STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
Form HC-10A4 (Rev. 7/85)

Contract No. 04-0120F4
04-SF-80-13.4, 13.8
ACBRIM-080-(094)N

Report No. 715
Date 5/1/2008
M T W (Th) F S S Circle Day
Shift Hr Start 0630 Stop 1530

ASSISTANT RESIDENT ENGINEER'S DAILY E2 Crossbeam REPORT

Location & Description of Operation: Placement of the E2 pipe columns

HOURS - ITEM NO.

WEATHER: 50 deg 15-25 knot winds

EQUIPMENT AND/OR LABOR:

EQPT. NO.	No. Men	DESCRIPTION (of Equipment or Labor)	Regular Hours	OT					IDLE OR DOWN	REMARKS for Idleness or remarks) (Reason other
ABF		Pile Driver- Foreman	8							Ben Neal
ABF		Pile Driver-Journeyman	8							Allen Briney
ABF		Pile Driver-Journeyman	8							Jason Matlock
ABF		Pile Driver-Journeyman	8							Luke Paulk
ABF		Pile Driver-Journeyman	8							Edward Mendoza
ABF		Operator-Oiler	8							Kevin Alger
ABF		Operator-Journeyman	8							Kevin Fitzgerald
		Pile Driver-Apprentice1	8							Nathan Vaneck
ABF		Crane - "Ringer"	8							Barge #1 - Manitowac
ABF		Surveyor-Journeyman	8							Terry Dennis
ABF		Surveyor-Apprentice	8							Chris Roberts
481-93-4002		Man Lift	8							Genie
P185R		Compressor							8	Ingersoll-Rand
Vantage500		Welding Machine	5						3	Lincoln Electric
Vantage500		Welding Machine							8	Lincoln Electric
MQ		Generator	8							Denyo
MQ		Generator							8	Denyo
ABF		Equipment Barge	8							Flex Anchor
ABF		Skiff	1						7	115 Horse

Attended SAS safety meeting and SAS staff meeting from 8am until 10am

The crew placed pipe column #2. Once the pipe was in the sandjack, Terry Dennis verified that the frame was in the exact correct location.

After lunch I reviewed the pile driving for the T1 driving frame. I used the equation as shown in section 49-1.08 of the special provisions to determine the proper number of blows per 300mm to get the necessary bearing. The piles in question are the temporary 36" and 30" piles for the falsework for the driving frame. Attached are the calculations.

Signature: Aaron J. Pecoraro
Title: RESIDENT ENGINEER

RECEIVED 08 MAY -30 PM 4:00 4831

PILE DRIVING (METRIC)

Bridge/Structure No.: SFOBB-SAS

Project No. 04-0120F4

Bridge/Structure Name: Driving Frame Falsework

Abut/Bent/RW/SW No.: 36" diameter piles

Blue font = input/changeable data

Hammer Data

Hammer Type:		Delmag D62-22
Hammer Weight (kg)	=	13290.00 kg
Nominal Resistance† (kN)	=	1424.00 kN

GATES Formula

$$R_u = (7 * (E_r)^{1/2} * \log_{10}(0.83 * N)) - 550$$

—OR—

$$N = \frac{10^{\left(R_u + 550 / 7\sqrt{E_r}\right)}}{0.83}$$

where: R_u = nominal resistance of pile (kN)

E_r = energy developed by hammer at observed stroke (J)

N = number of hammer blows in the last 300mm (max. ≤ 100)

E_r = W·H·(9.8067 m/s^2)

where: W = hammer weight (kg)

H = stroke or drop height of hammer (m)

