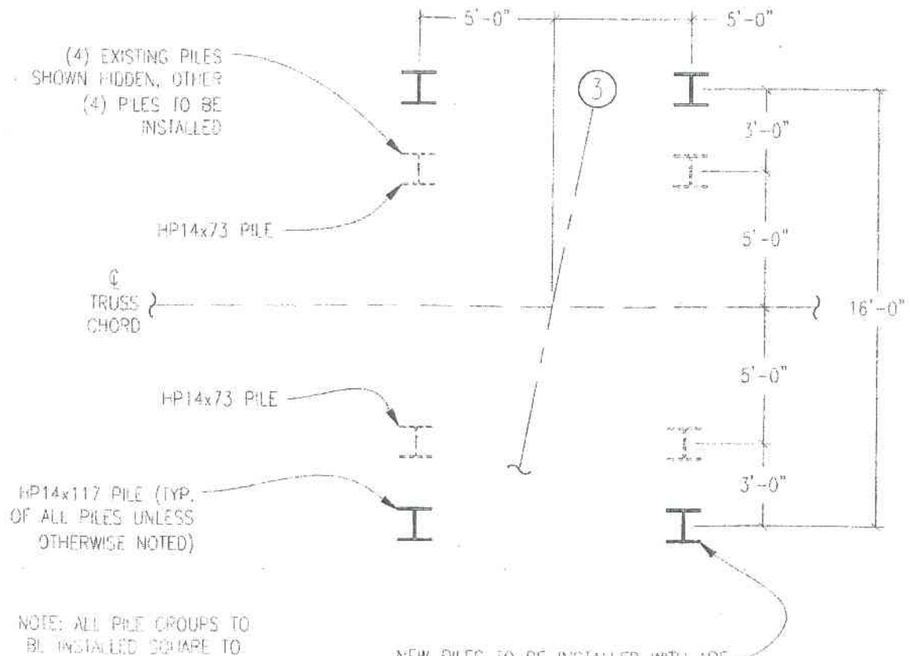
VIADUCT TRUSS SPAN 48
FALSEWORK TOWER DESIGN PLAN
SFO BAY BRIDGE TEMPORARY BYPASS
SAN FRANCISCO, CA
DANNY'S CONSTRUCTION CO., INC.



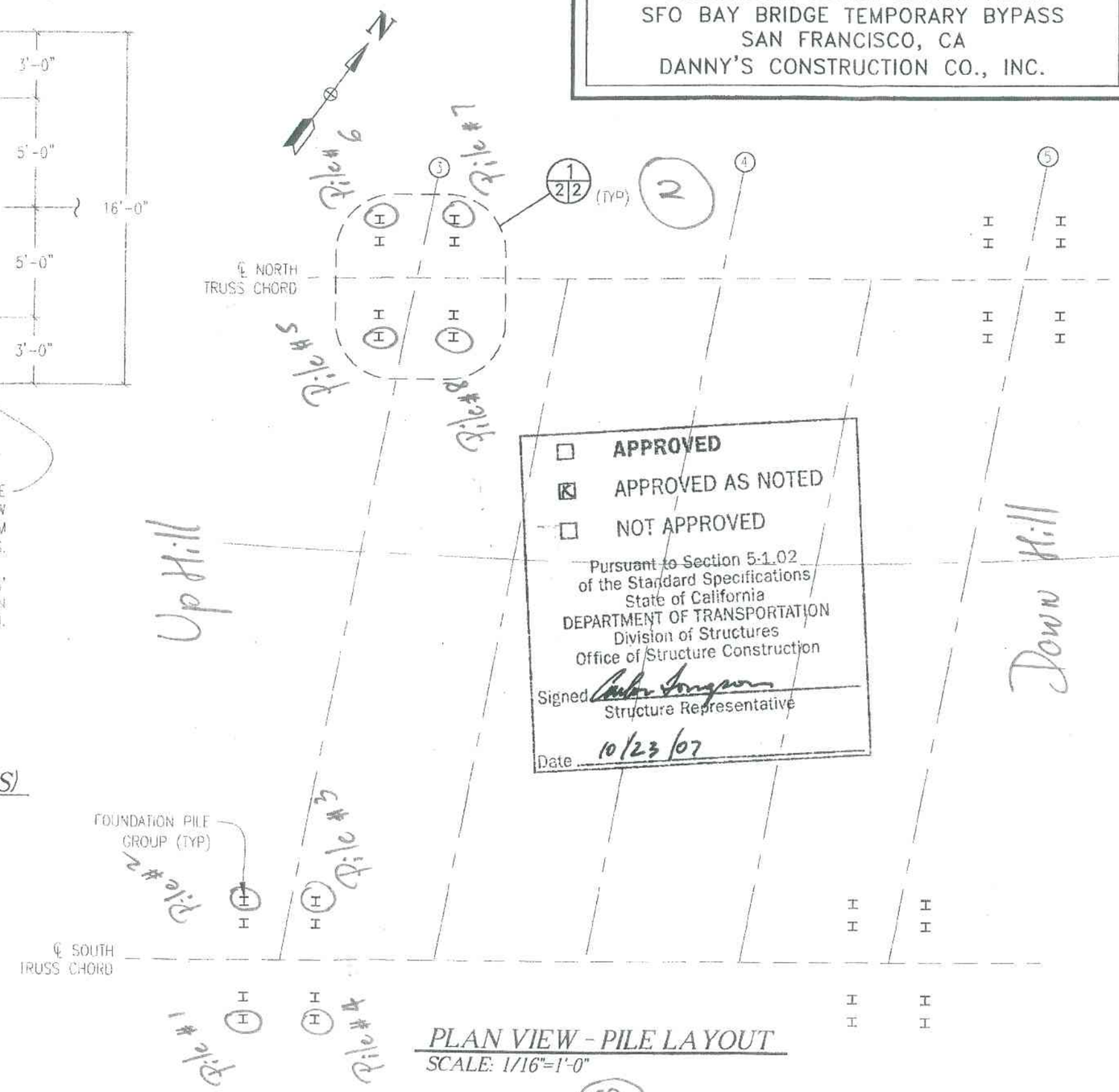
NOTE: ALL PILE GROUPS TO BE INSTALLED SQUARE TO ℄ OF TRUSS CHORD AND CENTERED ON FLOOR BEAM LINE SHOWN.

NOTE: IF EXPOSED HEIGHT OF PILES ABOVE SOIL EXCEEDS 7'-6", CONTACT ENGINEER FOR SUPPLEMENTAL BRACING DESIGN.

NEW PILES TO BE INSTALLED WITH APE MODEL D30-32 HAMMER UNTIL BLOW COUNT CHART CONFIRMS A MINIMUM BEARING CAPACITY OF 50 TONS.

ALL PILES SHALL OBTAIN A MINIMUM 15' EMBEDMENT REGARDLESS IF 50 TON CAPACITY HAS ALREADY BEEN ACHEIVED.

1/2/2 DETAIL (TYP. OF ALL 4 PILE GROUPS)
SCALE: 3/16"=1'-0"



PLAN VIEW - PILE LAYOUT
SCALE: 1/16"=1'-0"

☐ APPROVED
☒ APPROVED AS NOTED
☐ NOT APPROVED

Pursuant to Section 5-1.02 of the Standard Specifications State of California
DEPARTMENT OF TRANSPORTATION
Division of Structures
Office of Structure Construction
Signed [signature]
Structure Representative
Date 10/23/07

REVISIONS	
NO.	DATE
1	08-31-07

VIADUCT TRUSS SPAN 49
FALSEWORK TOWER DESIGN PLAN
SFO BAY BRIDGE TEMPORARY BYPASS
SAN FRANCISCO, CA
DANNY'S CONSTRUCTION CO., INC.

