CLAIMS

1. A piling construction management method using,

after forming a piling hole with a set depth in the ground , before erecting a piling in the piling hole ,

a penetration testing device including a knocking block integrated with a penetration shaft projecting downward, a drive hammer that strikes the knocking block in free-fall, and a lifting mechanism that lifts the drive hammer after falling and releases the same at a prescribed height, wherein

each of the penetration testing devices is configured such that a cylindrical hammer casing incorporating the lifting mechanism and the drive hammer is held movably up and down inside a vertical cylindrical outer casing, the knocking block is fixed to a lower end of the hammer casing, and the penetration shaft penetrates through a lower end side of the outer casing and projects downward to the outside,

the penetration shaft of the penetration testing device disposed inside the piling hole is made to reach a hole bottom, and from the number of impacts by the drive hammer required for the penetration shaft to penetrate to a prescribed depth from the hole bottom, a support strength of the hole bottom is determined, and when the support strength is equal to or more than a prescribed value, a piling is erected in the piling hole, and on the other hand,

when the support strength is less than the prescribed value, the piling hole is dug again to be deeper, a support strength of a hole bottom after being dug again is determined in the same manner with the penetration testing device, and when the support strength reaches the prescribed value or more, a piling with a length corresponding to a depth of a piling hole after being dug again is erected in the piling hole.

2. The piling construction management method according to Claim 1, wherein each of the penetration testing devices incorporates an encoder that measures a sinkage amount of the hammer casing.

3. The piling construction management method according to Claim 1, wherein the penetration testing device is of a suspended type, and the penetration testing device is suspended by a wire W of a crane and let into and out of the piling hole.

4. The piling construction management method according to Claim 1, wherein the penetration testing device is of a digging rod connecting type, and the penetration testing device is connected in place of a digging tip member, after digging the piling hole, and let into and out of the piling hole.

5. The piling construction management method according to Claim 1, wherein the penetration testing device is of a type incorporating the hollow rod of a digging tip member, and a penetration test is conducted by activating the penetration testing device in a state where the digging tip member is inserted in the piling hole after being dug.

6. The piling construction management method according to Claim 1, wherein a piling to be erected is a precast piling, and when erecting the piling in the piling hole after being dug again, a short piling member corresponding to an increase in depth caused by re-digging is added and connected to a piling main body with a length corresponding to the piling hole that was formed first, and a piling thus connected is erected in the piling hole after being dug again.

7. The piling construction management method according to Claim 6, wherein the piling main body is a concrete piling, and to a lower end thereof, a

steel pipe piling as the short piling member is added and connected.

8. The piling construction management method according to Claim 1, wherein a piling to be erected is a cast-in-place piling using a reinforced frame, and when erecting the piling in the piling hole after being dug again, a frame extension portion with a length corresponding to an increase in depth caused by re-digging is added and assembled to a reinforced frame main body with a length corresponding to the piling hole that was formed first, and a reinforced frame thus extended is inserted in the piling hole after being dug again and fresh concrete is placed therein to form a cast-in-place piling.