(H) Stroke (m)	(E_r) Energy (J=joules)	(N) Blows (per 300mm)	
	-	-	
	-	-	
1.685	219,623	5	
1.619	210,990	5	
1.553	202,357	5	
1.486	193,724	5	
1.420	185,091	5	
1.354	176,458	6	
1.288	167,825	6	
1.221	159,192	6	
1.155	150,558	6	
1.089	141,925	7	
1.023	133,292	7	
0.956	124,659	8	
0.890	116,026	8	
0.824	107,393	9	
	-	-	
	-	-	
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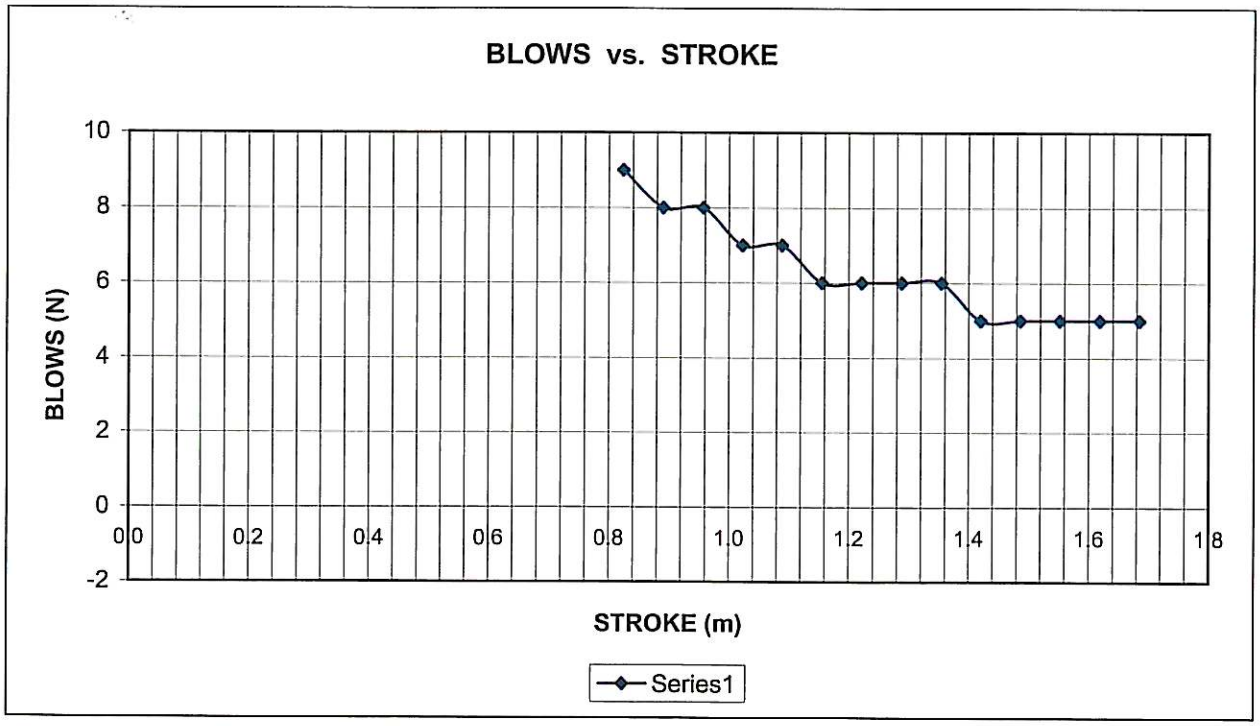

†S.P. Section 1, "Amendments to July 1999 S.S.", 49-1.08: When the pile nominal resistance is omitted from the plans or the special provisions, timber piles shall be driven to a nominal resistance of 800 kN, and steel and concrete piles shall be driven to a nominal resitance of 1250 kN. (Updated December 11, 2006)

Date printed: 5/1/2008

PILE DRIVING (METRIC)

Bridge/Structure No.: SFOBB-SAS

Bridge/Structure Name: Driving Frame Falsework

Abut/Bent/RW/SW No.: 30" diameter piles

Project No. 04-0120F4

Blue font = input/changeable data

Hammer Data

Hammer Type:		Delmag D62-22
Hammer Weight (kg)	=	13290.00 kg
Nominal Resistance† (kN)	=	889.60 kN

GATES Formula

$$R_u = (7 * (E_r)^{1/2} * \log_{10}(0.83 * N)) - 550$$

—OR—

$$N = \frac{10^{\left(R_u + 550 / 7\sqrt{E_r}\right)}}{0.83}$$

where: R_u = nominal resistance of pile (kN)

E_r = energy developed by hammer at observed stroke (J)