DCCI
DANNY'S CONSTRUCTION CO., INC.
1066 EST AVENUE, P.O. BOX 11
SHAKOPEE, MINNESOTA 55379
PHONE: 952-445-4143
FAX: 952-445-4143

REGISTERED PROFESSIONAL ENGINEER JASPER B. CALCARA No. 62941 Exp. 6/08 CIVIL STATE OF CALIFORNIA
9/27/07

DHC
D.H. CHARLES ENGINEERING, INC.
4527 Montgomery Drive, Suite M
Santa Rosa, CA 95409
Ph: (707) 537-8282 Fax: (707) 537-8338

DATE: 05-22-07
DRAFTER: FDB
CHECKED BY: JBC
SHEET 2 OF 23
DRAWING NO.: 07A-434
REV 2

DEPARTMENT OF TRANSPORTATION
LOG PILE SHEET
DH-OS C79 (REV. 08/07)

JOB STAMP

Contract No. 04-0120R4
04-SF-80-12.6/13.2
San Francisco - Oakland Bay Bridge
Yerba Buena Island Transition Structures
South - South Detour

Bridge No. 34 - 0006L/R Abut or Bent No. _____ Ftg _____ Pile No. See Atta.. Sheet No. 1/3
Hammer Make American Piledriving Equipment Model D36-32 E = _____ Ft - Lbs
Reference Point - Description See Attach Drwg. Elev _____
Date: 11/1/07 Inspected by: Thuc & Prak

(1)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21 DRIVEN		8
22	Stroke (ft) 3.5ft < H < 7ft	8
23		8
24		8
25		8
26		8
27		10
28		
29		
30		
31		
32		
33		
34		
35		

(2)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19 DRIVEN		6
20	Stroke (ft) 4ft < S < 7ft	6
21		6
22		7
23		7
24		7
25		8
26		8
27		8
28		10
29		10
30		
31		
32		
33		
34		
35		

(3)

PENET	TIP ELEV	BLOWS / FT
1 VIB		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16 DRIVEN		6
17	Stroke H (3.5 < H < 7)	8
18		8
19		8
20		8
21		7
22		6
23		6
24		6
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		

DEPARTMENT OF TRANSPORTATION
LOG PILE SHEET
DH-OS C79 (REV. 08/07)

JOB STAMP

Contract No. 04-0120R4
04-SF-80-12.6/13.2
San Francisco - Oakland Bay Bridge
Yerba Buena Island Transition Structures
South - South Detour

Bridge No. 34 - 0006L/R Abut or Bent No. _____ Ftg _____ Pile No. See Att. Sheet No. 2/3
Hammer Make American Piledriving Equipment Model D36-32 E = _____ Ft - Lbs
Reference Point - Description _____ Elev _____
Date: 11/1/07 Inspected by: Thuc & Prale

(4)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15 DRIVEN		6
16		7
17	7H	6
18		6
19		6
20		6
21	Stroke H <	6
22		6
23		7
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		

(5)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19 DRIVEN	7H	9
20		9
21	7H	9
22		9
23	Stroke H	9
24		12
25		12
26		9
27		
28		
29		
30		
31		
32		
33		
34		
35		

(6)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9	Stroke H < 8H.	
10		
11		
12		
13		
14		
15		
16		
17		
18 DRIVEN	⊗	9
19		9
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		

DEPARTMENT OF TRANSPORTATION
LOG PILE SHEET
DH-OS C79 (REV. 08/07)

JOB STAMP

Contract No. 04-0120R4
04-SF-80-12.6/13.2
San Francisco - Oakland Bay Bridge
Yerba Buena Island Transition Structures
South - South Detour

Bridge No. 34 - 0006L/R Abut or Bent No. _____ Ftg Pile No. See Att. Sheet No. 3/3
Hammer Make American Piledriving Equipment Model D36-32 E = _____ Ft - Lbs
Reference Point - Description _____ Elev _____
Date: 11/1/07 Inspected by: Thuc & Prak

(7)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16 DRIVEN		9
17		9
18		9
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		

Stroke H = 6.5 ft

(8)

PENET	TIP ELEV	BLOWS / FT
0 VIB		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16 DRIVEN		6
17		6
18		7
19		6
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		

Stroke H = 8 ft

PENET	TIP ELEV	BLOWS / FT

DEPARTMENT OF TRANSPORTATION
LOG PILE SHEET
DH-OS C79 (REV. 08/07)

JOB STAMP

Contract No. 04-0120R4
04-SF-80-12.6/13.2
San Francisco - Oakland Bay Bridge
Yerba Buena Island Transition Structures
South - South Detour

Bridge No. 34 - 0006L/R Abut or Bent No. _____ Ftg _____ Pile No. _____ Sheet No. _____
Hammer Make American Piledriving Equipment Model D36-32 E = _____ Ft - Lbs
Reference Point - Description _____
Date: _____ Inspected by: _____ Elev _____

#1

PENET	TIP ELEV	BLOWS / FT
1		
↓	^	
15		
16		
17		
18	5 stroke	
19		
20		
21		20
22	V	15

#2

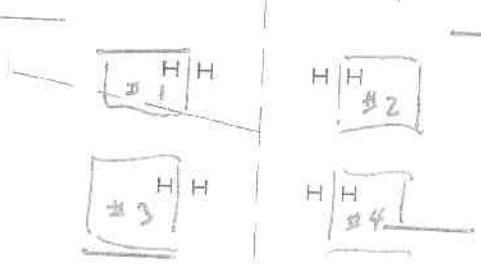
PENET	TIP ELEV	BLOWS / FT
0		
1		
2		
3	^	
4		
5		
6	5 stroke	
7		
8		
9		
10		
11		
12	V	
13		10
14		12

#3

PENET	TIP ELEV	BLOWS / FT
0		
↓	^	
15		
16	5 stroke	
17		
18		
19		20
20		13
	V	

#4

PENET	TIP ELEV	BLOWS / FT
0	^	
↓		
15		
16	5 stroke	
17		
18		
19		20
20		16
21	V	8



Lower left (North East)

DEPARTMENT OF TRANSPORTATION

LOG PILE SHEET

DH-OS C79 (REV. 08/07)

JOB STAMP

Contract No. 04-0120R4
04-SF-80-12.6/13.2
San Francisco - Oakland Bay Bridge
Yerba Buena Island Transition Structures
South - South Detour

Bridge No. 34 - 0006L/R Abut or Bent No. _____ Ftg _____ Pile No. _____ Sheet No. _____

Hammer Make American Piledriving Equipment Model D36-32 E = _____ Ft - Lbs

Reference Point - Description _____ Elev _____

Date: _____ Inspected by: _____

#5

PENET	TIP ELEV	BLOWS / FT
0		
1		
2		
3		
4		
5		
6		
7		14
8		47
9		54
10		51
11		
12		
13		

#1

PENET	TIP ELEV	BLOWS / FT
0		
1		
2		
3		
4		
5		
6		
7		20
8		20
9'		30

#2

PENET	TIP ELEV	BLOWS / FT
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		20
15'		22
16'		30

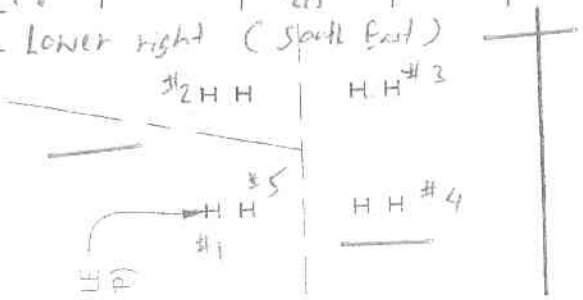
#3

PENET	TIP ELEV	BLOWS / FT
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
14		
15		
16		22
17		25
18		20

#4

PENET	TIP ELEV	BLOWS / FT
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
13		
14'		
15		30
16		20

Lower right (South East)



PILE DRIVING (US CUSTOMARY)

Bridge/Structure No.: 34-0006 | Project No. **04-0120R4**

Bridge/Structure Name: Viaduct Truss Falsework

Abut/Bent/RW/SW No.: Span 48 exist. Piles

Blue font = input/changeable data

Hammer Data

Hammer Type:		**DELMAG D30-32**
Hammer Weight (lbs)	=	6615 lbs
Nominal Resistance[1] (kips)	=	100 kips

