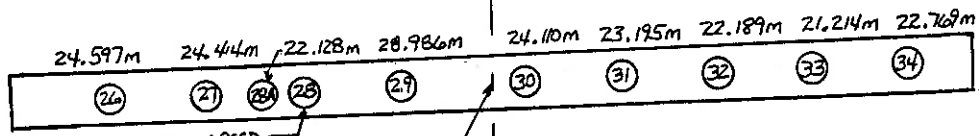


REF. NO. 48-(507) 300MM CAST-IN-PLACE REINFORCED CONCRETE PILES.



COLLAPSED  
 CL FORWARD ABUTMENT  
 STA. 15+854.540

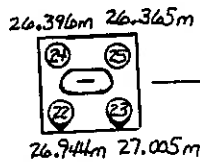
ESTIMATED PAY LENGTH:

ABUTMENTS = 17 METERS  
 PIERS = 11 METERS

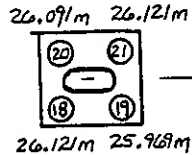
ULTIMATE BEARING:

ABUTMENTS = 773 KN  
 PIERS = 872 KN

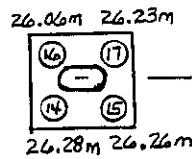
⊙ = 300mm BATTERED 1:4 PILE



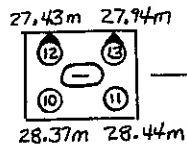
CL PIER 4  
 STA. 15+840.520



CL PIER 3  
 STA. 15+822.994

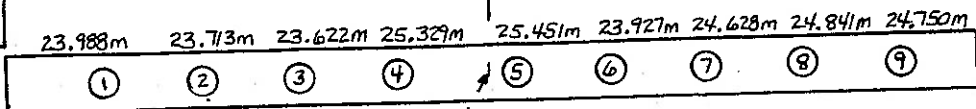


CL PIER 2  
 STA. 15+805.468



CL PIER 1  
 STA. 15+787.942

| SUMMARY TOTALS |                  |
|----------------|------------------|
| REAR ABUT.     | = 220.249m       |
| PIER 1         | = 112.18m        |
| PIER 2         | = 104.83m        |
| PIER 3         | = 104.302m       |
| PIER 4         | = 106.710m       |
| FORWARD ABUT.  | = 213.602m       |
| TOTAL          | = <u>861.83m</u> |



CL REAR ABUTMENT  
 STA. 15+713.922



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 04/15/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Forward Abutment

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54 ✓

Required "R" = 773000 Newtons

Elev. of top of pile (cut-off elev.): 250.579

Elev. of nominal point of zero penetration: 249.979

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks                                   | Misc. |
|----------|----------------|-------------------|---|-------|
| 26       | 24.597 ✓       | 969865            |   |       |
| 27       | 24.414 ✓       | 950468            |   |       |
| 28-A     | 22.128 ✓       | 910727            | Pile #28 collapsed. Pile #28-A was added. |       |
| 29       | 28.986 ✓       | 880063            |   |       |
| 30       | 24.11 ✓        | 880063            |   |       |
| 31       | 23.195 ✓       | 819369            |   |       |
| 32       | 22.189 ✓       | 783352            |   |       |
| 33       | 21.214 ✓       | 783352            |   |       |
| 34       | 22.769 ✓       | 783352            |   |       |
|          |                |                   |   |       |
|          |                |                   |   |       |

