Appendix 2-3

Details and Technique for Bored Pile

DETAILS AND TECHNIQUE FOR BORED PILE

Making bored pile mainly requires a boring machine, which can be easily mobilized and erected. Main components of a boring machine are tripod, air winch, pulling cable, pulley, boring tackle and air compressor. Operating procedures for such equipment are as followings:

Step 1 **Locating center of hole**

Set up tripod to the center of the pile to be bored and secure the tripod with pegs once the center is verified. Pre-bore can be initiated with boring tackle for the first meter in depth.

Step 2 **Bore casing**

Oscillate bore casings of diameter equal to the pile size into the unstable stratum layer of the soil until reaching the stable stratum layer, i.e. rock head. Casings are used to prevent collapse of wall of bored hole. They come in 1.2 m in length and are connected to one and others by ways of screw threads.

Plumb line and center of pile is checked to avoid any skews of the pile after each bore casing is embedded into ground.

Step 3 **Boring**

When the casings have been oscillated into the soil with a certain depth (general about 2m), soil inside the casings is removed by a grab. This process continues until the desired depth pile is achieved.

Removed soil will be immediately carried away from the piling area to eliminate surcharge.

Step 4 **Re-bars**

Lower pre-assembled re-bars frame into the bored hole to the proper depth and secure it firmly to the center of the hole for concrete pouring.

Step 5 **Concrete pouring**

Ready-mix concrete of designed compressive strength is poured into the bored hole with re-bars for forming a pile.

Step 6 **Removal of boring casings**

Concrete must be poured to sufficient height of each boring casing before each casing can be removed. Typically, 0.5 m of covering to the boring casing is needed. This is to prevent shrinkage of bored hole size and intrusion of underground water.

Quality inspection

During boring process, regular inspection of the wall of the bored hole is carried out to check any collapse of wall of bored hole and provide mitigation measures if necessary. Boring casings are used until reaching the stable ground level, i.e. rock head. When proper depth is obtained and before insertion of re-bars frame, the hole is visually inspected for roundness. Boring casings should only be removed after adequate amount of concrete has been poured

into the hole and each time there should be at least 1 m of concrete of covering to the boring casing before each casing can be lifted and removed.