GATES Formula

$$R_u = (1.83*(E_r)^{1/2}*\log_{10}(0.83*N)) - 124$$

—OR—

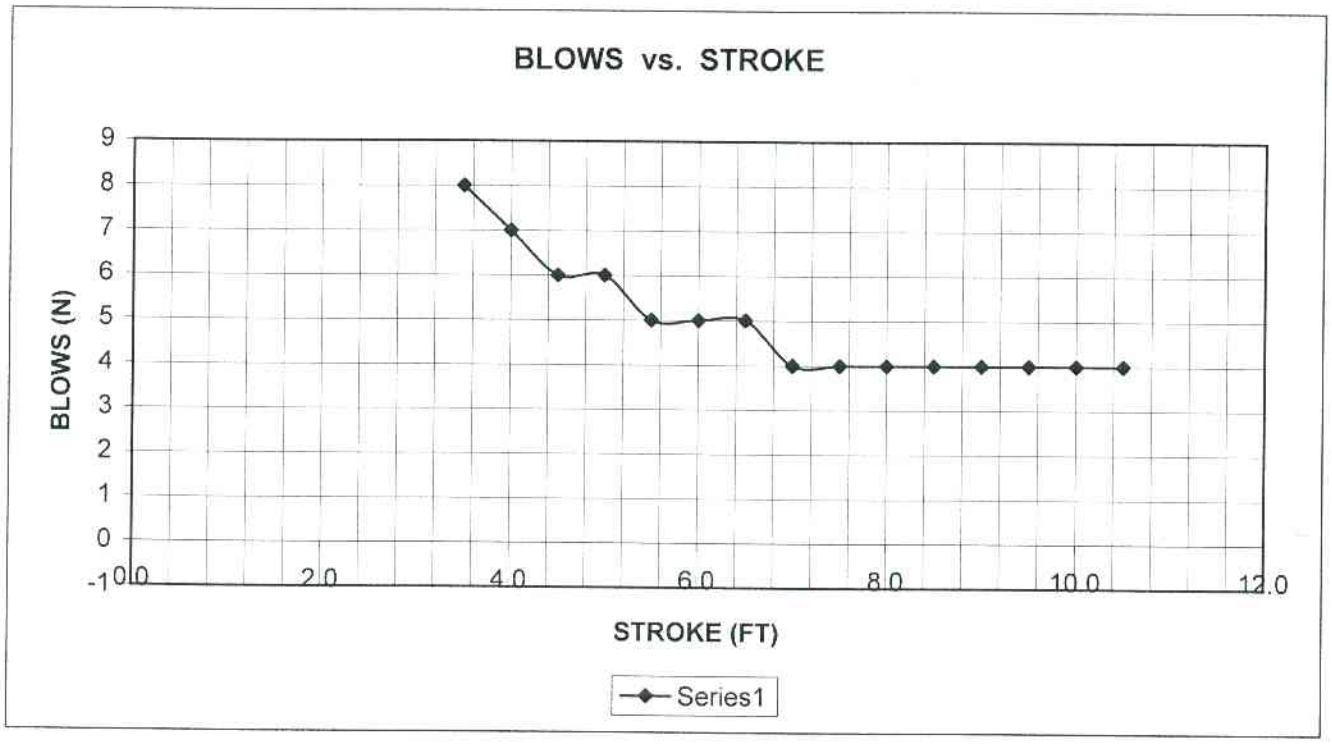
$$N = \frac{10^{\left(R_u+124 / 1.83\sqrt{E_r}\right)}}{0.83}$$

where: R_u = nominal resistance of pile (kips)
E_r = energy developed by hammer at observed stroke (ft·lbs)
N = number of hammer blows in the last foot (max. ≤ 100)

E_r = WH

where: W = hammer weight (lbs)
H = stroke or drop height of hammer (ft)

(H) Stroke (feet)	(E_r) Energy (ft-lbs)	(N) Blows (per foot)	
	-	-	
10.5	69,458	4	
10.0	66,150	4	
9.5	62,843	4	
9.0	59,535	4	
8.5	56,228	4	
8.0	52,920	4	
7.5	49,613	4	
7.0	46,305	4	
6.5	42,998	5	
6.0	39,690	5	
5.5	36,383	5	
5.0	33,075	6	
4.5	29,768	6	
4.0	26,460	7	
3.5	23,153	8	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	



[1]*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 180 kips, and steel and concrete piles shall be driven to a nominal resitance of 280 kips. (May 2006)*

Date printed: 12/7/2007

PILE DRIVING (US CUSTOMARY)

Bridge/Structure No.:	34-0006	Project No.	**04-0120R4**
Bridge/Structure Name:	Viaduct Truss Falsework		
Abut/Bent/RW/SW No.:	Span 48		

Blue font = input/changeable data

Hammer Data

Hammer Type:		**APE D30-32**
Hammer Weight (lbs)	=	6615 lbs
Nominal Resistance† (kips)	=	100 kips

GATES Formula

$$R_u = (1.83 * (E_r)^{1/2} * \log_{10}(0.83 * N)) - 124$$

—OR—

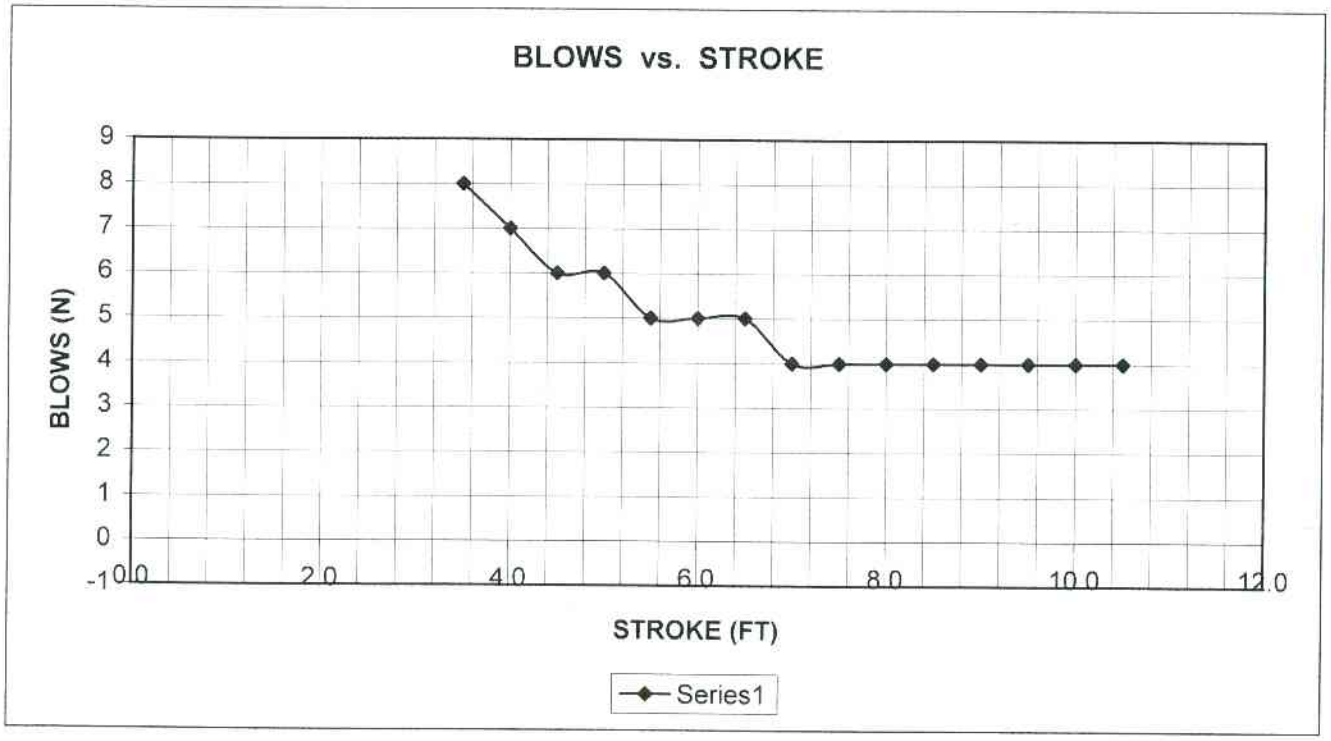
$$N = \frac{10^{\left(R_u + 124 / 1.83\sqrt{E_r}\right)}}{0.83}$$

where: R_u = nominal resistance of pile (kips)
E_r = energy developed by hammer at observed stroke (ft·lbs)
N = number of hammer blows in the last foot (max. ≤ 100)

E_r = WH

where: W = hammer weight (lbs)
H = stroke or drop height of hammer (ft)