Total = 213.602 ✓ meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 26

Fwd. Abut. \_\_\_\_\_ Abut / Pier

Date Driven 04/03/00

Guernsey \_\_\_\_\_ County

Bridge No GUE-77-14 352 LLocation I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 250.579Elev. of nominal point of zero penetration: 249.979Elev. of pile point at final penetration: 225.982 ✓Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 5     | 60.96       | 135781                     |   |
| 2.134                  | 5     | 60.96       | 135781                     |   |
| 2.438                  | 6     | 50.80       | 161644                     |   |
| 2.743                  | 6     | 50.80       | 161644                     |   |
| 3.048                  | 6     | 50.80       | 161644                     |   |
| 3.353                  | 12    | 25.40       | 308593                     |   |
| 3.658                  | 13    | 23.45       | 331796                     |   |
| 3.962                  | 13    | 23.45       | 331796                     |   |
| 4.267                  | 13    | 23.45       | 331796                     |   |
| 4.572                  | 13    | 23.45       | 331796                     |   |
| 4.877                  | 11    | 27.71       | 285037                     |   |
| 5.182                  | 11    | 27.71       | 285037                     |   |
| 5.486                  | 11    | 27.71       | 285037                     |   |
| 5.791                  | 11    | 27.71       | 285037                     |   |
| 6.096                  | 12    | 25.40       | 308593                     |   |
| 6.401                  | 13    | 23.45       | 331796                     |   |
| 6.706                  | 13    | 23.45       | 331796                     |   |
| 7.010                  | 14    | 21.77       | 354652                     |   |
| 7.315                  | 14    | 21.77       | 354652                     |   |
| 7.620                  | 14    | 21.77       | 354652                     |   |
| 7.925                  | 19    | 16.04       | 464000                     |   |
| 8.230                  | 19    | 16.04       | 464000                     |   |
| 8.534                  | 20    | 15.24       | 484932                     |   |
| 8.839                  | 20    | 15.24       | 484932                     |   |
| 9.144                  | 20    | 15.24       | 484932                     |   |
| 9.449                  | 21    | 14.51       | 505568                     |   |
| 9.754                  | 16    | 19.05       | 399356                     |   |
| 10.058                 | 21    | 14.51       | 505568                     |   |
| 10.363                 | 21    | 14.51       | 505568                     |   |
| 10.668                 | 20    | 15.24       | 484932                     |   |
| 10.973                 | 19    | 16.04       | 464000                     |   |
| 11.278                 | 21    | 14.51       | 505568                     |   |
| 11.582                 | 20    | 15.24       | 484932                     |   |
| 11.887                 | 21    | 14.51       | 505568                     |   |
| 12.192                 | 18    | 16.93       | 442764                     |   |
| 12.497                 | 24    | 12.70       | 565755                     |   |
| 12.802                 | 21    | 14.51       | 505568                     |   |
| 13.106                 | 23    | 13.25       | 545973                     |   |
| 13.411                 | 20    | 15.24       | 484932                     |   |
| 13.716                 | 21    | 14.51       | 505568                     |   |
| 14.021                 | 22    | 13.85       | 525913                     |   |
| 14.326                 | 27    | 11.29       | 623485                     |   |
| 14.630                 | 27    | 11.29       | 623485                     |   |
| 14.935                 | 28    | 10.89       | 642208                     |   |
| 15.240                 | 29    | 10.51       | 660680                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 15.545                 | 26    | 11.72       | 604505                     |   |
| 15.850                 | 26    | 11.72       | 604505                     |   |
| 16.154                 | 22    | 13.85       | 525913                     |   |
| 16.459                 | 28    | 10.89       | 642208                     |   |
| 16.764                 | 23    | 13.25       | 545973                     |   |
| 17.069                 | 24    | 12.70       | 565755                     |   |
| 17.374                 | 24    | 12.70       | 565755                     |   |
| 17.678                 | 26    | 11.72       | 604505                     |   |
| 17.983                 | 25    | 12.19       | 585263                     |   |
| 18.288                 | 25    | 12.19       | 585263                     |   |
| 18.593                 | 25    | 12.19       | 585263                     |   |
| 18.898                 | 26    | 11.72       | 604505                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 27 | 11.29 | 623485 |   |
| 19.507 | 25 | 12.19 | 585263 |   |
| 19.812 | 29 | 10.51 | 660680 |   |
| 20.117 | 27 | 11.29 | 623485 |   |
| 20.422 | 27 | 11.29 | 623485 |   |
| 20.726 | 29 | 10.51 | 660680 |   |
| 21.031 | 29 | 10.51 | 660680 |   |
| 21.336 | 27 | 11.29 | 623485 |   |
| 21.641 | 30 | 10.16 | 678905 |   |
| 21.946 | 30 | 10.16 | 678905 |   |
| 22.250 | 28 | 10.89 | 642208 |   |
| 22.555 | 27 | 11.29 | 623485 |   |
| 22.860 | 26 | 11.72 | 604505 |   |
| 23.165 | 30 | 10.16 | 678905 |   |
| 23.470 | 29 | 10.51 | 660680 |   |
| 23.774 | 34 | 8.96  | 749441 |   |
| 24.028 | 40 | 6.35  | 969865 | Bearing obtained. No penetration after 254mm. |
|        |    |       |        |   |
|        |    |       |        |   |



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONFile No. 27

Fwd. Abut. \_\_\_\_\_ Abut / Pier

Date Driven 04/04/00

Guernsey \_\_\_\_\_ County

Bridge No GUE-77-14 352 LLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 250.579Elev. of nominal point of zero penetration: 249.979Elev. of pile point at final penetration: 226.165Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 14    | 21.77       | 354652                     |   |
| 0.610                  | 14    | 21.77       | 354652                     |   |
| 0.914                  | 14    | 21.77       | 354652                     |   |
| 1.219                  | 14    | 21.77       | 354652                     |   |
| 1.524                  | 14    | 21.77       | 354652                     |   |
| 1.829                  | 14    | 21.77       | 354652                     |   |
| 2.134                  | 14    | 21.77       | 354652                     |   |
| 2.438                  | 14    | 21.77       | 354652                     |   |
| 2.743                  | 14    | 21.77       | 354652                     |   |
| 3.048                  | 14    | 21.77       | 354652                     |   |
| 3.353                  | 14    | 21.77       | 354652                     |   |
| 3.658                  | 14    | 21.77       | 354652                     |   |
| 3.962                  | 14    | 21.77       | 354652                     |   |
| 4.267                  | 14    | 21.77       | 354652                     |   |
| 4.572                  | 14    | 21.77       | 354652                     |   |
| 4.877                  | 14    | 21.77       | 354652                     |   |
| 5.182                  | 14    | 21.77       | 354652                     |   |
| 5.486                  | 14    | 21.77       | 354652                     |   |
| 5.791                  | 14    | 21.77       | 354652                     |   |
| 6.096                  | 14    | 21.77       | 354652                     |   |
| 6.401                  | 14    | 21.77       | 354652                     |   |
| 6.706                  | 14    | 21.77       | 354652                     |   |
| 7.010                  | 14    | 21.77       | 354652                     |   |
| 7.315                  | 14    | 21.77       | 354652                     |   |
| 7.620                  | 14    | 21.77       | 354652                     |   |
| 7.925                  | 14    | 21.77       | 354652                     |   |
| 8.230                  | 14    | 21.77       | 354652                     |   |
| 8.534                  | 14    | 21.77       | 354652                     |   |
| 8.839                  | 14    | 21.77       | 354652                     |   |
| 9.144                  | 14    | 21.77       | 354652                     |   |
| 9.449                  | 14    | 21.77       | 354652                     |   |
| 9.754                  | 14    | 21.77       | 354652                     |   |
| 10.058                 | 14    | 21.77       | 354652                     |   |
| 10.363                 | 14    | 21.77       | 354652                     |   |
| 10.668                 | 14    | 21.77       | 354652                     |   |
| 10.973                 | 15    | 20.32       | 377170                     |   |
| 11.278                 | 15    | 20.32       | 377170                     |   |
| 11.582                 | 15    | 20.32       | 377170                     |   |
| 11.887                 | 15    | 20.32       | 377170                     |   |
| 12.192                 | 15    | 20.32       | 377170                     |   |
| 12.497                 | 15    | 20.32       | 377170                     |   |
| 12.802                 | 15    | 20.32       | 377170                     |   |
| 13.106                 | 15    | 20.32       | 377170                     |   |
| 13.411                 | 15    | 20.32       | 377170                     |   |
| 13.716                 | 15    | 20.32       | 377170                     |   |
| 14.021                 | 15    | 20.32       | 377170                     |   |
| 14.326                 | 15    | 20.32       | 377170                     |   |
| 14.630                 | 15    | 20.32       | 377170                     |   |
| 14.935                 | 15    | 20.32       | 377170                     |   |
| 15.240                 | 15    | 20.32       | 377170                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 15.545                 | 28    | 10.89       | 642208                     |   |
| 15.850                 | 24    | 12.70       | 565755                     |   |
| 16.154                 | 26    | 11.72       | 604505                     |   |
| 16.459                 | 26    | 11.72       | 604505                     |   |
| 16.764                 | 26    | 11.72       | 604505                     |   |
| 17.069                 | 19    | 16.04       | 464000                     |   |
| 17.374                 | 24    | 12.70       | 565755                     |   |
| 17.678                 | 24    | 12.70       | 565755                     |   |
| 17.983                 | 28    | 10.89       | 642208                     |   |
| 18.288                 | 25    | 12.19       | 585263                     |   |
| 18.593                 | 26    | 11.72       | 604505                     |   |
| 18.898                 | 24    | 12.70       | 565755                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 25 | 12.19 | 585263 |   |
| 19.507 | 25 | 12.19 | 585263 |   |
| 19.812 | 25 | 12.19 | 585263 |   |
| 20.117 | 26 | 11.72 | 604505 |   |
| 20.422 | 25 | 12.19 | 585263 |   |
| 20.726 | 27 | 11.29 | 623485 |   |
| 21.031 | 26 | 11.72 | 604505 |   |
| 21.336 | 25 | 12.19 | 585263 |   |
| 21.641 | 29 | 10.51 | 660680 |   |
| 21.946 | 29 | 10.51 | 660680 |   |
| 22.250 | 29 | 10.51 | 660680 |   |
| 22.555 | 32 | 9.53  | 714637 |   |
| 22.860 | 33 | 9.24  | 732153 |   |
| 23.165 | 31 | 9.83  | 696890 |   |
| 23.470 | 34 | 8.96  | 749441 |   |
| 23.699 | 35 | 6.53  | 950468 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 28-A  
Fwd. Abut. \_\_\_\_\_ Abut / Pier \_\_\_\_\_  
Date Driven 04/03/00

