

D3 Associates Ltd

Shotton Parish Council

Shotton Outreach YIF Facility

1788

Structural

22-06-2023

Demolition of redundant changing rooms and
construction of new youth club facility

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D20

Excavating and filling

To be read with preliminaries/ general conditions.

4 Site investigation

6 Site investigation report

1. GEOL23-7823 - Outreach Community Hub Shotton Colliery DH6 2JL PI PCRA rev1 26-04-2023 comp1
 2. GEOL23-7823 - Shotton Colliery DH6 2JL PII GIR rev1 (30-06-2023)
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10 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
 - 1.1. Size of area:
2. Excavation in protected area
 - 2.1. Method:
 - 2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
 - 4.1. Make clean smooth cuts with no ragged edges.
 - 4.2. Pare cut surfaces smooth with a sharp knife.
 - 4.3. Treatment of cut roots:
5. Backfill:

12 Site clearance

1. Timing: Before topsoil stripping, if any.
2. General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
3. Treatment:

14 Removing small trees, shrubs, hedges and roots

1. Identification: Clearly mark trees to be removed.
2. Small trees, shrubs and hedges
 - 2.1. Cut down.
 - 2.2. Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
3. Safety: Comply with Forest Industry Safety Accord safety leaflets.

16 Felling large trees

1. Definition: Girth over 600 mm.
2. Identification: Clearly mark trees to be removed.
3. Safety: Comply with Forest Industry Safety Accord safety leaflets.
4. Felling: As close to the ground as possible.
5. Stumps:
6. Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

18 Chipping and shredding

1. Generally:

20 Stripping topsoil

1. **General:** Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
2. **Depth**
 - 2.1. Remove to an average depth of: 0.2-0.5m
 - 2.2. Give notice where the depth of topsoil is difficult to determine.
3. **Handling:** Handle topsoil for reuse or sale in accordance with BS 3882.
4. **Around trees:** Do not remove topsoil from below the spread of trees to be retained.
5. **Site storage:**

22 Adjacent excavations

1. **Requirement:** Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto, must be completed before the higher excavation is made.
2. **Angle of line below horizontal:** 45°.
3. **Backfill material:** concrete.

25 Inspecting formations

1. **Give Notice:** Make advance arrangements for inspection of formations for foundations.
 - 1.1. Notice (minimum): 72hrs.
2. **Preparation:** Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels.
3. **Seal:** Within four hours of inspection, seal formations with concrete.

30 Recorded features

1. **Recorded foundations, beds, drains, manholes, etc:**
2. **Contaminated earth:** Remove and disinfect as required by Local Authority.

31 Unrecorded features

1. **Give notice:** If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

33 New foundations crossing old foundations or walls

1. **Break out:** The old foundation/ wall where it crosses the new foundation/ wall:
 - 1.1. Length of breaking out: Width of the new foundation/ wall, plus 500mm.
 - 1.2. Depth of breaking out: full depth.
2. **Disturbed/ softened soil:** When the formation for the old foundation/ wall is deeper than the formation of the new foundation.
 - 2.1. Excavate: Soil that has been disturbed and/ or softened on either side of the old wall/ foundation.
3. **Step up:** The formation for the new foundation as necessary on either side of the old foundation/ wall until the formation is at its design level.
 - 3.1. Size of steps:
4. **Backfilling beneath design formation level:** concrete.

35 Excess excavations

1. Excavation taken wider than required
 - 1.1. Backfill with concrete.
2. Excavation taken deeper than required
 - 2.1. Backfill with concrete.

40 Excavated topsoil removal

1. General: Remove from site.

45 Surplus subsoil

1. Excavated material: Stockpile in temporary storage heaps.
2. Retained material: Spread and level surplus subsoil on site.
 - 2.1. Locations:
 - 2.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.
3. Remaining material: Remove from site.

50 Hazardous, aggressive or unstable materials

1. Generally: Do not import or use fill materials which would, either in themselves or in combination with other materials or groundwater, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
 - 1.1. Frozen or containing ice.
 - 1.2. Organic.
 - 1.3. Contaminated or noxious.
 - 1.4. Susceptible to spontaneous combustion.
 - 1.5. Likely to erode or decay and cause voids.
 - 1.6. With excessive moisture content, slurry, mud or from marshes or bogs.
 - 1.7. Clay of liquid limit exceeding 80 and/ or plasticity index exceeding 55.
 - 1.8. Unacceptable, class U2 as defined in the 'Specification for highway works', clause 601.