(H) Stroke (feet)	(E_r) Energy (ft-lbs)	(N) Blows (per foot)	
	-	-	
10.5	69,458	4	
10.0	66,150	4	
9.5	62,843	4	
9.0	59,535	4	
8.5	56,228	4	
8.0	52,920	4	
7.5	49,613	4	
7.0	46,305	4	
6.5	42,998	5	
6.0	39,690	5	
5.5	36,383	5	
5.0	33,075	6	
4.5	29,768	6	
4.0	26,460	7	
3.5	23,153	8	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	



†*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 180 kips, and steel and concrete piles shall be driven to a nominal resitance of 280 kips. (May 2006)*

Date printed: 10/29/2007

PILE DRIVING (US CUSTOMARY)

Bridge/Structure No.:	34-0006	Project No.	04-0120R4
Bridge/Structure Name:	Viaduct Truss Falsework		
Abut/Bent/RW/SW No.:	Span 48		

Blue font = input/changeable data

Hammer Data

Hammer Type:		APE D36-32
Hammer Weight (lbs)	=	7938 lbs
Nominal Resistance† (kips)	=	100 kips

GATES Formula

$$R_u = (1.83 * (E_r)^{1/2} * \log_{10}(0.83 * N)) - 124$$

—OR—

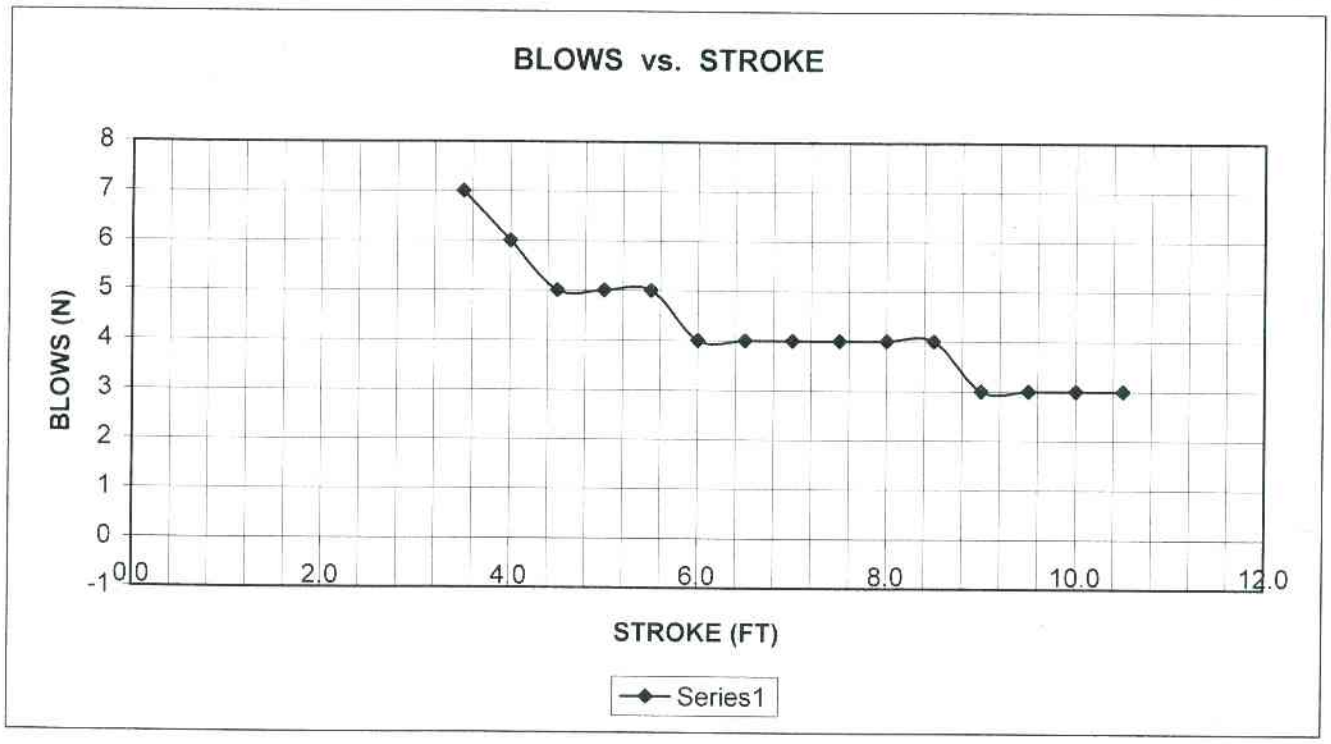
$$N = \frac{10^{\left(R_u + 124 / 1.83\sqrt{E_r}\right)}}{0.83}$$

where: R_u = nominal resistance of pile (kips)
E_r = energy developed by hammer at observed stroke (ft·lbs)
N = number of hammer blows in the last foot (max. ≤ 100)

E_r = WH

where: W = hammer weight (lbs)
H = stroke or drop height of hammer (ft)

(H) Stroke (feet)	(E_r) Energy (ft-lbs)	(N) Blows (per foot)	
	-	-	
10.5	83,349	3	
10.0	79,380	3	
9.5	75,411	3	
9.0	71,442	3	
8.5	67,473	4	
8.0	63,504	4	
7.5	59,535	4	
7.0	55,566	4	
6.5	51,597	4	
6.0	47,628	4	
5.5	43,659	5	
5.0	39,690	5	
4.5	35,721	5	
4.0	31,752	6	
3.5	27,783	7	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	
	-	-	

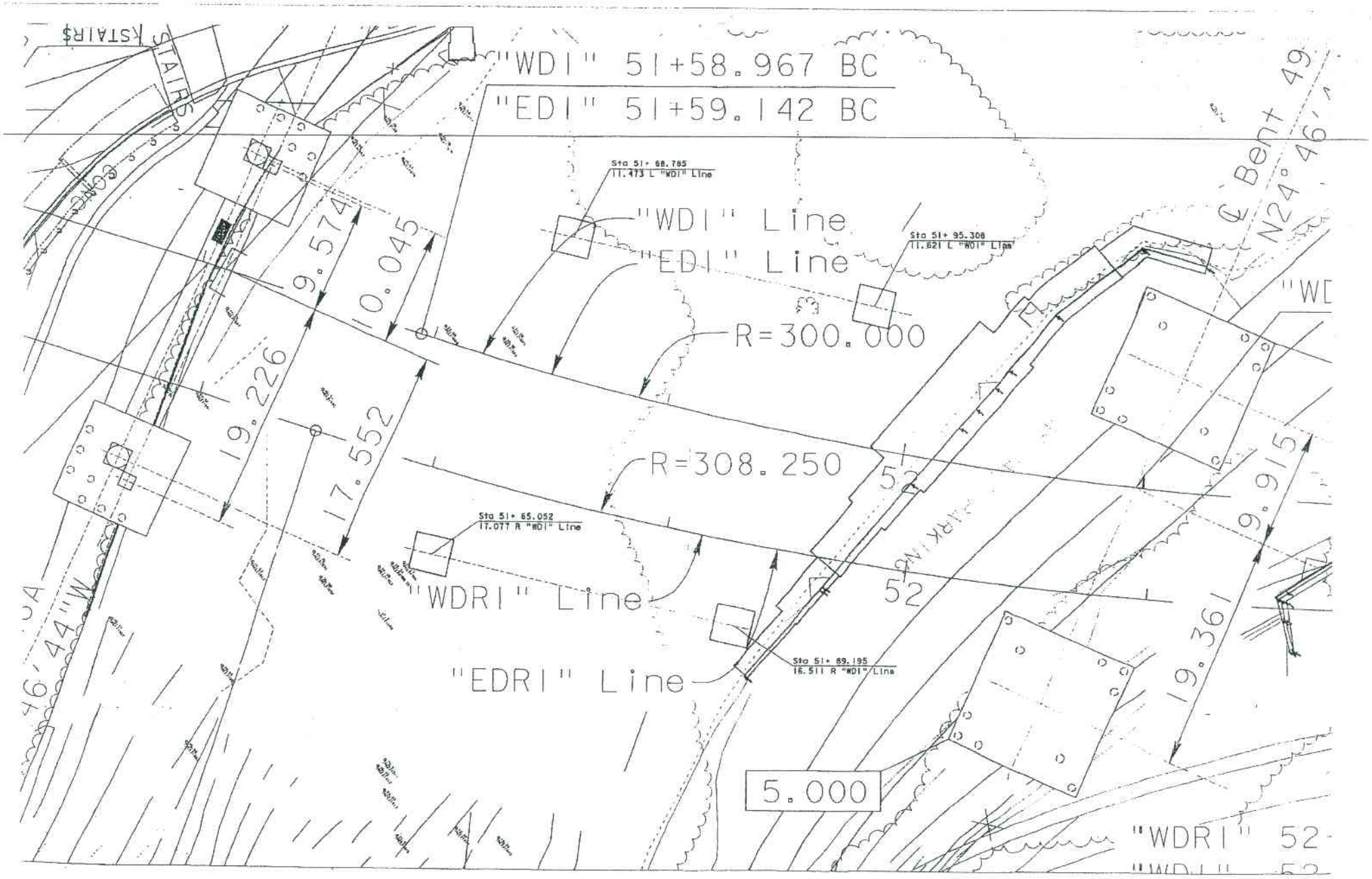


†S.S. 49-1.08: When the pile nominal resistance is omitted from the plans or the special provisions, timber piles shall be driven to a nominal resistance of 180 kips, and steel and concrete piles shall be driven to a nominal resitance of 280 kips. (May 2006)

