## **The Quality Pathway - Defect Avoidance**

## Piling



To facilitate this ambition of getting the quality right, these checks should take place:

#### Design considerations

- > Is the site investigation adequate for pile design and approved by the structural engineer?
- > Who is responsible for the pile design?
- > What is the site poured and precast concrete design parameters? Has the design been improved?
- > Is the method of piling suitable for location / environment (noise etc) as well as the ground conditions?
- > Have the requirements for a piled tower crane base (which may include tension reinforcement) been considered at pile design stage?
- > For embedded piled retaining walls, has the design been checked for the short-term temporary condition prior to commencing excavation?
- ➤ Be aware of any lightning protection paths via a dedicated bar (painted to identify its use) or via a cage. Ensure column cap and pile are linked.

#### Piling platform / working area

- ➤ Has a working platform suitable for the piling rig and the ground conditions been designed and checked by the engineer?
- > Carry out plate bearing tests before using piling platform / mat
- > Has the piling platform level been determined to allow adequate reinforcement anchorage into foundations?
- > Is there sufficient room for a rig around the perimeter of the site?

#### Supervision and quality control

- What is the testing regime required by specification?
- ➤ Check reinforcement supplier is a CARES (Certification Authority for Reinforcing Steels) registered company and that delivered reinforcement complies
- > Who is responsible for setting out the piles?
- ▶ How many will be checked? Can the setting out be checked once the auger or pile is in position?
- > Ensure that the plumb of the piles and steel reinforcement is checked and maintained
- Survey as built 'ground level' pile positions within 48 hours
- > Do mixes comply with specification mix, minimum cement content, sulphates etc?
- Establish responsibility for assessment of concrete quality. No in situ piling to be carried out unless a cube tank is onsite and working, or a fail-safe method for storage and collection is established
- Obtain cube results for any precast piles
- > Ensure cube results are sent direct from the testing laboratory
- > Can individual concrete deliveries be traced to particular piles and parts of pile if large diameter?





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#### Supervision and quality control continued

- > If site batching is intended, obtain detailed method statement to ensure quality is achieved and maintained
- > Is the testing (test / working pile) specified and agreed with the designer and building control?
- > Are integrity tests specified? If they are carried out after the piles are cut down, who is responsible for any problems? (Consider percentage before cut down, but this does require preparation and extra cost)
- > Obtain copy of pile log information.

#### Working method and environment

- > Blind around all piles before cut down
- > Do we have an adequate method statement for cutting down the piles? Take great care with small piles do not use heavy breakers. Generally better to use a saw cut around the pile first
- ➤ Has the 'Elliott method' been considered for cutting down the piles? This requires sleeves on reinforcement, so groundworker and piler must agree before start
- > Ensure curing period is agreed and followed prior to excavating around piles
- > Check existing services are no longer live. Also consider using ground radar and similar technology
- > Check existing drainage leaving site is capped off at boundary before installing cast in situ piles.