Guernsey \_\_\_\_\_ County \_\_\_\_\_  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILE DRIVING LOG**

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
Elev. of top of pile (cut-off elev.) 250.579  
Elev. of nominal point of zero penetration: 249.979  
Elev. of pile point at final penetration: 228.451  
Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               | 15    | 20.32    | 377170                  |   |
| 0.610               | 15    | 20.32    | 377170                  |   |
| 0.914               | 15    | 20.32    | 377170                  |   |
| 1.219               | 15    | 20.32    | 377170                  |   |
| 1.524               | 15    | 20.32    | 377170                  |   |
| 1.829               | 15    | 20.32    | 377170                  |   |
| 2.134               | 15    | 20.32    | 377170                  |   |
| 2.438               | 15    | 20.32    | 377170                  |   |
| 2.743               | 15    | 20.32    | 377170                  |   |
| 3.048               | 15    | 20.32    | 377170                  |   |
| 3.353               | 15    | 20.32    | 377170                  |   |
| 3.658               | 15    | 20.32    | 377170                  |   |
| 3.962               | 15    | 20.32    | 377170                  |   |
| 4.267               | 15    | 20.32    | 377170                  |   |
| 4.572               | 15    | 20.32    | 377170                  |   |
| 4.877               | 15    | 20.32    | 377170                  |   |
| 5.182               | 15    | 20.32    | 377170                  |   |
| 5.486               | 15    | 20.32    | 377170                  |   |
| 5.791               | 15    | 20.32    | 377170                  |   |
| 6.096               | 15    | 20.32    | 377170                  |   |
| 6.401               | 15    | 20.32    | 377170                  |   |
| 6.706               | 15    | 20.32    | 377170                  |   |
| 7.010               | 15    | 20.32    | 377170                  |   |
| 7.315               | 15    | 20.32    | 377170                  |   |
| 7.620               | 15    | 20.32    | 377170                  |   |
| 7.925               | 15    | 20.32    | 377170                  |   |
| 8.230               | 15    | 20.32    | 377170                  |   |
| 8.534               | 15    | 20.32    | 377170                  |   |
| 8.839               | 15    | 20.32    | 377170                  |   |
| 9.144               | 15    | 20.32    | 377170                  |   |
| 9.449               | 15    | 20.32    | 377170                  |   |
| 9.754               | 15    | 20.32    | 377170                  |   |
| 10.058              | 15    | 20.32    | 377170                  |   |
| 10.363              | 15    | 20.32    | 377170                  |   |
| 10.668              | 15    | 20.32    | 377170                  |   |
| 10.973              | 15    | 20.32    | 377170                  |   |
| 11.278              | 15    | 20.32    | 377170                  |   |
| 11.582              | 15    | 20.32    | 377170                  |   |
| 11.887              | 15    | 20.32    | 377170                  |   |
| 12.192              | 15    | 20.32    | 377170                  |   |
| 12.497              | 16    | 19.05    | 399356                  |   |
| 12.802              | 16    | 19.05    | 399356                  |   |
| 13.106              | 16    | 19.05    | 399356                  |   |
| 13.411              | 16    | 19.05    | 399356                  |   |
| 13.716              | 16    | 19.05    | 399356                  |   |
| 14.021              | 16    | 19.05    | 399356                  |   |
| 14.326              | 16    | 19.05    | 399356                  |   |
| 14.630              | 27    | 11.29    | 623485                  |   |
| 14.935              | 27    | 11.29    | 623485                  |   |
| 15.240              | 28    | 10.89    | 642208                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 15.545              | 29    | 10.51    | 660680                  |   |
| 15.850              | 25    | 12.19    | 585263                  |   |
| 16.154              | 28    | 10.89    | 642208                  |   |
| 16.459              | 28    | 10.89    | 642208                  |   |
| 16.764              | 25    | 12.19    | 585263                  |   |
| 17.069              | 27    | 11.29    | 623485                  |   |
| 17.374              | 27    | 11.29    | 623485                  |   |
| 17.678              | 28    | 10.89    | 642208                  |   |
| 17.983              | 26    | 11.72    | 604505                  |   |
| 18.288              | 26    | 11.72    | 604505                  |   |
| 18.593              | 28    | 10.89    | 642208                  |   |
| 18.898              | 27    | 11.29    | 623485                  |   |



