

MISC. CONSTRUCTION NOTES

DATE: \_\_\_\_\_ LINE: \_\_\_\_\_ PARTY: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ ITEM: 55101  
 \_\_\_\_\_ Steel H-Piles  
 \_\_\_\_\_ In Place  
 \_\_\_\_\_ CAPACITY COMPUTATIONS  
 \_\_\_\_\_  
 \_\_\_\_\_ FP96 TABLE 551-1 PILE HAMMER MINIMUM ENERGY  
 \_\_\_\_\_ CALCULATE ULTIMATE PILE CAPACITY (RU):  
 \_\_\_\_\_ RU = 440 KN REQUIRED BEARING x  
 \_\_\_\_\_ FACTOR OF SAFETY (3) = 1320 KN  
 \_\_\_\_\_ FROM TABLE 551-1: 1320 KN => 21 kJ REQUIRED  
 \_\_\_\_\_ HAMMER ENERGY (kJ) = kN·m)  
 \_\_\_\_\_ CHECK PROPOSED HAMMER ENERGY:  
 \_\_\_\_\_ DELMAG D8-22 MAX. ENERGY RATING = 23.87 kN·m  
 \_\_\_\_\_  
 \_\_\_\_\_ DYNAMIC FORMULA:  
 \_\_\_\_\_  $RU = 7\sqrt{E} \cdot \log(10N) - 550$   
 \_\_\_\_\_ ULTIMATE PILE CAPACITY (KN) = 1320 KN  
 \_\_\_\_\_ E= MANUFACTURER'S RATED HAMMER ENERGY  
 \_\_\_\_\_ IN JOULES AT THE FIELD OBSERVED RAM  
 \_\_\_\_\_ STROKE = 23870 JOULES (AT MAX. ENERGY)  
 \_\_\_\_\_ N= NUMBERS OF HAMMER BLOWS PER 25mm AT  
 \_\_\_\_\_ FINAL PENETRATION  
 \_\_\_\_\_  
 \_\_\_\_\_ SOLVING FOR N: \_\_\_\_\_ WHERE  $N = 10^x$   
 \_\_\_\_\_  
 \_\_\_\_\_ Therefore  $X = \left( \frac{RU + 550}{7\sqrt{E}} \right) - 1$

SUBSTITUTE VALUES AND SOLVE FOR X:	
$X = \left( \frac{1320 + 550}{7\sqrt{23870}} \right) - 1$	
X = 0.73	
SOLVING FOR N:	
N = 10 <sup>x</sup>	
N = 10 <sup>0.73</sup>	
N = 5.4 BLOWS PER 25 mm AT MAX. ENERGY *	

NOTES: \* 1) Hammers seldom operate at the maximum manufacturer's rated energy. Hammer energy values should be based on field observed ram stroke. Hammer manufacturers can provide tables of ram stroke versus hammer energy. Use dynamic formula (FP96 Subsection 551.06(b) to determine ultimate capacity (blow per mm) unless the wave equation is required according to FP96 Subsection 551.03(b) if wave equation is used. WFLHD Geotech Branch will furnish the amount of blows required to obtain pile capacity.

COMPUTED BY: ABC CHECKED BY: JKD  
 DATE: 1/12/98 DATE: 1/12/98