

## A Proposal for the Proper Application of Dynamic Pile Loading Tests

<sup>1)</sup>, Hun-Sung Hong,                   <sup>2)</sup>, Soung-Hoi Kim,                   <sup>3)</sup>, Young-Suk Jun

- 1) ( ) , Principal, Piletech Consulting Engineers
- 2) ( ) , Senior Researcher, Piletech Consulting Engineers
- 3) ( ) , Researcher, Piletech Consulting Engineers

SYNOPSIS : Locally PDA has been utilized mainly as an alternative way of performing pile loading tests. More than 30 units of PDA's are believed to be operating in Korea. It is true that PDA can provide useful information regarding bearing capacity, integrity, hammer performance, time effect, etc. However it is also true that inappropriate execution of PDA could result in harmful effects for the safety of the superstructure or causing delay in the construction process. In this paper several cases of inappropriate application of PDA are introduced. Most of the problems seemed to be caused by unqualified personnel who carry out testing and analysis. From the evaluation of the cases a proposal has been made for the proper application of PDA.

Key words : PDA, pile bearing capacity, integrity, CAPWAP analysis

### 1.

(PDA, Pile Driving Analyzer)  
1994  
30 가  
PDA가 (driveabi-  
lity),  
(heaving),  
가 PDA  
가  
PDA PDA  
가 가 가  
PDA

### 2. PDA

PDA ( , , , )  
(calibration)

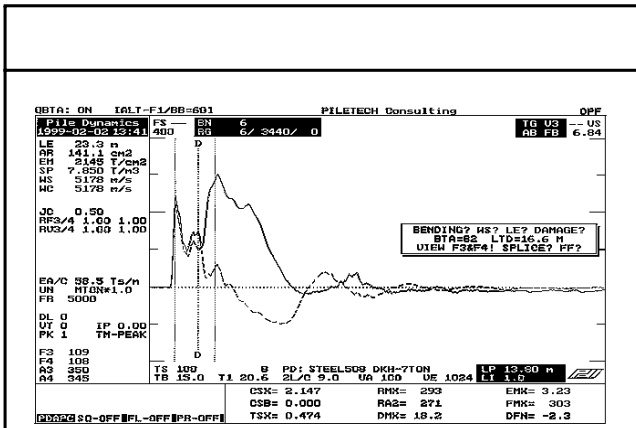
PDA

2.1 (1)

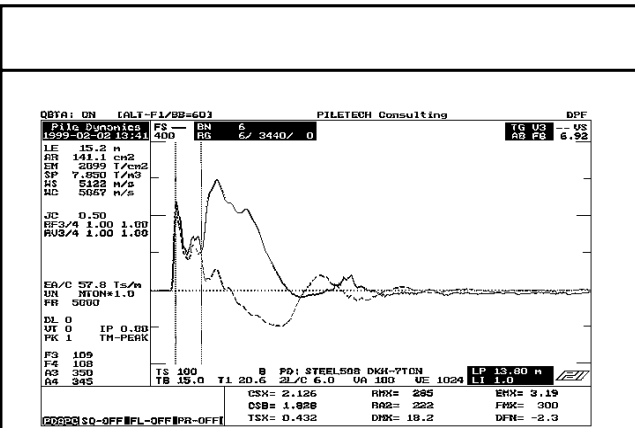
(1) 15m  
508mm x 9mm

DKH7

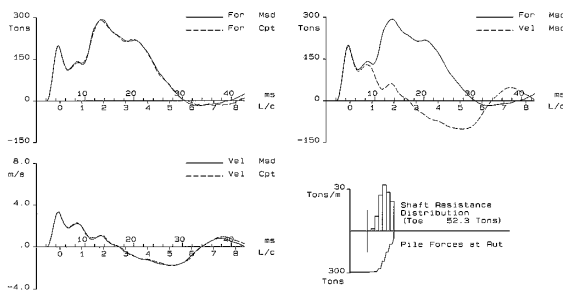
(EOID)