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 29

Fwd. Abut. \_\_\_\_\_ Abut / Pier

Date Driven 04/03/00

Guernsey \_\_\_\_\_ County

Bridge No GUE-77-14 352 L

Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILE DRIVING LOG**

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons

Elev. of top of pile (cut-off elev.) 250.579

Elev. of nominal point of zero penetration: 249.979

Elev. of pile point at final penetration: 221.593

Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         |   |
| 12.497              |       |          |                         |   |
| 12.802              |       |          |                         |   |
| 13.106              |       |          |                         |   |
| 13.411              |       |          |                         |   |
| 13.716              |       |          |                         |   |
| 14.021              |       |          |                         |   |
| 14.326              |       |          |                         |   |
| 14.630              |       |          |                         |   |
| 14.935              |       |          |                         |   |
| 15.240              |       |          |                         | Splice #1, vis. insp. shows no sign of bent pile. |
| 15.545              | 20    | 15.24    | 484932                  |   |
| 15.850              | 23    | 13.25    | 545973                  |   |
| 16.154              | 25    | 12.19    | 585263                  |   |
| 16.459              | 24    | 12.70    | 565755                  |   |
| 16.764              | 23    | 13.25    | 545973                  |   |
| 17.069              | 27    | 11.29    | 623485                  |   |
| 17.374              | 21    | 14.51    | 505568                  |   |
| 17.678              | 24    | 12.70    | 565755                  |   |
| 17.983              | 21    | 14.51    | 505568                  |   |
| 18.288              | 22    | 13.85    | 525913                  |   |
| 18.593              | 24    | 12.70    | 565755                  |   |
| 18.898              | 23    | 13.25    | 545973                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 23 | 13.25 | 545973 |   |
| 19.507 | 24 | 12.70 | 565755 |   |
| 19.812 | 22 | 13.85 | 525913 |   |
| 20.117 | 23 | 13.25 | 545973 |   |
| 20.422 | 21 | 14.51 | 505568 |   |
| 20.726 | 26 | 11.72 | 604505 |   |
| 21.031 | 26 | 11.72 | 604505 |   |
| 21.336 | 26 | 11.72 | 604505 |   |
| 21.641 | 24 | 12.70 | 565755 |   |
| 21.946 | 27 | 11.29 | 623485 |   |
| 22.250 | 25 | 12.19 | 585263 |   |
| 22.555 | 26 | 11.72 | 604505 |   |
| 22.860 | 27 | 11.29 | 623485 |   |
| 23.165 | 24 | 12.70 | 565755 |   |
| 23.470 | 27 | 11.29 | 623485 |   |
| 23.774 | 29 | 10.51 | 660680 |   |
| 24.079 | 27 | 11.29 | 623485 |   |
| 24.384 | 29 | 10.51 | 660680 |   |
| 24.689 | 28 | 10.89 | 642208 |   |
| 24.994 | 25 | 12.19 | 585263 |   |
| 25.298 | 29 | 10.51 | 660680 |   |
| 25.603 | 22 | 13.85 | 525913 |   |
| 25.908 | 25 | 12.19 | 585263 |   |
| 26.213 | 30 | 10.16 | 678905 |   |
| 26.518 | 28 | 10.89 | 642208 |   |
| 26.822 | 28 | 10.89 | 642208 |   |
| 27.127 | 25 | 12.19 | 585263 |   |
| 27.432 | 26 | 11.72 | 604505 |   |
| 27.737 | 33 | 9.24  | 732153 |   |
| 28.042 | 33 | 9.24  | 732153 |   |
| 28.346 | 33 | 9.24  | 732153 |   |
| 28.600 | 35 | 7.26  | 880063 | Bearing obtained. No penetration after 254mm. |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 30

Fwd. Abut. \_\_\_\_\_ Abut / Pier

Date Driven 06/12/00

Guernsey \_\_\_\_\_ County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = \_\_\_\_\_

Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Joules

Elev. of top of pile (cut-off elev.) 250.579 Newtons

Elev. of nominal point of zero penetration: 249.979

Elev. of pile point at final penetration: 226.469

Length of pile in leads 12.192 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              | 20    | 15.24    | 484932                  |   |
| 11.887              | 20    | 15.24    | 484932                  |   |
| 12.192              | 20    | 15.24    | 484932                  |   |
| 12.497              | 22    | 13.85    | 525913                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 12.802              | 15    | 20.32    | 377170                  |   |
| 13.106              | 21    | 14.51    | 505568                  |   |
| 13.411              | 19    | 16.04    | 464000                  |   |
| 13.716              | 19    | 16.04    | 464000                  |   |
| 14.021              | 20    | 15.24    | 484932                  |   |
| 14.326              | 21    | 14.51    | 505568                  |   |
| 14.630              | 21    | 14.51    | 505568                  |   |
| 14.935              | 17    | 17.93    | 421219                  |   |
| 15.240              | 19    | 16.04    | 464000                  |   |
| 15.545              | 19    | 16.04    | 464000                  |   |
| 15.850              | 19    | 16.04    | 464000                  |   |
| 16.154              | 20    | 15.24    | 484932                  |   |
| 16.459              | 19    | 16.04    | 464000                  |   |
| 16.764              | 17    | 17.93    | 421219                  |   |
| 17.069              | 20    | 15.24    | 484932                  |   |
| 17.374              | 19    | 16.04    | 464000                  |   |
| 17.678              | 20    | 15.24    | 484932                  |   |
| 17.983              | 20    | 15.24    | 484932                  |   |
| 18.288              | 22    | 13.85    | 525913                  |   |
| 18.593              | 19    | 16.04    | 464000                  |   |
| 18.898              | 20    | 15.24    | 484932                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 22 | 13.85 | 525913 |   |
| 19.507 | 20 | 15.24 | 484932 |   |
| 19.812 | 24 | 12.70 | 565755 |   |
| 20.117 | 22 | 13.85 | 525913 |   |
| 20.422 | 23 | 13.25 | 545973 |   |
| 20.726 | 20 | 15.24 | 484932 |   |
| 21.031 | 24 | 12.70 | 565755 |   |
| 21.336 | 23 | 13.25 | 545973 |   |
| 21.641 | 26 | 11.72 | 604505 |   |
| 21.946 | 25 | 12.19 | 585263 |   |
| 22.250 | 22 | 13.85 | 525913 |   |
| 22.555 | 23 | 13.25 | 545973 |   |
| 22.860 | 27 | 11.29 | 623485 |   |
| 23.165 | 23 | 13.25 | 545973 |   |
| 23.470 | 22 | 13.85 | 525913 |   |
| 23.774 | 24 | 12.70 | 565755 |   |
| 24.079 | 29 | 10.51 | 660680 |   |
| 24.384 | 34 | 8.96  | 749441 |   |
| 24.638 | 35 | 7.26  | 880063 | Bearing obtained. No penetration after 254mm. |
|        |    |       |        |   |
|        |    |       |        |   |



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 31

Fwd. Abut. \_\_\_\_\_ Abut / Pier

Date Driven 06/12/00

Guernsey \_\_\_\_\_ County

Bridge No GUE-77-14 352 L

Location I-77 over C.R. 431,

TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

Capacity formula: "R" = (334DF)/S+2.54 WH or F = 25866 Joules

Elev. of top of pile (cut-off elev.) 250.579 Required "R" = 773000 Newtons

Elev. of nominal point of zero penetration: 249.979

Elev. of pile point at final penetration: 227.3848

Length of pile in leads 12.192 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         |   |
| 12.497              | 15    | 20.32    | 377170                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 12.802              | 16    | 19.05    | 399356                  |   |
| 13.106              | 20    | 15.24    | 484932                  |   |
| 13.411              | 20    | 15.24    | 484932                  |   |
| 13.716              | 23    | 13.25    | 545973                  |   |
| 14.021              | 22    | 13.85    | 525913                  |   |
| 14.326              | 21    | 14.51    | 505568                  |   |
| 14.630              | 20    | 15.24    | 484932                  |   |
| 14.935              | 23    | 13.25    | 545973                  |   |
| 15.240              | 22    | 13.85    | 525913                  |   |
| 15.545              | 21    | 14.51    | 505568                  |   |
| 15.850              | 21    | 14.51    | 505568                  |   |
| 16.154              | 20    | 15.24    | 484932                  |   |
| 16.459              | 20    | 15.24    | 484932                  |   |
| 16.764              | 19    | 16.04    | 464000                  |   |
| 17.069              | 21    | 14.51    | 505568                  |   |
| 17.374              | 18    | 16.93    | 442764                  |   |
| 17.678              | 19    | 16.04    | 464000                  |   |
| 17.983              | 19    | 16.04    | 464000                  |   |
| 18.288              | 20    | 15.24    | 484932                  |   |
| 18.593              | 18    | 16.93    | 442764                  |   |
| 18.898              | 20    | 15.24    | 484932                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 21 | 14.51 | 505568 |   |
| 19.507 | 22 | 13.85 | 525913 |   |
| 19.812 | 23 | 13.25 | 545973 |   |
| 20.117 | 20 | 15.24 | 484932 |   |
| 20.422 | 25 | 12.19 | 585263 |   |
| 20.726 | 23 | 13.25 | 545973 |   |
| 21.031 | 23 | 13.25 | 545973 |   |
| 21.336 | 22 | 13.85 | 525913 |   |
| 21.641 | 24 | 12.70 | 565755 |   |
| 21.946 | 26 | 11.72 | 604505 |   |
| 22.250 | 27 | 11.29 | 623485 |   |
| 22.555 | 28 | 10.89 | 642208 |   |
| 22.860 | 30 | 10.16 | 678905 |   |
| 23.165 | 33 | 9.24  | 732153 |   |
| 23.444 | 35 | 7.98  | 819369 | Bearing obtained. No penetration after 279mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 32

