Claims

1. A footing for a building structure, the footing comprising:

a plurality of precast concrete layers, each precast concrete layer comprising reinforcement bars and a plurality of apertures, and

a base structure comprising a base plate and a plurality of alignment bars protruding from the base plate,

wherein the footing is configured such that when the plurality of precast concrete layers are positioned on top of one another, the plurality of alignment bars of the base structure extend through respective apertures of each concrete layer.

2. The footing of claim 1 wherein the base structure is further arranged to secure the footing to a piling structure.

3. The footing of claim 2 further comprising a centre column arranged to be directly secured to the piling structure.

4. The footing of claim 3 wherein each precast concrete layer comprises a central aperture and the footing is configured such that when the plurality of precast concrete layers are positioned on top of one another, the centre column extends through the respective central apertures of the plurality of prefabricated concrete layers.

5. The footing of any one of the preceding claims wherein each concrete layer comprises a plurality of steel tubes connected to the reinforcement bard, the plurality of steel tubes defining the plurality of apertures for receiving the respective alignment bars when the concrete layer is cast.

6. The footing of any one of the preceding claims wherein the base plate comprises connectors arranged to receive the alignment bars such that the alignment bars protrude substantially perpendicular from the base plate.

7. The footing of any one of the preceding claims wherein one or more of the concrete layers comprises connectors arranged to receive slab reinforcement bars extending into a concrete slab between a plurality of footings.

8. The footing of any one of the preceding claims comprising a column plate that is arranged to secure the footing to a vertical column of a building structure such that the footing directly supports the vertical column of the building structure.

9. The footing of claim 8 wherein one or more concrete layers comprises apertures for receiving column reinforcement bars to secure the column plate to the one or more concrete layers.

10. The footing of any one of the preceding claims being arranged such that when the footing is connected to the vertical column of the building structure and a piling structure, the footing, the vertical column and the piling structure are substantially aligned.

11. The footing of any one of the preceding claims wherein each concrete layer comprises reinforcement steel bars.

12. The footing of claim 11 wherein each concrete layer comprises a reinforcement steel mesh.

13. The footing of any one of the preceding claims further comprising a piling structure, wherein the piling structure comprises one or more screw or helical piles.

14. The footing of claim 13 wherein the piling structure has an overall conical shape.

15. The footing of any one of the preceding claims wherein each precast concrete layer comprises one or more lifting elements such that each precast concrete layer can be lifted by a lifting or handling machine.

16. A building structure or a foundation for a building structure comprising a plurality of footings in accordance with any one of the preceding claims.

17. A method of making a footing for a building structure, the method comprising:

providing a base structure comprising a base plate and a plurality of alignment bars protruding from the base plate; and

providing a plurality of precast concrete layers, wherein each concrete layer is made by:

a) providing reinforcement bars for reinforcing a concrete layer;

b) connecting a plurality of spacer chairs to the reinforcement bars such that the reinforcement bars are elevated when positioned on a surface;

c) connecting a plurality of steel tubes to the reinforcement bars such that when the concrete layer is cast, the steel tubes form a plurality of apertures that are arranged to receive the respective alignment bars of the base structure when the footing is assembled; and

d) pouring concrete into a casting mould to form the concrete layer.

18. A method of assembling a footing for a building structure, the method comprising:

positioning a base structure within a ground, the base structure comprising a base plate and a plurality of alignment bars protruding from the base plate;

providing a plurality of precast concrete layers, each precast concrete layer comprising reinforcement bars and a plurality of apertures, and

positioning the plurality of precast concrete layers on top of one another such that the plurality of alignment bars of the base structure extend through respective apertures of each precast concrete layer.

19. A method of forming a foundation of a building structure, the method comprising:

providing a footing comprising a plurality of precast concrete layers, each precast concrete layer comprising reinforcement bars and a plurality of apertures, the footing further comprising a base structure comprising a base plate and a plurality of alignment bars protruding from the base plate;

securing a piling structure to the base plate of the footing;

positioning the piling structure and the base plate within a ground where the building structure is to be erected;

positioning the plurality of precast concrete layers on top of one another such that the plurality of alignment bars of the base structure extend through respective apertures of each concrete layer, and

securing a vertical column of the building structure to the footing.

20. The method of claim 19 comprising:

providing concrete slab between a plurality of footings,

wherein one or more of the precast concrete layers of each footing comprises connectors arranged to receive slab reinforcement bars extending into the concrete slab between the plurality of footings.