53 Water

1. Generally: Keep all excavations free from water until:
 - 1.1. Formations are covered.
 - 1.2. Below ground constructions are completed.
 - 1.3. Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
2. Drainage: Form surfaces of excavations and fill to provide adequate falls.
3. Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

60 Backfilling around foundations

1. Under oversite concrete and pavings: as clause 65.
2. Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

65 Hardcore filling

1. Fill: Type 1 unbound granular material to Series 800 of the Specification for Highway Works.
2. Filling: Spread and level in 125 mm maximum layers. Thoroughly compact each layer.

75 Blinding

1. Surfaces to receive sheet overlays or concrete:
2. Blind with
 - 2.1. Concrete where shown on drawings; or
 - 2.2. Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
3. Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).
4. Permissible deviation on surface level:

Ω End of Section

E05

In situ concrete construction generally

To be read with preliminaries/general conditions.

290 Accuracy of construction

1. Setting out: To BS 5964-1.
2. Geometrical tolerances:
 - 2.1. Conflicts: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code of practice.
 - 2.2. Substitution of alternative requirements:

310 Surface regularity of concrete floors to BS 8204 – general

1. Standard: To BS 8204-1 or -2.
2. Measurement: From underside of a 2 m straightedge (between points of contact) placed anywhere on surface and using a slip gauge.

315 Surface regularity of concrete floors to BS 8204 – tolerance class

1. Description: SR3.
2. Location: floor slab.

410 In situ concrete construction – supervision/ checking

1. Standard:

Ω End of Section

E10

Mixing/ casting/ curing in situ concrete

Clauses

15 Specification

1. Concrete generally: To BS 8500-2.
2. Exchange of information: Provide concrete producer with information required by BS 8500-1, clauses 4 and 5.

25 Basic designated concrete

1. Description: foundations.
2. Designation: RC25/30.
3. Coarse recycled aggregates: to BS EN 12620.
4. Consistence class: S3.
5. Additional requirements: Submit proposals.

26 Basic designated concrete

6. Description: ground-bearing floor slab.
7. Designation: RC25/30.
8. Coarse recycled aggregates: to BS EN 12620.
9. Consistence class: S2.
10. Additional requirements: Submit proposals.

45 Properties of fresh concrete

1. Adjustments to suit construction process: Determine with concrete producer. Maintain conformity to the specification.

50 Premature water loss

1. Requirement: Prevent water loss from concrete laid on absorbent substrates.
 - 1.1. Underlay: Polyethylene sheet 250 micrometres thick.
 - 1.2. Installation: Lap edges 150 mm.

60 Placing and compacting

1. Surfaces to receive concrete: Clean, with no debris, tying wire clippings, fastenings or free water.
2. Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction.
3. Temperature limitations for concrete: 30°C (maximum) and 5°C (minimum). Do not place against frozen or frost covered surfaces.
4. Compaction: Fully compact to full depth to remove entrapped air especially around reinforcement, cast-in accessories, into corners of formwork and at joints. Continue until air bubbles cease to appear on the top surface.
 - 4.1. Methods of compaction: To suit consistence class and use of concrete.

70 Curing and protecting

1. Evaporation from surfaces of concrete: Prevent throughout curing period.
 - 1.1. Surfaces covered by formwork: Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.

- 1.2. **Top surfaces:** Cover immediately after placing and compacting. Replace cover immediately after any finishing operations.
2. **Curing periods**
 - 2.1. **Surfaces which in the finished building will be exposed to the elements, and wearing surfaces of floors and pavements:** 10 days (minimum).
 - 2.2. **Other structural concrete surfaces:** 5 days (minimum).
3. **Protection:** Protect concrete from shock, indentation and physical damage.

Ω End of Section

E20

Formwork for in situ concrete

Clauses

70 Formwork

1. **General:** Accurately and robustly constructed to produce finished concrete to the required dimensions.
2. **Formed surfaces:** Free from twist and bow with intersections, lines and angles square, plumb and true.
3. **Joints between forms and completed work:** Prevent loss of grout and formation of steps.
4. **Holes and chases:** Form with inserts or box out as required.

Ω End of Section

E30

Reinforcement for in situ concrete

Clauses

20 Ribbed bar reinforcement

1. Description:
2. Standard: To BS 4449.
 - 2.1. Strength grade: B500B.

30 Fabric reinforcement

1. Description:
2. Standard: To BS 4483.
3. Strength grade: B500B.

40 Condition of reinforcement

1. **At time of placing concrete:** Free from corrosive pitting, loose mill scale, loose rust and contaminants which may adversely affect the reinforcement, concrete, or bond between the two.