Date printed: 10/26/2007

127500-0000	DE-150/110	MKT	SINGLE	40-50	15000	32150 w/c	19'10"	10'9"	32"	7
127500-90000	DE-150/110C	MKT	SINGLE	40-50	15000	32150 w/c	19'11"	10'0"	32"	7
122250-52260	D46-32	APE	SINGLE	36-53	10145	19600 w/o	17'4"	13'4"	30"	4.23
122140-52260	D46-32	DELMAG/HAMMER+STEEL	SINGLE	35-53	10143	18720 w/o	17'4"	12'4"	30"	4.23
120000-48000	120S	ICE	SINGLE	38-55	12000	23800 w/o	19'8"	12'6"	32"	4.2
117000-62500	D55	DELMAG/HAMMER+STEEL	SINGLE	36-47	12128	26300 w/o	17'9"	9'8"	32"	5.5
107700-52260	I-46	ICE	SINGLE	36-53	10145	22751 w/o	17.4	12'4"	32"	4.2
107280-54320	D46-32	PILECO	SINGLE	37-52	10145	19580 w/o	18'4"	10'7"	32"	4.23
105800-41400	B-5505	BERMINGHAMMER	SINGLE	36-60	9200	21400 w/o	21'8"	11'6"	32"	2.2
105000-48400	D46-23	DELMAG/HAMMER+STEEL	SINGLE	37-53	10143	19900 w/o	17'3"	10'5"	30"	3.3
104101-203700	HMC8800	HMC	SINGLE	37-50	19400	37037 w/o	27'5"	10'6"	-	0
100000-32000	80S	ICE	SINGLE	38-55	8000	15400 w/o	18'11"	12'6"	26"	2.9
100000-40000	200S	ICE	SINGLE	53-70	20000	33600 w/o	17'.0	5'0"	32"	4
100000-40000	100S	ICE	SINGLE	38-55	10000	18800 w/o	19	10'6"	32"	3.5
95321-173618	HMC7500	HMC	SINGLE	37-50	16535	34171 w/o	25'6"	10'6"	-	0
93500-66000	DE-150/110	MKT	SINGLE	40-50	11000	27150 w/c	17'10"	10'9"	32"	5.7
93500-66000	DE-150/110C	MKT	SINGLE	40-50	11000	28150 w/c	19'11"	10'0"	32"	5.7
92752-39000	K45	KOBE	SINGLE	39-60	9920	25300 w/o	18'6"	9'2"	36"	4.5-5.5
92000	B-5505C	BERMINGHAMMER	SINGLE	42-60	11500	23700 w/o	21'8"	8'0"	32"	2.2
40-00	D36-32	APE	SINGLE	36-53	7940	17400 w/o	17'4"	13'9"	30"	3.04
90540-40900	D36-32	DELMAG/HAMMER+STEEL	SINGLE	36-53	7938	16515 w/o	17'4"	11'4"	30"	3.04
90540-40900	I-36	ICE	SINGLE	35-53	7940	20550 w/o	17'4"	12'1	32"	3
90000-36000	90S	ICE	SINGLE	38-55	9000	16800 w/o	21'8"	11'6"	32"	4
87400-34200	B-5005	BERMINGHAMMER	SINGLE	35-60	7600	19800 w/o	21'8"	11'6"	26"	2.2
87000-43000	D44	DELMAG/HAMMER+STEEL	SINGLE	37-56	9500	22300 w/o	15'11"	9'2"	32"	5.5
85400-50200	MH45	MITSUBISHI	SINGLE	42-60	10500	24600 w/o	17'11"	11'5"	36"	4.6
84000-37840	M43	MITSUBISHI	SINGLE	40-80	9460	22660 w/o	16'3"	8'10"	37"	6-Apr
83950-42500	D36-32	PILECO	SINGLE	37-52	7940	17375 w/o	18'4"	10'7"	32"	3.04
83100-38000	D36-23	DELMAG/HAMMER+STEEL	SINGLE	37-53	7938	17700 w/o	17'4"	10'5"	30"	3
79500	J44	IHI	SINGLE	42-70	9720	21500 w/o	14'10"	8'2"	37"	6.86
79000	K42	KOBE	SINGLE	39-60	9260	23000 w/o	18'6"	8'6"	36"	4.5-5.5
75900-29700	B-4505	BERMINGHAMMER	SINGLE	36-60	6600	16100 w/o	19'1"	11'6"	26"	2.1
75452-35383	D30-32	DELMAG/HAMMER+STEEL	SINGLE	36-52	6615	12855 w/o	17'3"	11'4"	26"	2.64
75400-35300	D30-32	APE	SINGLE	36-53	6615	14600 w/o	17'3"	12'6"	26"	2.64
72340-131943	HMC5700	HMC	SINGLE	37-50	12566	23809 w/o	24'10"	10'6"	-	0
72182-31700	K35	KOBE	SINGLE	39-60	7720	19100 w/o	17'8"	9'2"	30"	4-Mar
71700-35383	I-30	ICE	SINGLE	35-53	6615	14250 w/o	16'1"	12'4"	26"	2.6

PILE DRIVING RECORD
OF EXISTING PILES



"WDI" 51+58.967 BC
"EDI" 51+59.142 BC
Sta 51+ 68.785
11.473 L "WDI" Line
"WDI" Line
"EDI" Line
Sta 51+ 95.308
11.621 L "WDI" Line
R=300.000
R=308.250
Sta 51+ 65.052
17.077 R "WDI" Line
"WDRI" Line
"EDRI" Line
Sta 51+ 89.195
16.511 R "WDI" Line
9.574
10.045
19.226
17.552
9.915
19.361
5.000
℄ Bent 49
N24° 46'
46' 44"W
STAIRS
"WDRI" 52

ATTACH #4

NE

PILE DRIVING RECORD

Report No.	
Date VIB	9/1/04 DRIVE 9/3/04
Inspector	CCASAREZ
Sheet	of

Project: TEMP BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO.