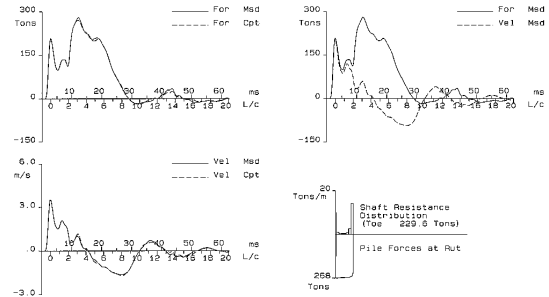
(a) PDA



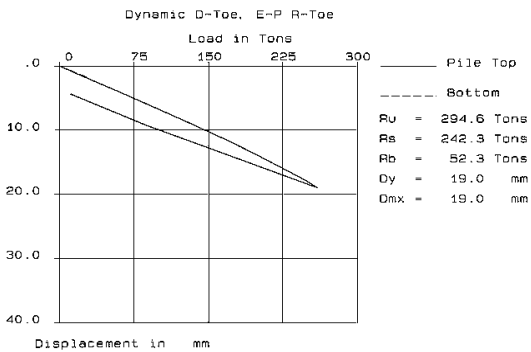
(b) PDA



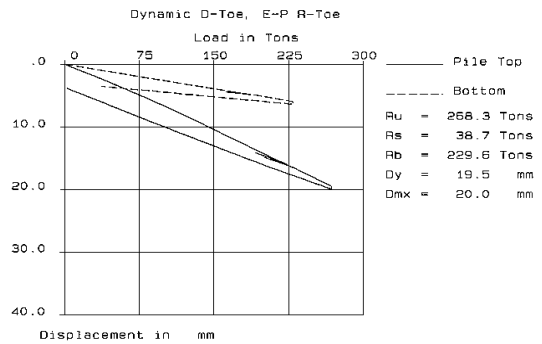
(c) match plot



(d) match plot



(e)



(f)

1 PDA

LTD=16.6m match PDA BTA=82 CAPWAP 1(a) PDA 1(c) 6m (MQno=2.16)

1(e) CAPWAP 242.3ton 294.6ton 82.2% (

23.3m가 15.2m 0.00 (CSB) 1(a) 1.828t/cm<sup>2</sup> wave speed 1(b) 가 가

268.3ton 85.6%가 CAPWAP 1(d) filtering 229.6ton (EOID) CAPWAP 30%

2.2 (2)

(2) 2 406mm x 12mm NH70 34.8m PDA 19 가 PDA (3) 가 (set up) 3 (relaxation) 가 CAPWAP (residual stress) CAPWAP 가 가

2.3 (3)

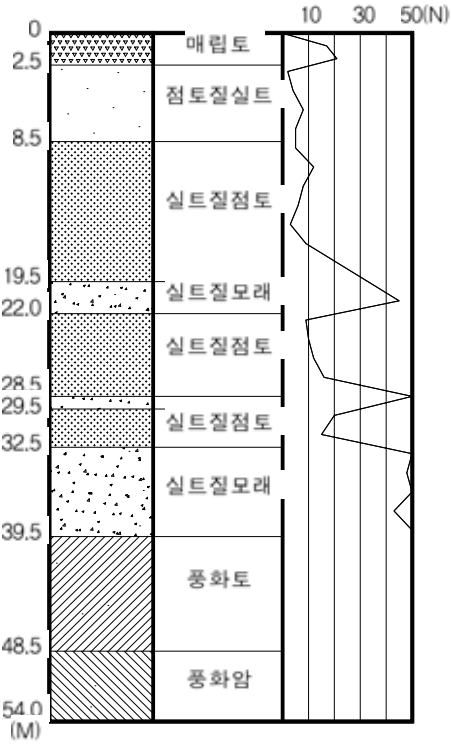
(3) 457mm x 8mm 1 2 550mm PDA가 30m 40m 가

55.6ton

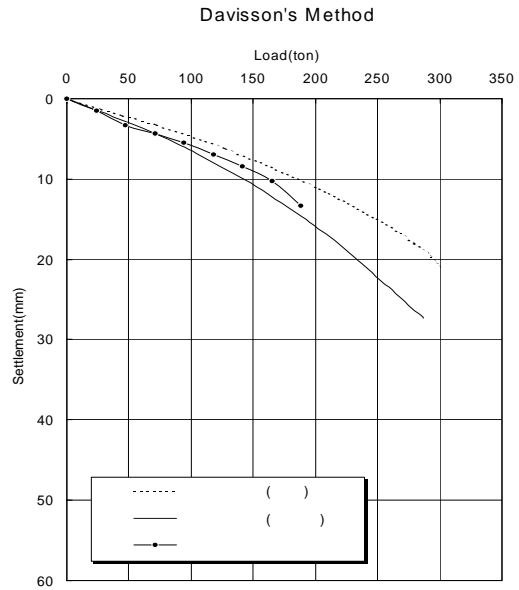
35mm

16

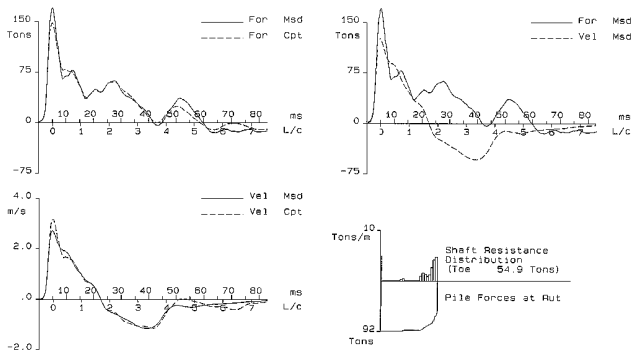
PDA



2 ( 2 )



