wherein the support platform is raised by between 2 and 4 metres from the base of the moveable support arrangement such that the straightening apparatus outputs straightened sections of earth tape for installation at a raised position.

1615. A method of installing an earth tape along an elongate surface, the method comprising:

providing a coil of earth tape, the earth tape having a solid metal core and a rectangular cross section;

rotatably mounting thea coil of earth tape on a coil support apparatus, the coil support apparatus being carried by a moveable support arrangement which is configured to be moved relative to the elongate surface:

feeding one end of the earth tape into a straightening apparatus which is carried by the support arrangement;

activating the straightening apparatus to pull successive sections of earth tape through the straightening apparatus to straighten the successive sections of earth tape;

moving the support arrangement adjacent to and along the support surface; and

installing the straightened sections of earth tape along at least part of the length of the elongate surface.

17. The method of claim 16, wherein the earth tape has a width of between 10mm and 70mm and a thickness of between 1.5mm and 15mm.

1816. The method of claim 16 or claim 1715, wherein the method further comprises positioning the moveable support arrangement within a tunnel and locking the support arrangement in position to install the straightened sections of earth tape along at least part of the length of the inside surface of the tunnel.

1917. The method of claim 1816, wherein the tunnel has a diameter of between 4 and 8 metres.

2018. The method of claim 1816 or claim 1917, wherein the method further comprises moving the moveable support arrangement along the tunnel at a speed which matches the speed at which the straightened sections of earth tape are output from the straightening apparatus.

2119. The method of any one of claims 1615 to 2018, wherein the straightening apparatus comprises at least two straightening rollers which are spaced apart from one another and at least two drive rollers which are spaced apart from one another and the method further comprises adjusting the distance between each of the straightening rollers and each of the drive rollers such that the spacing between the rollers matches the thickness of an earth tape which is to be straightened by the straightening apparatus.