NE PILE #1

The Pile

Wood: Tip _____ Butt _____
Pipe: O.D. _____ Shell _____
H.Beam: Sec. H14 x 73 Weight _____
Shell: Tip _____ Butt _____
Concrete (note size below)
Precast _____
Pre-stressed _____
Uncased _____

The Equipment

Basic Rig: 82 TON TRUCK CRANE
Leads? SWING 70'
Mandrel? _____
Follower? ✓
Cap: Type _____ Weight _____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: DELMAG D30-32
Model No.: 30-32
Rated energy: 69000 FTLBS
Weight of ram: 6615 lbs.
Stroke: 8'
Formula used: (Hole) 2E/(St-1)/2000
Value of c? ? of c? _____
Depth of cut-off ? _____

SUB NOTES HARD MAT'L @ 5'

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	VIB		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6	12		28			50			72			94			116			138		
7	13		29			51			73			95			117			139		
8	14		30			52			74			96			118			140		
9	18		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	18		32			54			76			98			120					
11	18		33			55			77			99			121			11-12		
12	18		34			56			78			100			122			10-11		
13	17		35			57			79			101			123			9-10		
14	17		36			58			80			102			124			8-9		
15	18		37			59			81			103			125			7-8		
16	17		38			60			82			104			126			6-7		
17	18		39			61			83			105			127			5-6		
18	19		40			62			84			106			128			4-5		
19	20	47	41			63			85			107			129			3-4		
20	20		42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector _____

17

NE

PILE DRIVING RECORD

Project: TEMP. BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO.
NE PILE # 2

Report No.	
Date	VIB 9/2/04 DRIVE 9/3/04
Inspector	C CASAREZ
Sheet	of

The Pile

Wood: Tip		Butt	
Pipe: O.D.		Shell	
H.Beam: Sec	H 14 X 117	Weight	
Shell: Tip		Butt	
Concrete (note size below)			
Precast			
Pre-stressed			
Unceased			

The Equipment

Basic Rig	82 Ton Truck Crane
Leads?	Swing 70'
Mandrel?	
Follower?	✓
Cap: Type	— Weight

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make	DElmag D-30-32
Model No.	30-32
Rated energy	69000 FT Hs
Weight of ram	6615 lbs.
Stroke	8'
Formula used	(tons) 2E/(S+-1)/2000
Value of e?	? of c?
Depth of cut-off	

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	VIB		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6	13		28			50			72			94			116			138		
7	18		29			51			73			95			117			139		
8	18		30			52			74			96			118			140		
9	22		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	26		32			54			76			98			120					
11	25		33			55			77			99			121			11-12		
12	26		34			56			78			100			122			10-11		
13	25		35			57			79			101			123			9-10		
14	24		36			58			80			102			124			8-9		
15	25	47	37			59			81			103			125			7-8		
16	25		38			60			82			104			126			6-7		
17	26		39			61			83			105			127			5-6		
18			40			62			84			106			128			4-5		
19			41			63			85			107			129			3-4		
20			42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132–			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

SUB NOTED HE WAS ABOUT 4" OFF THE MARK.
~~[illegible]~~ SAID THAT'S THE BEST HE COULD DO.

Inspector

NE

PILE DRIVING RECORD

Project: TEMP. BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO

NE PILE #3

Report No.	
Date	VIB 9/1/04 DRIV. 9/3/04
Inspector	CCASAREZ
Sheet	of

The Pile

Wood: Tip _____ Butt _____
Pipe: O.D. _____ Shell _____
H.Beam: Sec. H14 X 73 Weight _____
Shell: Tip _____ Butt _____
Concrete (note size below)
Precast _____
Pre-stressed _____
Uncased _____

The Equipment

Basic Rig: 82 TON TRUCK CRANE
Leads? SWING 70'
Mandrel? _____
Follower? V
Cap: Type _____ Weight _____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: DELMAG, D30-32
Model No.: 30-32
Rated energy: 69000 FT #S
Weight of ram: 6615 LBS.
Stroke: 8'
Formula used: Gons 2E/(S+.1)/2000
Value of e? ? of c? _____
Depth of cut-off _____

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	VIB		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6	10		28			50			72			94			116			138		
7	10		29			51			73			95			117			139		
8	20		30			52			74			96			118			140		
9	20		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	20		32			54			76			98			120					
11	20		33			55			77			99			121			11-12		
12	20		34			56			78			100			122			10-11		
13	21		35			57			79			101			123			9-10		
14	20		36			58			80			102			124			8-9		
15	21		37			59			81			103			125			7-8		
16	20		38			60			82			104			126			6-7		
17	21		39			61			83			105			127			5-6		
18	22		40			62			84			106			128			4-5		
19	21	47	41			63			85			107			129			3-4		
20	21	[illegible]	42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector _____

NE

PILE DRIVING RECORD

Project: TEMP. BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO.
NE PILE #4

Report No.	
Date	VIB 9/2/04 DRN. 9/3/04
Inspector	CLASARTEZ
Sheet	of

The Pile

Wood: Tip _____ Butt _____
Pipe: O.D. _____ Shell _____
H.Beam: Sec. #114 X 117 Weight _____
Shell: Tip _____ Butt _____
Concrete (note size below)
Precast _____
Pre-stressed _____
Uncased _____

The Equipment

Basic Rig: 81-TON TRUCK CRANE
Leads?: SWING 70'
Mandrel? _____
Follower? ✓
Cap: Type _____ Weight _____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: DELMAG. D30-32
Model No.: 30-32
Rated energy: 69000 FT#S
Weight of ram: 6615 lbs.
Stroke: 8'
Formula used: (tons) 2E/(S+.1)/2000
Value of e? ? of e? _____
Depth of cut-off _____

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	VIB		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6	10		28			50			72			94			116			138		
7	10		29			51			73			95			117			139		
8	16		30			52			74			96			118			140		
9	16		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	24		32			54			76			98			120					
11	23		33			55			77			99			121			11-12		
12	23		34			56			78			100			122			10-11		
13	20		35			57			79			101			123			9-10		
14	19		36			58			80			102			124			8-9		
15	16		37			59			81			103			125			7-8		
16	15		38			60			82			104			126			6-7		
17	20		39			61			83			105			127			5-6		
18	20		40			62			84			106			128			4-5		
19	21		41			63			85			107			129			3-4		
20	21	49	42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector: _____

PILE DRIVING RECORD

Project: TEMP. BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO.
SE PILE #1

Report No.	
Date	DRIVE 9/2/04
Inspector	CASARETT
Sheet	of

The Pile

Wood: Tip ____ Butt ____
Pipe: O.D. ____ Shell ____
H.Beam: Sec. HP14 X 73 Weight ____
Shell: Tip ____ Butt ____
Concrete (note size below)
Precast ____
Pre-stressed ____
Unstressed ____

The Equipment

Basic Rig: 82 TON TRUCK CRANE
Leads?: SWING, 70'
Mandrel?
Follower?
Cap: Type ____ Weight ____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: DELMAG, D30-32
Model No.: 30-32
Rated energy: 69000 FT #'s
Weight of ram: 6615 #'s
Stroke: 8'
Formula used: (TON) 2E/(S+.1)/2000
Value of e? ____ of e? ____
Depth of cut-off ____

PLUMBING

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	DRIV		23			45			67			89			111			133		
2	2		24			46			68			90			112			134		
3	2		25			47			69			91			113			135		
4	2		26			48			70			92			114			136		
5	12		27			49			71			93			115			137		
6	12		28			50			72			94			116			138		
7	12		29			51			73			95			117			139		
8	8		30			52			74			96			118			140		
9	7		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	5		32			54			76			98			120					
11	7		33			55			77			99			121			11-12		
12	6		34			56			78			100			122			10-11		
13	6		35			57			79			101			123			9-10		
14	7		36			58			80			102			124			8-9		
15	14	41	37			59			81			103			125			7-8		
16	30+		38			60			82			104			126			6-7		
17			39			61			83			105			127			5-6		
18			40			62			84			106			128			4-5		
19			41			63			85			107			129			3-4		
20			42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector ____

PILE DRIVING RECORD

Project: TEMP. BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO.
SE PILE # 2

Report No.	
Date	DRIVE 9/2/04
Inspector	CASAREZ
Sheet	of

The Pile

Wood: Tip _____ Butt _____
Pipe: O.D. _____ Shell _____
H.Beam: Sec. #14 X 117 Weight _____
Shell: Tip _____ Butt _____
Concrete (note size below)
Precast _____
Pre-stressed _____
Uncased _____

The Equipment

Basic Rig: 82 TON TRUCK CRANE
Leads? SWING 70'
Mandrel? _____
Follower? _____
Cap: Type _____ Weight _____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: DELMAG D30-32
Model No.: 30-32
Rated energy: 69000 FT #s
Weight of ram: 6615 #s
Stroke: 8'
Formula used: (tons) 2E/(St.1)/2000
Value of e? _____ of c? _____
Depth of cut-off _____

PLUMBING

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	DRIV		23			45			67			89			111			133		
2	3		24			46			68			90			112			134		
3	4		25			47			69			91			113			135		
4	15		26			48			70			92			114			136		
5	15		27			49			71			93			115			137		
6	12		28			50			72			94			116			138		
7	11		29			51			73			95			117			139		
8	12		30			52			74			96			118			140		
9	11		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	30	48	32			54			76			98			120					
11	36+	47	33			55			77			99			121			11-12		
12			34			56			78			100			122			10-11		
13			35			57			79			101			123			9-10		
14			36			58			80			102			124			8-9		
15			37			59			81			103			125			7-8		
16			38			60			82			104			126			6-7		
17			39			61			83			105			127			5-6		
18			40			62			84			106			128			4-5		
19			41			63			85			107			129			3-4		
20			42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector _____

PILE DRIVING RECORD

Project: TEMP. BYPASS STRUCTURE #215
Structure: TEMP. SHORING PILES
Contractor: J.F. WILL CO.