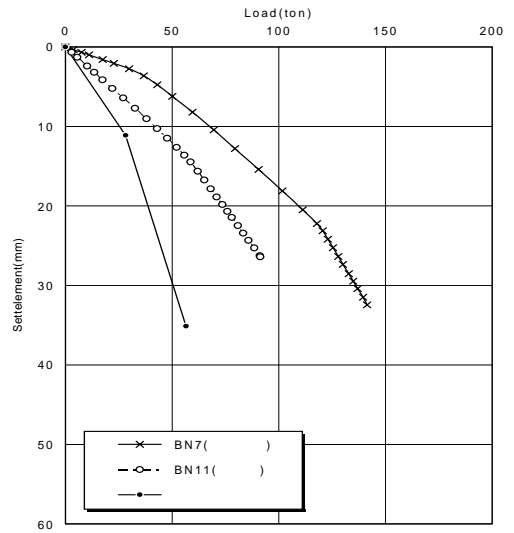
3 ( 2 )



4 CAPWAP

CAPWAP

4



5

( 3 )

70ton

가

CAPWAP  
LTD=27.7m  
match  
BTA=76

PDA  
MQno가 1.99

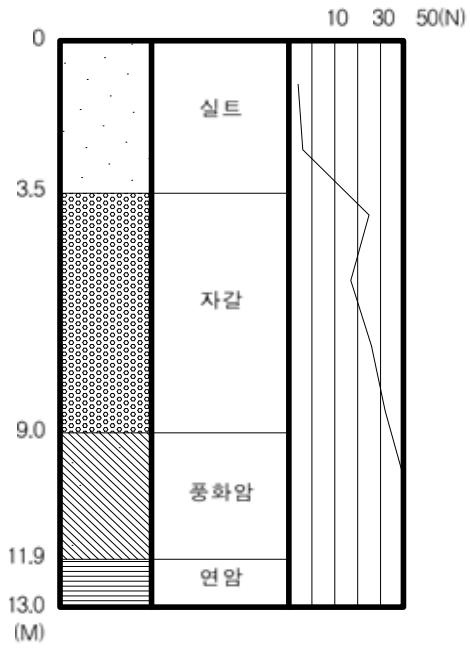
4  
PDA

force 가  
 impedance가  
 100mm  
 CAPWAP  
 가  
 force 30%  
 velocity 가  
 proportionality가  
 가  
 4  
 110.4ton 가  
 가  
 proportionality  
 PDA 가  
 CAPWAP  
 44.1ton  
 CAPWAP  
 5  
 CAPWAP  
 가  
 11 가  
 PDA  
 PDA  
 proportionality  
 , CAPWAP

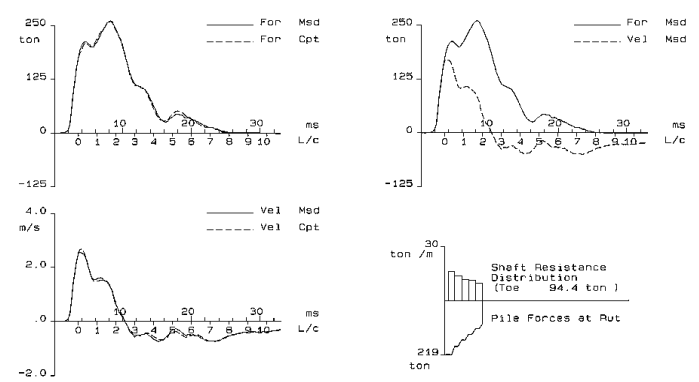
2.4 (4)

SIP, SAIP, PRD  
 PDA  
 (1)  
 (2) 가  
 (3)  
 (4) 가  
 (5) radiation damping  
 (1) 가 가 가 가  
 PDA soil-cement 가 가  
 CAPWAP  
 CAPWAP  
 impedance damping ( )  
 (4) 6  
 400mm PHC SIP N 50  
 10.5m 7 7 3.4ton  
 CAPWAP  
 가 가  
 6  
 PDA 14 가  
 14 가

