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Temporary Works Package
Jack Straws Castle, North End Way NW3 7ES
Issued: 25 July 2023

Preamble

This Document is to be read in conjunction with all Cowpe Lowe Engineering documents (see Appendix) and the permanent works structural drawings by Horwitz Associates. This Document details the overall construction strategy and sequences and procedures for the installation of the temporary works in order to complete the installation of the permanent works structure.

Please note that dwgs. TW / 05 – 09 are sequence drawings and not detail drawings, hence they show the indicative construction sequence only and do not show construction details (e.g. starter bars, timber struts, timber frames, concrete shutters, trench sheets, etc.) All temporary works drawings are diagrammatic and show the design intent only. Exact arrangements will be determined on site by Orbital Construction, in conjunction with Cowpe Lowe Engineering.

Different areas of work may be carried out at the same time, and not necessarily in the order presented in this Document. See Orbital Construction's construction program for overall sequencing.

Scope

This Document covers the underpinning to Jack Straws Castle and the construction of the new basement and ground floor slab only.

Design Brief

The underpinning to Jack Straws Castle and the retaining walls to the new basement will be constructed in piece – meal fashion, in short sections. Horizontal bracing will be required to the underpinning to Jack Straws Castle and the retaining walls to the new basement until such time as the new basement and ground floor slabs have been constructed and can provide permanent lateral restraint to the retaining walls.

Piling

1. The piling will be carried out from the existing tarmac level (approx. 132.0 m) with low cut – off levels (approx. 128.145 m).

2. Once each pile is completed, the bore will be back – filled with excavation arisings up to the existing tarmac level.

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Underpinning To Jack Straws Castle (South Side)

1. The underpin sections will be constructed in the '1 to 5' sequence (i.e. 1, 4, 2, 5, 3, etc.), with each underpin section being maximum 1 m wide, as shown indicatively on dwg. TW / 01. The actual underpinning sequence will be proposed by Orbital Construction and will be agreed with Horwitz Associates prior to commencement of the works. The construction sequence of each underpin section will be as follows:

2. The underpin section will be excavated (stage 1 on dwg. TW / 05). The excavation faces will be shored with 'Standard Lap' trench sheets (or similar approved) and timber frames / walers, as required.

3. The pile (where present) will be broken down to cut – off level (stage 2 on dwg. TW / 05).

4. The underpin section will be constructed up to approximately 75 mm below the underside of the existing foundation (stage 3 on dwg. TW / 05).

5. A minimum of 24 hours after constructing the underpin section, the gap between the top of the underpin section and the bottom of the existing foundation will be drypacked (stage 4 on dwg. TW / 05).

6. A minimum of 24 hours after drypacking, the protruding existing foundation will be saw – cut and trimmed back to be flush with the front face of the underpin section using hand tools only, avoiding causing any damage to the party wall and remaining foundation (stage 5 on dwg. TW / 05).

7. The excavation will be back – filled with excavation arisings and compacted with the excavator bucket (stage 6 on dwg. TW / 05).

8. The next underpin section in the underpinning sequence will then be constructed. No adjacent section will be excavated within 48 hours of completion of the drypacking of an underpin section.

Retaining Wall To Heath Brow (North Side)

9. The retaining wall will be constructed in the '1 to 5' sequence (i.e. 1, 4, 2, 5, 3, etc.), with each retaining wall section being maximum 1 m wide, similar to that above (dwg. TW / 01). The construction sequence of each retaining wall section will be as follows:

10. The retaining wall section will be excavated (stage 1 on dwg. TW / 08). The excavation faces will be shored with 'Standard Lap' trench sheets (or similar approved) and timber frames / walers, as required.

11. The pile (where present) will be broken down to cut – off level (stage 2 on dwg. TW / 08).

12. The ground beam section will be constructed (stage 3 on dwg. TW / 08). Reinforcement couplers will be installed for continuity reinforcement with the adjacent ground beam section.

13. A minimum of 24 hours after constructing the ground beam section, the retaining wall section will be constructed (stage 4 on dwg. TW / 08).

14. The excavation will be back – filled with excavation arisings and compacted with the excavator bucket (stage 5 on dwg. TW / 08).

15. The next retaining wall section in the sequence will then be constructed.

Retaining Wall To Car Park (East Side)

16. The retaining wall will be constructed in the '1 to 5' sequence (i.e. 1, 4, 2, 5, 3, etc.), with the retaining wall sections at pile locations being maximum 1 m wide (dwg. TW / 01). The construction sequence of each retaining wall section will be as described above.