SE PILE #3

Report No.	
Date	DRIVE 9/2/04
Inspector	CASARET
Sheet	of

The Pile

Wood: Tip		Butt	
Pipe: O.D.		Shell	
H.Beam: Sec.	H14 X117	Weight	
Shell: Tip		Butt	

Concrete (note size below)
Precast
Pre-stressed
Unstressed

The Equipment

Basic Rig	32 TON TRUCK CRANE
Leads?	SWING 70'
Mandrel?	
Follower?	
Cap: Type	Weight

Note: Speed of hammer in blows per minute applies only to double end differential acting hammers.

The Hammer

Make	DELMAG. D30-32
Model No.	30-32
Rated energy	69000 FT. #s
Weight of ram	6615 #s
Stroke	8'
Formula used	(Fous) 2E/(S+.1)/2000
Value of e?	of c?
Depth of cut-off	

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	DRIV		23			45			67			89			111			133		
2	3		24			46			68			90			112			134		
3	3		25			47			69			91			113			135		
4	11		26			48			70			92			114			136		
5	3		27			49			71			93			115			137		
6	3		28			50			72			94			116			138		
7	3		29			51			73			95			117			139		
8	3		30			52			74			96			118			140		
9	7		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	12		32			54			76			98			120					
11	30	47	33			55			77			99			121			11-12		
12	40		34			56			78			100			122			10-11		
13			35			57			79			101			123			9-10		
14			36			58			80			102			124			8-9		
15			37			59			81			103			125			7-8		
16			38			60			82			104			126			6-7		
17			39			61			83			105			127			5-6		
18			40			62			84			106			128			4-5		
19			41			63			85			107			129			3-4		
20			42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

PLUMBING

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):
FORREST SAID TO GET @ LEAST 15' IN THE GROUND BUT THE WANTED TO STOP. HE SAID IT WAS TO REFUSAL. TRIED TO RADIO FORREST (MARK) TO ASK HIM BUT NO AVAIL.
J.F. WILL CO.

Inspector

PILE DRIVING RECORD

Project 215 TBS
Structure Viaduct temp sharing fndtn's
Contractor J.F. Will
NW Pile #1

Report No.	
Date	8/30/04
Inspector	FCM
Sheet	4 of 15

The Pile				The Equipment		The Hammer	
Wood: Tip		Butt		Basic Rig		Make	APE
Pipe: O.D.		Shell		Leads?		Model No.	A30-32
H.Beam: Sec.	14x73	Weight		Mandrel?		Rated energy	
Shell: Tip		Butt		Follower?		Weight of ram	
Concrete (note size below)				Cap: Type	Weight	Stroke	
Precast						Formula used	chart
Pre-stressed				*Note:* Speed of hammer in blows per minute applies only to double and differential acting hammers.		Value of e?	of c?
Uncased						Depth of cut-off	

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	vibro		23	19		45			67			89			111			133		
2			24	17		46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6			28			50			72			94			116			138		
7			29			51			73			95			117			139		
8			30			52			74			96			118			140		
9			31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10			32			54			76			98			120					
11			33			55			77			99			121			11-12		
12			34			56			78			100			122			10-11		
13			35			57			79			101			123			9-10		
14			36			58			80			102			124			8-9		
15			37			59			81			103			125			7-8		
16			38			60			82			104			126			6-7		
17			39			61			83			105			127			5-6		
18	70		40			62			84			106			128			4-5		
19	20		41			63			85			107			129			3-4		
20	16		42			64			86			108			130			2-3		
21	20		43			65			87			109			131			1-2		
22	14		44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

See note on sheet #3.

Inspector [signature]

PILE DRIVING RECORD

Project: 215 TBS
Structure: Viaduct Temp Shoring Footing
Contractor: J.F. Will
NW Pile #2

Report No.	
Date	8/30/4
Inspector	FGM
Sheet	2 of 15

The Pile			
Wood: Tip		Butt	
Pipe: O.D.		Shell	
H.Beam: Sec.	14X17	Weight	
Shell: Tip		Butt	
Concrete (note size below)			
Precast			
Pre-stressed			
Unstressed			

The Equipment			
Basic Rig			
Leads?			
Mandrel?			
Follower?			
Cap: Type		Weight	

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer	
Make	APE
Model No.	A30-32
Rated energy	
Weight of ram	
Stroke	
Formula used	chart
Value of e?	of c?
Depth of cut-off	

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	41 60		23	41		45			67			89			111			133		
2			24	40+	44	46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6			28			50			72			94			116			138		
7			29			51			73			95			117			139		
8			30			52			74			96			118			140		
9			31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10			32			54			76			98			120					
11			33			55			77			99			121			11-12		
12			34			56			78			100			122			10-11		
13			35			57			79			101			123			9-10		
14			36			58			80			102			124			8-9		
15	14		37			59			81			103			125			7-8		
16	19		38			60			82			104			126			6-7		
17	21		39			61			83			105			127			5-6		
18	24		40			62			84			106			128			4-5		
19	21		41			63			85			107			129			3-4		
20	34		42			64			86			108			130			2-3		
21	38		43			65			87			109			131			1-2		
22	35		44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector: [signature]

PILE DRIVING RECORD

Project: 215 - TBS
Structure: VIADUCT TEMP. SHORING FND.
Contractor: J.F. WILL
NW PILE NO. 3

Report No.	
Date	8/30/04
Inspector	FORREST / CALDERE
Sheet	3 of 15

The Pile

Wood: Tip ____ Butt ____
Pipe: O.D. ____ Shell ____
H.Beam: Sec. 14x73 Weight ____
Shell: Tip ____ Butt ____
Concrete (note size below)
Precast ____
Pre-stressed ____
Unstressed ____

The Equipment

Basic Rig ____
Leads? ____
Mandrel? ____
Follower? ____
Cap: Type ____ Weight ____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: APE
Model No.: A30-32
Rated energy ____
Weight of ram ____
Stroke ____
Formula used: chart
Value of e? ____ of e? ____
Depth of cut-off ____

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	VIBR		23	17		45			67			89			111			133		
2	1		24			46			68			90			112			134		
3	1		25			47			69			91			113			135		
4	1		26			48			70			92			114			136		
5	1		27			49			71			93			115			137		
6	1		28			50			72			94			116			138		
7	1		29			51			73			95			117			139		
8	1		30			52			74			96			118			140		
9	1		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	1		32			54			76			98			120					
11	1		33			55			77			99			121			11-12		
12	4		34			56			78			100			122			10-11		
13	15		35			57			79			101			123			9-10		
14	13		36			58			80			102			124			8-9		
15	16		37			59			81			103			125			7-8		
16	16		38			60			82			104			126			6-7		
17	14		39			61			83			105			127			5-6		
18	15		40			62			84			106			128			4-5		
19	17		41			63			85			107			129			3-4		
20	16		42			64			86			108			130			2-3		
21	18		43			65			87			109			131			1-2		
22	17		44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):
I initially read chart as tips not tons. ~~[illegible]~~ 17 blows/ft = 1.4 blows/in correlates w/ approximately 47 blows per minute for 50 tons. I estimate that stroke length was 6 ft at time of driving.