55 Laps in reinforcement

1. Laps in bar reinforcement (minimum): 400mm.
2. Laps in fabric reinforcement (minimum): 400mm.

70 Fixing reinforcement

1. Standard: To BS 7973-1 and -2.
2. Installation: Provide adequate support, tie securely and maintain the specified cover.
 - 2.1. Tying wire: 16 gauge black annealed. Prevent intrusion into the concrete cover.

Ω End of Section

E40

Designed joints in in situ concrete

To be read with preliminaries/general conditions.

120 Construction joints generally

1. **Accuracy:** Position and form joints accurately, straight, well-aligned and truly vertical or horizontal or parallel with setting out lines of the building.
2. **Modifications to joint design or location:** Submit proposals.
3. **Placing concrete to form movement joints**
 - 3.1. Maintain effectiveness of joints. Prevent concrete entering joints or penetrating or impregnating compressible joint fillers.
 - 3.2. Do not place concrete simultaneously on both sides of movement joints.

230 Preparation of construction joints

1. **Roughening of joint surfaces:** Select from:
 - 1.1. **Brushing and spraying:** Remove surface laitance and expose aggregate finish while concrete is still green.
 - 1.2. **Other methods:** Submit proposals.
2. **Condition of joint surfaces immediately before placing fresh concrete:** Clean and damp.
1. **Cleanliness:** Free from corrosive pitting, loose millscale, loose rust and contaminants which may adversely affect the tie bars, reinforcement, concrete, or bond between the two.
2. **Position:** Centred on joint.

Ω End of Section

E41

Worked finishes to in situ concrete

Clauses

10 Finishing

1. **Timing:** Carry out at optimum times in relation to setting and hardening of concrete.
2. **Prohibited treatments to surfaces**
 - 2.1. Wetting to assist surface working.
 - 2.2. Sprinkling cement.

20 Smooth floated finish

1. **Surface on completion:** Even, with no ridges or steps.

G10

Structural steel framing

Clauses

10 Design

1. Design standard: The structural steelwork has been designed to BS5950.
2. Completion of design: Detail steelwork and connections.
 - 2.1. Loading requirements: As specified or otherwise calculable.

15 Specification standard

1. Standard: Comply with latest edition of National Structural Steelwork Specification.
2. References to Engineer in NSSS: For the purpose of this contract, interpret such references as being to the person named as administering the Contract on behalf of the Employer.

17 General steel sections

1. Grade: S275.
2. Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.

30 Cold-formed galvanized steel

1. Description: Purlins.
2. Manufacturer: Metsec.
 - 2.1. Product reference: as drawing no. 23-2553/02.

40 Bolt assemblies

1. As detailed on drawing 23-2553/01.
2. Nuts and washers: To suit property class of bolt, as NSSS, clause 2.4.4.

45 Proprietary anchors

1. Description: galvanised through bolts.
2. Manufacturer: Fischer Fixings
3. Product reference: as detailed on the drawings.
4. Material: galvanised steel.

50 Column bases

1. Levels: Adjust using steel shims or folding wedges no larger than necessary, positioned symmetrically around perimeter of base plate. Do not use a single central pack.
2. Accuracy of erection: Check, and correct errors before filling and bedding beneath bases and carrying out other adjacent work.

55 Mortar filling/ Bedding of column bases

1. Mortar
 - 1.1. Cement: Portland cement BS EN 197-1 - CEM I 42.5 or 52.5.
 - 1.1.1. Certification:
 - 1.2. Fine aggregate: To BS EN 12620, grade 0/4 or 0/2 (MP).
2. Bolt pockets: Completely filled with neat cement slurry.

3. Spaces beneath base plates: Completely filled with 1:1 cement: fine aggregate mortar, just fluid enough to pour, tamped well as filling proceeds. Provide temporary shuttering as necessary.

60 Galvanizing

1. Use/ location: canopy support steelwork on grid line 5 and canopy roof bracing members.
2. Preparation: Chemical cleaning.
3. Galvanizing: To BS EN ISO 1461.
 - 3.1. Minimum mean coating thickness: 85 microns.

65 Shop priming for

1. Description: all structural steelwork except that referred to in clause 60.
2. Shop preparation: Blast cleaning to BS EN ISO 8501-1, preparation grade Sa 2½.
3. Primer: zinc phosphate alkyd.
 - 3.1. Dry film thickness: 80 microns.

Ω End of Section