Retaining Wall To Shrubs (West Side)

17. The retaining wall will be constructed in the '1 to 5' sequence (i.e. 1, 4, 2, 5, 3, etc.), with each retaining wall section up to 2 m wide (depending on existing ground conditions) (dwg. TW / 01). The construction sequence of each retaining wall section will be as described above.

Completion Of Basement And Ground Floor Slab Construction

18. Once the underpinning to Jack Straws Castle and the retaining walls to the new basement have been completed, the site will be excavated down to just below the first level bracing (to be installed) (stage 7 on dwg. TW / 05) (and stage 6 on dwg. TW / 08).

19. The first level bracing will be installed (stage 8 on dwg. TW / 06, also see dwg. TW / 02 for bracing layout) (and stage 7 on dwg. TW / 08).

20. The site will be excavated down to just below the second level bracing, and the second level bracing will be installed (stage 9 on dwg. TW / 06, also see dwg. TW / 03 for bracing layout).

21. The site will be excavated down to just below the third level bracing, and the third level bracing will be installed (stage 10 on dwg. TW / 06, also see dwg. TW / 02 for bracing layout) (and stage 8 on dwg. TW / 09).

22. The site will be excavated down to formation level (stage 11 on dwg. TW / 06) (and stage 9 on dwg. TW / 09).

23. The remaining piles will be broken down to cut – off level.

24. The below – ground drainage runs and sump chambers will be installed. The sump chambers will be installed in the following manner:

25. The excavation for the sump chambers will be dug.

26. The sump chambers will be lowered down the excavation. The sump chambers will be held at the correct level and position using concrete blocks and spacers.

27. The drainage runs will be connected to the sump chambers.

28. The sump chambers will be filled with water.

29. The excavation around the sump chambers will be filled with concrete, i.e. the sump chambers will be concrete – encased.

30. The ground beams and basement slab will be constructed (stage 12 on dwg. TW / 06) (and stage 10 on dwg. TW / 09).

31. When the basement slab has gained sufficient strength (minimum 7 days and 75% of design strength) to act as permanent restraint to the bottom of the retaining walls, the third level bracing will be removed (stage 13 on dwg. TW / 06) (and stage 11 on dwg. TW / 09).

32. The RC liner wall in front of the underpinning to Jack Straws Castle (full length) will be constructed up to the underside of the second level bracing (stage 14 on dwg. TW / 06). Vertical reinforcement will be fixed through the timber blocks to the waling beam (dwg. D / 01).

33. The second level bracing will be reinstalled to support the top of the RC liner wall. Level '2B' will be installed (stage 15 on dwg. TW / 06), then level '2A' will be removed (stage 16 on dwg. TW / 07).

34. The RC liner wall will be constructed up to the underside of the first level bracing (stage 17 on dwg. TW / 07).

35. The portion of the first level bracing (coloured in cyan on dwg. TW / 04) will be installed to support the top of the RC liner wall. Level '1B' will be installed (stage 18 on dwg. TW / 07), then level '1A' will be removed (stage 19 on dwg. TW / 07). Please note that at this stage, the first level bracing will be on 2 levels: level '1A' and level '1B' (dwg. TW / 04).

36. The RC liner wall will be constructed to full height (stage 20 on dwg. TW / 07).

37. The basement internal blockwork walls will be constructed.

38. The ground floor slab will then be constructed (stage 21 on dwg. TW / 07) (and stage 12 on dwg. TW / 09).

39. When the ground floor slab has gained sufficient strength (minimum 7 days and 75% of design strength) to act as permanent restraint to the top of the retaining walls, the first and second level bracing will be removed (stage 22 on dwg. TW / 07) (and stage 13 on dwg. TW / 09).

Inspection Of Temporary Works

40. Once each item of temporary works has been installed, it will be inspected by Orbital Construction's Temporary Works Coordinator to verify that it has been correctly installed according to the drawings and it is providing support and stability to the works, as intended.

41. Regular site visits will be made by Orbital Construction's Temporary Works Coordinator to inspect the on – going works and to ensure that the structural stability of the works is maintained at all times. Any amendments to the temporary works or any further temporary works required will be identified to Cowpe Lowe Engineering and an addendum to this Document will be produced.

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For and on behalf of Cowpe Lowe Engineering

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Appendix (see Document Issue Register)

- Drawings: TW / 01 – 09
  D / 01
- Calculation sheets: C / 01 – 04