Fwd. Abut. \_\_\_\_\_ Abut / Pier

Date Driven 06/12/00

Guernsey \_\_\_\_\_ County

Bridge No GUE-77-14 352 L

Location I-77 over C.R. 431,

TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

Capacity formula: "R" = (334DF)/S+2.54 WH or F = 25866 Joules

Elev. of top of pile (cut-off elev.) 250.579 Required "R" = 773000 Newtons

Elev. of nominal point of zero penetration: 249.979

Elev. of pile point at final penetration: 228.39

Length of pile in leads 12.192 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         |   |
| 12.497              | 12    | 25.40    | 308593                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 12.802              | 15    | 20.32    | 377170                  |   |
| 13.106              | 17    | 17.93    | 421219                  |   |
| 13.411              | 25    | 12.19    | 585263                  |   |
| 13.716              | 24    | 12.70    | 565755                  |   |
| 14.021              | 19    | 16.04    | 464000                  |   |
| 14.326              | 23    | 13.25    | 545973                  |   |
| 14.630              | 20    | 15.24    | 484932                  |   |
| 14.935              | 24    | 12.70    | 565755                  |   |
| 15.240              | 24    | 12.70    | 565755                  |   |
| 15.545              | 21    | 14.51    | 505568                  |   |
| 15.850              | 25    | 12.19    | 585263                  |   |
| 16.154              | 22    | 13.85    | 525913                  |   |
| 16.459              | 24    | 12.70    | 565755                  |   |
| 16.764              | 21    | 14.51    | 505568                  |   |
| 17.069              | 23    | 13.25    | 545973                  |   |
| 17.374              | 22    | 13.85    | 525913                  |   |
| 17.678              | 25    | 12.19    | 585263                  |   |
| 17.983              | 23    | 13.25    | 545973                  |   |
| 18.288              | 28    | 10.89    | 642208                  |   |
| 18.593              | 24    | 12.70    | 565755                  |   |
| 18.898              | 25    | 12.19    | 585263                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 24 | 12.70 | 565755 |   |
| 19.507 | 27 | 11.29 | 623485 |   |
| 19.812 | 28 | 10.89 | 642208 |   |
| 20.117 | 29 | 10.51 | 660680 |   |
| 20.422 | 27 | 11.29 | 623485 |   |
| 20.726 | 31 | 9.83  | 696890 |   |
| 21.031 | 28 | 10.89 | 642208 |   |
| 21.336 | 30 | 10.16 | 678905 |   |
| 21.641 | 31 | 9.83  | 696890 |   |
| 21.946 | 33 | 9.24  | 732153 |   |
| 22.250 | 28 | 10.89 | 642208 |   |
| 22.555 | 32 | 9.53  | 714637 |   |
| 22.860 | 36 | 8.47  | 783352 | Bearing obtained. No penetration after 305mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 33  
Fwd. Abut. Abut / Pier  
Date Driven 06/12/00

Guernsey County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
Elev. of top of pile (cut-off elev.) 250.579  
Elev. of nominal point of zero penetration: 249.979  
Elev. of pile point at final penetration: 229.365  
Length of pile in leads 12.192 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              | 29    | 10.51    | 660680                  |   |
| 11.887              | 29    | 10.51    | 660680                  |   |
| 12.192              | 29    | 10.51    | 660680                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 12.497              | 27    | 11.29    | 623485                  |   |
| 12.802              | 27    | 11.29    | 623485                  |   |
| 13.106              | 28    | 10.89    | 642208                  |   |
| 13.411              | 28    | 10.89    | 642208                  |   |
| 13.716              | 28    | 10.89    | 642208                  |   |
| 14.021              | 28    | 10.89    | 642208                  |   |
| 14.326              | 28    | 10.89    | 642208                  |   |
| 14.630              | 29    | 10.51    | 660680                  |   |
| 14.935              | 31    | 9.83     | 696890                  |   |
| 15.240              | 26    | 11.72    | 604505                  |   |
| 15.545              | 27    | 11.29    | 623485                  |   |
| 15.850              | 29    | 10.51    | 660680                  |   |
| 16.154              | 29    | 10.51    | 660680                  |   |
| 16.459              | 29    | 10.51    | 660680                  |   |
| 16.764              | 26    | 11.72    | 604505                  |   |
| 17.069              | 29    | 10.51    | 660680                  |   |
| 17.374              | 25    | 12.19    | 585263                  |   |
| 17.678              | 28    | 10.89    | 642208                  |   |
| 17.983              | 29    | 10.51    | 660680                  |   |
| 18.288              | 31    | 9.83     | 696890                  |   |
| 18.593              | 31    | 9.83     | 696890                  |   |
| 18.898              | 28    | 10.89    | 642208                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 30 | 10.16 | 678905 |   |
| 19.507 | 32 | 9.53  | 714637 |   |
| 19.812 | 29 | 10.51 | 660680 |   |
| 20.117 | 33 | 9.24  | 732153 |   |
| 20.422 | 30 | 10.16 | 678905 |   |
| 20.726 | 33 | 9.24  | 732153 |   |
| 21.031 | 36 | 8.47  | 783352 | Bearing obtained. No penetration after 305mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 34  
 Fwd. Abut. \_\_\_\_\_ Abut / Pier \_\_\_\_\_  
 Date Driven 06/12/00

 Guernsey \_\_\_\_\_ County \_\_\_\_\_  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.579  
 Elev. of nominal point of zero penetration: 249.979  
 Elev. of pile point at final penetration: 227.81  
 Length of pile in leads 12.192 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         | Splice #1, vis. insp. shows no sign of bent pile. |
| 12.497              | 16    | 19.05    | 399356                  |   |
| 12.802              | 16    | 19.05    | 399356                  |   |
| 13.106              | 17    | 17.93    | 421219                  |   |
| 13.411              | 17    | 17.93    | 421219                  |   |
| 13.716              | 17    | 17.93    | 421219                  |   |
| 14.021              | 17    | 17.93    | 421219                  |   |
| 14.326              | 17    | 17.93    | 421219                  |   |
| 14.630              | 21    | 14.51    | 505568                  |   |
| 14.935              | 24    | 12.70    | 565755                  |   |
| 15.240              | 24    | 12.70    | 565755                  |   |
| 15.545              | 20    | 15.24    | 484932                  |   |
| 15.850              | 22    | 13.85    | 525913                  |   |
| 16.154              | 23    | 13.25    | 545973                  |   |
| 16.459              | 20    | 15.24    | 484932                  |   |
| 16.764              | 20    | 15.24    | 484932                  |   |
| 17.069              | 22    | 13.85    | 525913                  |   |
| 17.374              | 22    | 13.85    | 525913                  |   |
| 17.678              | 22    | 13.85    | 525913                  |   |
| 17.983              | 22    | 13.85    | 525913                  |   |
| 18.288              | 22    | 13.85    | 525913                  |   |
| 18.593              | 22    | 13.85    | 525913                  |   |
| 18.898              | 22    | 13.85    | 525913                  |   |





STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 04/15/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Rear Abutment

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules ✓

Capacity formula: "R" = (334DF)/S+2.54 ✓

Required "R" = 773000 Newtons

Elev of top of pile (cut-off elev.): 250.984

Elev. of nominal point of zero penetration: 250.384

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks | Misc. |
|----------|----------------|-------------------|---------|-------|
| 1        | 23.988 ✓       | 783352            |         |       |
| 2        | 23.713 ✓       | 819369            |         |       |
| 3        | 23.622 ✓       | 950468            |         |       |
| 4        | 25.329 ✓       | 819369            |         |       |
| 5        | 25.451 ✓       | 950468            |         |       |
| 6        | 23.927 ✓       | 783352            |         |       |
| 7        | 24.628 ✓       | 783352            |         |       |
| 8        | 24.841 ✓       | 969865            |         |       |
| 9        | 24.75 ✓        | 819369            |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |

Total = 220.249 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 1  
 Rear Abut.          Abut / Pier  
 Date Driven 04/11/00

 Guernsey          County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.984  
 Elev. of nominal point of zero penetration: 250.384  
 Elev. of pile point at final penetration: ~~244.803~~ 226.996  
 Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks  |
|---------------------|-------|----------|-------------------------|--|
| 0.305               |       |          |                         | Because of piles that have been driven on this job, blow counts won't start until after the first pile is in the ground (approx. 50'). |
| 0.610               |       |          |                         |  |
| 0.914               |       |          |                         |  |
| 1.219               |       |          |                         |  |
| 1.524               |       |          |                         |  |
| 1.829               |       |          |                         |  |
| 2.134               |       |          |                         |  |
| 2.438               |       |          |                         |  |
| 2.743               |       |          |                         |  |
| 3.048               |       |          |                         |  |
| 3.353               |       |          |                         |  |
| 3.658               |       |          |                         |  |
| 3.962               |       |          |                         |  |
| 4.267               |       |          |                         |  |
| 4.572               |       |          |                         |  |
| 4.877               |       |          |                         |  |
| 5.182               |       |          |                         |  |
| 5.486               |       |          |                         |  |
| 5.791               |       |          |                         |  |
| 6.096               |       |          |                         |  |
| 6.401               |       |          |                         |  |
| 6.706               |       |          |                         |  |
| 7.010               |       |          |                         |  |
| 7.315               |       |          |                         |  |
| 7.620               |       |          |                         |  |
| 7.925               |       |          |                         |  |
| 8.230               |       |          |                         |  |
| 8.534               |       |          |                         |  |
| 8.839               |       |          |                         |  |
| 9.144               |       |          |                         |  |
| 9.449               |       |          |                         |  |
| 9.754               |       |          |                         |  |
| 10.058              |       |          |                         |  |
| 10.363              |       |          |                         |  |
| 10.668              |       |          |                         |  |
| 10.973              |       |          |                         |  |
| 11.278              |       |          |                         |  |
| 11.582              |       |          |                         |  |
| 11.887              |       |          |                         |  |
| 12.192              |       |          |                         |  |
| 12.497              |       |          |                         |  |
| 12.802              |       |          |                         |  |
| 13.106              |       |          |                         |  |
| 13.411              |       |          |                         |  |
| 13.716              |       |          |                         |  |
| 14.021              |       |          |                         |  |
| 14.326              |       |          |                         |  |
| 14.630              |       |          |                         |  |
| 14.935              |       |          |                         |  |
| 15.240              |       |          |                         | Splice #1, vis. insp. shows no sign of bent pile.  |
| 15.545              | 28    | 10.89    | 642208                  |  |
| 15.850              | 29    | 10.51    | 660680                  |  |
| 16.154              | 30    | 10.16    | 678905                  |  |
| 16.459              | 29    | 10.51    | 660680                  |  |
| 16.764              | 27    | 11.29    | 623485                  |  |
| 17.069              | 27    | 11.29    | 623485                  |  |
| 17.374              | 29    | 10.51    | 660680                  |  |
| 17.678              | 28    | 10.89    | 642208                  |  |
| 17.983              | 30    | 10.16    | 678905                  |  |
| 18.288              | 29    | 10.51    | 660680                  |  |
| 18.593              | 27    | 11.29    | 623485                  |  |
| 18.898              | 31    | 9.83     | 696890                  |  |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 33 | 9.24  | 732153 |   |
| 19.507 | 32 | 9.53  | 714637 |   |
| 19.812 | 29 | 10.51 | 660680 |   |
| 20.117 | 32 | 9.53  | 714637 |   |
| 20.422 | 31 | 9.83  | 696890 |   |
| 20.726 | 29 | 10.51 | 660680 |   |
| 21.031 | 30 | 10.16 | 678905 |   |
| 21.336 | 31 | 9.83  | 696890 |   |
| 21.641 | 30 | 10.16 | 678905 |   |
| 21.946 | 34 | 8.96  | 749441 |   |
| 22.250 | 33 | 9.24  | 732153 |   |
| 22.555 | 31 | 9.83  | 696890 |   |
| 22.860 | 30 | 10.16 | 678905 |   |
| 23.165 | 34 | 8.96  | 749441 |   |
| 23.470 | 30 | 10.16 | 678905 |   |
| 23.774 | 32 | 9.53  | 714637 |   |
| 24.079 | 36 | 8.47  | 783352 | Bearing obtained. No penetration after 305mm. |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 2  
Rear Abut. Abut / Pier  
Date Driven 04/10/00Guernsey                      County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 250.984Elev. of nominal point of zero penetration: 250.384Elev. of pile point at final penetration: 227.271Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks  |
|------------------------|-------|-------------|----------------------------|--|
| 0.305                  |       |             |                            | Because of piles that have been driven on this job, blow counts won't start until after the first pile is in the ground (approx. 50'). |
| 0.610                  |       |             |                            |  |
| 0.914                  |       |             |                            |  |