N = number of hammer blows in the last 300mm (max. ≤ 100)

E_r = W·H·(9.8067 m/s^2)

where: W = hammer weight (kg)

H = stroke or drop height of hammer (m)

(H) Stroke (m)	(E_r) Energy (J=joules)	(N) Blows (per 300mm)	
	-	-	
	-	-	
1.685	219,623	3	
1.619	210,990	3	
1.553	202,357	3	
1.486	193,724	4	
1.420	185,091	4	
1.354	176,458	4	
1.288	167,825	4	
1.221	159,192	4	
1.155	150,558	4	
1.089	141,925	4	
1.023	133,292	4	
0.956	124,659	5	
0.890	116,026	5	
0.824	107,393	5	
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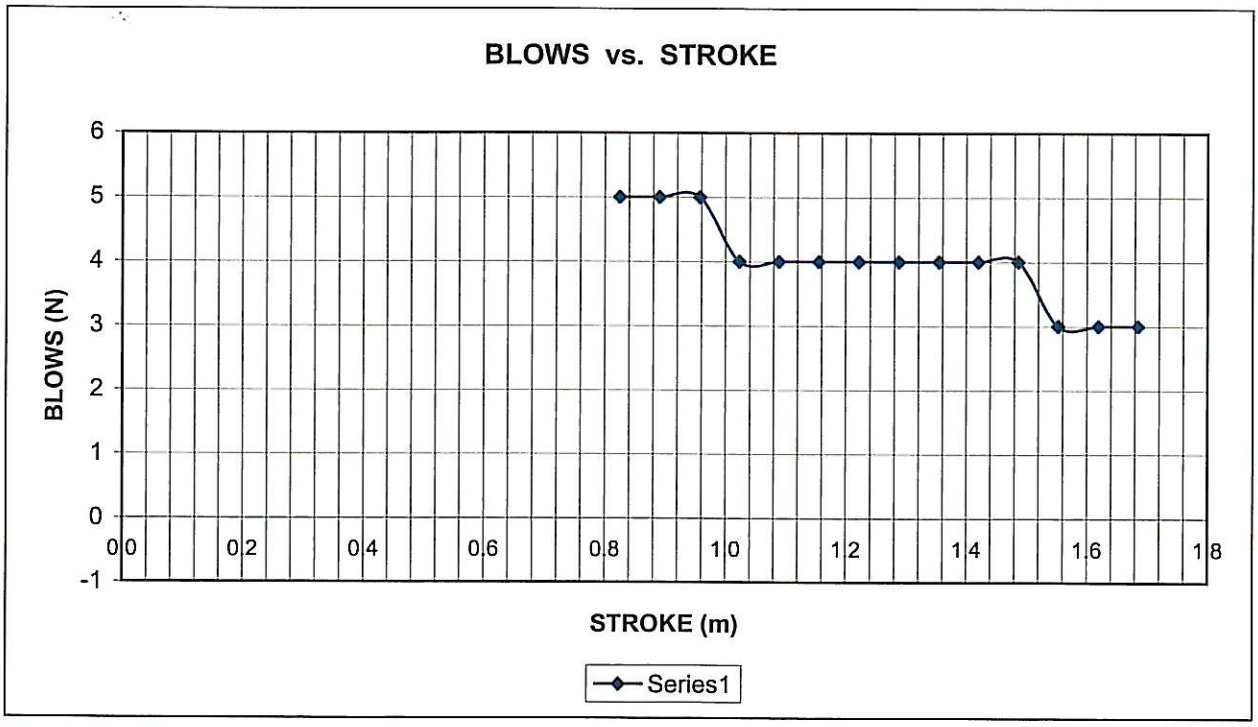

†*S.P. Section 1, "Amendments to July 1999 S.S.", 49-1.08: When the pile nominal resistance is omitted from the plans or the special provisions, timber piles shall be driven to a nominal resistance of 800 kN, and steel and concrete piles shall be driven to a nominal resitance of 1250 kN. (Updated December 11, 2006)*