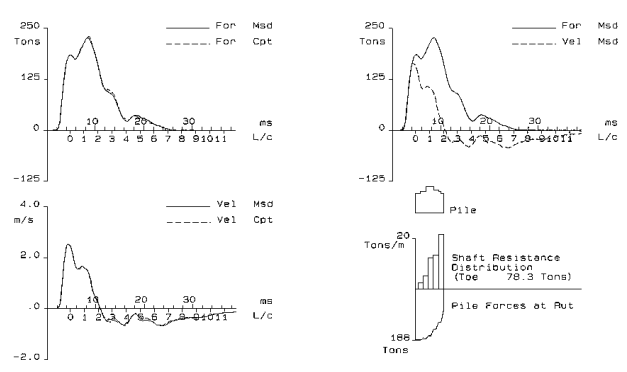
(relaxation)  
 PDA force velocity proportionality  
 CAPWAP Smith 가  
 가 radiation damping , soil-cement 8  
 impedance 가 ( 9)  
 PDA 가



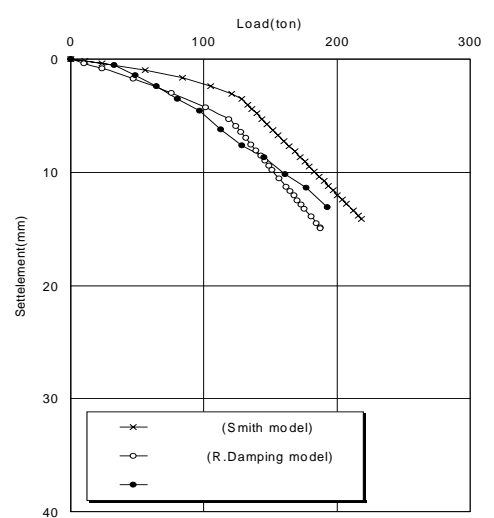
6 ( 4)



7 CAPWAP ( )



8 CAPWAP ( )



9 ( 4)

2.5 (5)

(5)

10

SAIP

400mm PHC 700mm

10

15

PDA

가

PDA

11

80ton

가

CAPWAP

가

1

11

PDA

가

1

	(ton)	(ton)	(ton)
	95.9	12.0	107.9
	90.9	84.9	175.8

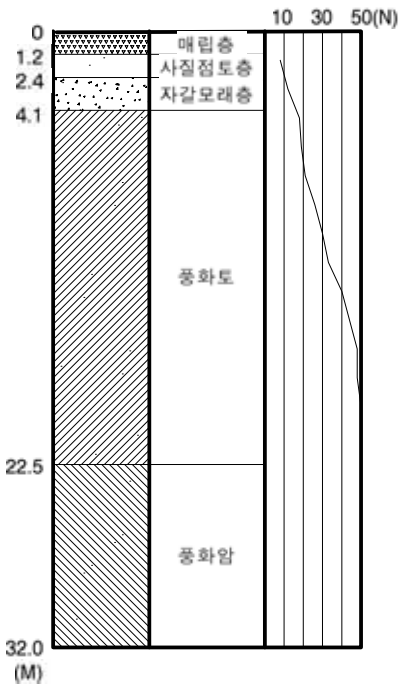


그림 10

( 5)

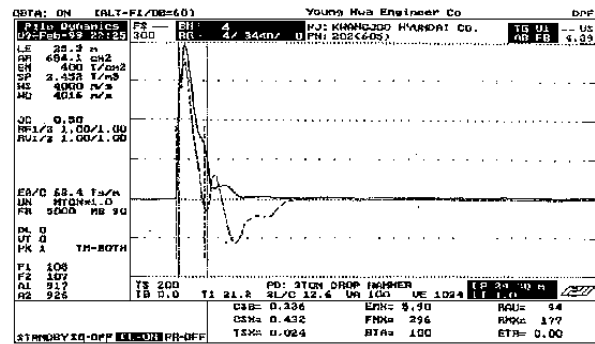
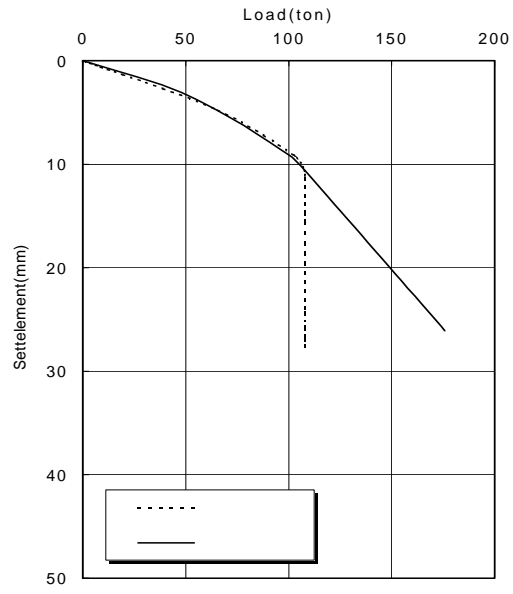


그림 11 PDA

( 5)





12

( 5)

3.

가

가

가 가

(1)

(2)

가

가

가

가