Inspector: [signature]

Ue

23 5@26 1@30
117 3@35 1@40 3@38

PILE DRIVING RECORD

Report No.	1
Date	8/30/04
Inspector	FORREST / CASAREZ
Sheet	1 of 15

Project: 215 - TBS
Structure: TEMP. BYPASS STRUCTURE - VIADUCT TEMP SHORING FND.
Contractor: J.F. Will
NW Pile #4 Temp fndn

The Pile

Wood: Tip _____ Butt _____
Pipe: O.D. _____ Shell _____
H.Beam: Sec. 14V117 Weight _____
Shell: Tip _____ Butt _____
Concrete (note size below)
Precast _____
Pre-stressed _____
Uncased _____

The Equipment

Basic Rig _____
Leads? _____
Mandrel? _____
Follower? _____
Cap: Type _____ Weight _____

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer

Make: APE
Model No.: A30-37
Rated energy _____
Weight of ram: 6615
Stroke: ~~[illegible]~~
Formula used: chart
Value of e? _____ of e? _____
Depth of cut-off _____

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	vibro		23	28		45			67			89			111			133		
2	"		24	30		46			68			90			112			134		
3	"		25	32		47			69			91			113			135		
4	"		26	31	45	48			70			92			114			136		
5	"		27			49			71			93			115			137		
6	"		28			50			72			94			116			138		
7	"		29			51			73			95			117			139		
8	"		30			52			74			96			118			140		
9	"		31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	"		32			54			76			98			120					
11	"		33			55			77			99			121			11-12		
12	"		34			56			78			100			122			10-11		
13	"		35			57			79			101			123			9-10		
14	"		36			58			80			102			124			8-9		
15	"		37			59			81			103			125			7-8		
16	17		38			60			82			104			126			6-7		
17	24		39			61			83			105			127			5-6		
18	24		40			62			84			106			128			4-5		
19	28		41			63			85			107			129			3-4		
20	N/C		42			64			86			108			130			2-3		
21	29		43			65			87			109			131			1-2		
22	31		44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector: [signature]

PILE DRIVING RECORD

Project 215 TBS
Structure Viaduct Span 49 temp fndtn
Contractor J.S. Will
SW Pile #1

Report No.	
Date	8/31/04
Inspector	FGM
Sheet	8 of 15

The Pile				The Equipment		The Hammer	
Wood: Tip		Butt		Basic Rig		Make	
Pipe: O.D.		Shell		Leads?		Model No.	
H.Beam: Sec.	14X73	Weight		Mandrel?		Rated energy	
Shell: Tip		Butt		Follower?		Weight of ram	
Concrete (note size below)				Cap: Type	Weight	Stroke	
Precast						Formula used	
Pre-stressed				*Note:* Speed of hammer in blows per minute applies only to double and differential acting hammers.		Value of e?	of c?
Unceased						Depth of cut-off	

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	vibro		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6			28			50			72			94			116			138		
7			29			51			73			95			117			139		
8			30			52			74			96			118			140		
9			31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10	↓		32			54			76			98			120					
11	9		33			55			77			99			121			11-12		
12	10		34			56			78			100			122			10-11		
13	15		35			57			79			101			123			9-10		
14	13		36			58			80			102			124			8-9		
15	15		37			59			81			103			125			7-8		
16	19		38			60			82			104			126			6-7		
17	19		39			61			83			105			127			5-6		
18	20		40			62			84			106			128			4-5		
19	18	47	41			63			85			107			129			3-4		
20	20		42			64			86			108			130			2-3		
21	22		43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector [signature]

PILE DRIVING RECORD

Project: TBS 215
Structure: Viaduct Temp shoring footings
Contractor: J.F. Will
SW Pile #2

Report No.	
Date	8/31/09
Inspector	FCM
Sheet	6 of 15

The Pile

Wood: Tip ____ Butt ____
Pipe: O.D. ____ Shell ____
H.Beam: Sec. 14X117 Weight ____
Shell: Tip ____ Butt ____
Concrete (note size below)
Precast ____
Pre-stressed ____
UnCased ____

The Equipment

Basic Rig ____
Leade? ____
Mandrel? ____
Follower? ____
Cap: Type ____ Weight ____

Note: Speed of hammer in blows per minute applies only to double end differential acting hammers.

The Hammer

Make ____
Model No. D30-32
Rated energy ____
Weight of ram ____
Stroke ____
Formula used ____
Value of e? ____ of c? ____
Depth of cut-off ____

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	vibro		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6			28			50			72			94			116			138		
7			29			51			73			95			117			139		
8			30			52			74			96			118			140		
9			31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10			32			54			76			98			120					
11	14		33			55			77			99			121			11-12		
12	15		34			56			78			100			122			10-11		
13	17		35			57			79			101			123			9-10		
14	19		36			58			80			102.			124			8-9		
15	N/C		37			59			81			103			125			7-8		
16	N/C		38			60			82			104			126			6-7		
17	N/C		39			61			83			105			127			5-6		
18	24		40			62			84			106			128			4-5		
19			41			63			85			107			129			3-4		
20			42			64			86			108			130			2-3		
21			43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):
Pile unmarked 40' length. 15' approx initial embedment with vibro. I am using 10' to be conservative since I'm not sure actual penetration is 22', 18' measured remaining length

Inspector: [signature]

PILE DRIVING RECORD

Project ~~#~~ 215
Structure Viaduct Span #48 temp footing
Contractor J. F. Will
SW Pile #3

Report No.	
Date	8/31/04
Inspector	FGM
Sheet	7 of 15

The Pile

Wood: Tip ____ Butt ____
Pipe: O.D. ____ Shell ____
H.Beam: Sec. 14 X 89 Weight ____
Shell: Tip ____ Butt ____
Concrete (note size below)
Precast ____
Pre-stressed ____
Unclosed ____

The Equipment

Basic Rig ____
Leads? ____
Mandrel? ____
Follower? ____
Cap: Type ____ Weight ____

Note: Speed of hammer in blows per minute applies only to double end differential acting hammers.

The Hammer

Make ____
Model No. D30-32
Rated energy ____
Weight of ram ____
Stroke ____
Formula used ____
Value of e? ____ of c? ____
Depth of cut-off ____

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	vibro		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6			28			50			72			94			116			138		
7			29			51			73			95			117			139		
8			30			52			74			96			118			140		
9			31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10			32			54			76			98			120					
11			33			55			77			99			121			11-12		
12			34			56			78			100			122			10-11		
13			35			57			79			101			123			9-10		
14			36			58			80			102			124			8-9		
15	↓		37			59			81			103			125			7-8		
16	21		38			60			82			104			126			6-7		
17	19		39			61			83			105			127			5-6		
18	18		40			62			84			106			128			4-5		
19	21		41			63			85			107			129			3-4		
20	22	46	42			64			86			108			130			2-3		
21	23		43			65			87			109			131			1-2		
22	24		44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector [signature]

PILE DRIVING RECORD

Project: 215 TBS
Structure: Viaduct Temp Shoring Footings
Contractor: J.F. Will
SW Pile # 4

Report No.	
Date	8/31/04
Inspector	FGM
Sheet	5 of 15

The Pile			
Wood: Tip		Butt	
Pipe: O.D.		Shell	
H.Beam: Sec.	14X117	Weight	
Shell: Tip		Butt	
Concrete (note size below)			
Precast			
Pre-stressed			
Unstressed			

The Equipment			
Basic Rig			
Leads?			
Mandrel?			
Follower?			
Cap: Type		Weight	

Note: Speed of hammer in blows per minute applies only to double and differential acting hammers.

The Hammer	
Make	
Model No.	030-32
Rated energy	
Weight of ram	
Stroke	
Formula used	chart
Value of e?	of c?
Depth of cut-off	

Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.	Ft	No. Of blows	Speed, blows per min.
1	Vibo		23			45			67			89			111			133		
2			24			46			68			90			112			134		
3			25			47			69			91			113			135		
4			26			48			70			92			114			136		
5			27			49			71			93			115			137		
6			28			50			72			94			116			138		
7			29			51			73			95			117			139		
8			30			52			74			96			118			140		
9			31			53			75			97			119			IN.	No. Of blows	Speed, blows per min.
10			32			54			76			98			120					
11			33			55			77			99			121			11-12		
12			34			56			78			100			122			10-11		
13			35			57			79			101			123			9-10		
14	13		36			58			80			102			124			8-9		
15	13		37			59			81			103			125			7-8		
16	13		38			60			82			104			126			6-7		
17	14		39			61			83			105			127			5-6		
18	14		40			62			84			106			128			4-5		
19	17		41			63			85			107			129			3-4		
20	20		42			64			86			108			130			2-3		
21	24		43			65			87			109			131			1-2		
22			44			66			88			110			132			0-1		

Record number of blows for each 6 in., especially near limit of penetration. Remarks (note any delays or unusual aspects of pile being driven):

Inspector: [signature]