Date printed: 5/1/2008

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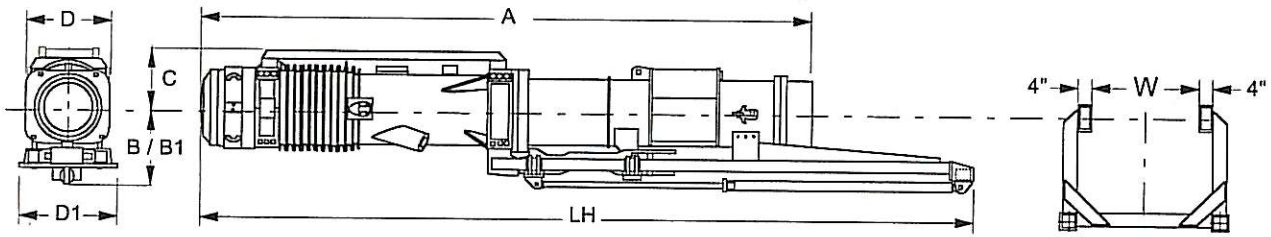
PILECO DIESEL HA. .MERS

Specifications – SI units



Traylor-Dutra will use the Delmag D62-22 for falsework pile at Tower D

All data subject to change without notification

Model		D8-22	D12-42	D19-42	D25-32	D30-32	D36-32	D46-32	D62-22	D80-23	D100-13	D125-3	D160-32
App. piston weight	kg	800	1280	1820	2500	3000	3600	4600	6200	8000	10 000	12 500	16 000
Blows per min. 1)													
Minimum	min^{-1}	37	37	37	37	37	37	37	35	36	36	36	36
Maximum	min^{-1}	52	52	52	52	52	52	52	50	45	45	45	46
Energy per blow 2), adjustable													
Maximum	kNm	25,4	40,4	63,0	79,0	94,9	113,8	145,5	219,1	267,3	334,0	417,6	534,5
Minimum	kNm.	12.8	20,5	29.1	40,0	48,0	57,6	73,6	107,4	171,1	213,8	267,3	327,4
Consumption 3)													
Diesel fuel	l./hr.	3,8	4,5	7,6	8,0	10,0	11,5	16,0	20,0	25,0	30,0	36,0	45,0
Lubrication oil	l./hr.	0,5	0,5	0,6	1,0	1,0	1,5	1,5	2,0	2,6	2,6	3,6	5,0
Capacity													
Diesel fuel	l	20	24	75	67	67	89	89	98	155	155	189	238
Lubrication oil	l	6	6,5	19	19	19	17	17	31	32	32	60	80
Weight 3)													
Hammer	kg	1 815	2 600	3 795	5 610	6 110	7 880	8 880	12 282	16 907	20 364	24 320	31 200
Hammer with standard guiding	kg	2 426	3 220	4 400	6 710	7 210	9 026	10 025	13 290	18 690	22 135	-	-
Dimensions													
A – Length	mm	4 695	5 580	5610	5 425	5 425	5 580	5 580	6890	7 195	7345	7 772	7 864
LH – Length , standard	mm	5 790	5 850	5 850	6 490	6490	6 490	6 490	7 560	8 565	8 565	8 475	8 792
– Length with hydr. start	mm	-	-	-	6 860	6 860	6 860	6 860	7864	8 565	8 565	8 475	8 792
B – Center to trip	mm	330	356	356	445	445	482	482	508	660	660	775	856
B1 – Center to trip cylinder	mm	-	-	559	610	610	660	660	686	638	638	788	856
C – Center to pump guard	mm	381	381	406	482	482	521	521	648	584	584	572	622
D – Width of hammer	mm	420	482	495	635	635	724	724	825	890	890	1042	1156
D1 – Width of trip	mm	622	622	622	812	812	940	940	902	1206	1206	1206	1300
W – Min. lead width	mm	534	534	534	660	660	812	812	812	1067*	1067*	1220*	1220*

* please contact the factory

1) Depends on fuel pump setting, kind of soil and kind of pile
2) Potential energy calculated by multiplying piston weight and stroke. The approx. stroke of the ram is a result of the blow rate and does not consider any loss by compression or friction
3) Consumption and weights are approximate, weight of guiding depends on type and size