| 1.219                  |       |             |                            |  |
| 1.524                  |       |             |                            |  |
| 1.829                  |       |             |                            |  |
| 2.134                  |       |             |                            |  |
| 2.438                  |       |             |                            |  |
| 2.743                  |       |             |                            |  |
| 3.048                  |       |             |                            |  |
| 3.353                  |       |             |                            |  |
| 3.658                  |       |             |                            |  |
| 3.962                  |       |             |                            |  |
| 4.267                  |       |             |                            |  |
| 4.572                  |       |             |                            |  |
| 4.877                  |       |             |                            |  |
| 5.182                  |       |             |                            |  |
| 5.486                  |       |             |                            |  |
| 5.791                  |       |             |                            |  |
| 6.096                  |       |             |                            |  |
| 6.401                  |       |             |                            |  |
| 6.706                  |       |             |                            |  |
| 7.010                  |       |             |                            |  |
| 7.315                  |       |             |                            |  |
| 7.620                  |       |             |                            |  |
| 7.925                  |       |             |                            |  |
| 8.230                  |       |             |                            |  |
| 8.534                  |       |             |                            |  |
| 8.839                  |       |             |                            |  |
| 9.144                  |       |             |                            |  |
| 9.449                  |       |             |                            |  |
| 9.754                  |       |             |                            |  |
| 10.058                 |       |             |                            |  |
| 10.363                 |       |             |                            |  |
| 10.668                 |       |             |                            |  |
| 10.973                 |       |             |                            |  |
| 11.278                 |       |             |                            |  |
| 11.582                 |       |             |                            |  |
| 11.887                 |       |             |                            |  |
| 12.192                 |       |             |                            |  |
| 12.497                 |       |             |                            |  |
| 12.802                 |       |             |                            |  |
| 13.106                 |       |             |                            |  |
| 13.411                 |       |             |                            |  |
| 13.716                 |       |             |                            |  |
| 14.021                 |       |             |                            |  |
| 14.326                 |       |             |                            |  |
| 14.630                 |       |             |                            |  |
| 14.935                 |       |             |                            |  |
| 15.240                 |       |             |                            | Splice #1, vis. insp. shows no sign of bent pile.  |
| 15.545                 | 26    | 11.72       | 604505                     |  |
| 15.850                 | 24    | 12.70       | 565755                     |  |
| 16.154                 | 24    | 12.70       | 565755                     |  |
| 16.459                 | 27    | 11.29       | 623485                     |  |
| 16.764                 | 26    | 11.72       | 604505                     |  |
| 17.069                 | 24    | 12.70       | 565755                     |  |
| 17.374                 | 25    | 12.19       | 585263                     |  |
| 17.678                 | 25    | 12.19       | 585263                     |  |
| 17.983                 | 25    | 12.19       | 585263                     |  |
| 18.288                 | 25    | 12.19       | 585263                     |  |
| 18.593                 | 27    | 11.29       | 623485                     |  |
| 18.898                 | 30    | 10.16       | 678905                     |  |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 29 | 10.51 | 660680 |   |
| 19.507 | 30 | 10.16 | 678905 |   |
| 19.812 | 27 | 11.29 | 623485 |   |
| 20.117 | 30 | 10.16 | 678905 |   |
| 20.422 | 26 | 11.72 | 604505 |   |
| 20.726 | 27 | 11.29 | 623485 |   |
| 21.031 | 31 | 9.83  | 696890 |   |
| 21.336 | 30 | 10.16 | 678905 |   |
| 21.641 | 30 | 10.16 | 678905 |   |
| 21.946 | 31 | 9.83  | 696890 |   |
| 22.250 | 30 | 10.16 | 678905 |   |
| 22.555 | 31 | 9.83  | 696890 |   |
| 22.860 | 32 | 9.53  | 714637 |   |
| 23.165 | 30 | 10.16 | 678905 |   |
| 23.444 | 35 | 7.98  | 819369 | Bearing obtained. No penetration after 279mm. |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 3  
Rear Abut. \_\_\_\_\_ Abut / Pier  
Date Driven 04/10/00Guernsey \_\_\_\_\_ County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
Elev. of top of pile (cut-off elev.) 250.984  
Elev. of nominal point of zero penetration: 250.384  
Elev. of pile point at final penetration: 227.362  
Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks  |
|------------------------|-------|-------------|----------------------------|--|
| 0.305                  |       |             |                            | Because of piles that have been driven on this job, blow counts won't start until after the first pile is in the ground (approx. 50'). |
| 0.610                  |       |             |                            |  |
| 0.914                  |       |             |                            |  |
| 1.219                  |       |             |                            |  |
| 1.524                  |       |             |                            |  |
| 1.829                  |       |             |                            |  |
| 2.134                  |       |             |                            |  |
| 2.438                  |       |             |                            |  |
| 2.743                  |       |             |                            |  |
| 3.048                  |       |             |                            |  |
| 3.353                  |       |             |                            |  |
| 3.658                  |       |             |                            |  |
| 3.962                  |       |             |                            |  |
| 4.267                  |       |             |                            |  |
| 4.572                  |       |             |                            |  |
| 4.877                  |       |             |                            |  |
| 5.182                  |       |             |                            |  |
| 5.486                  |       |             |                            |  |
| 5.791                  |       |             |                            |  |
| 6.096                  |       |             |                            |  |
| 6.401                  |       |             |                            |  |
| 6.706                  |       |             |                            |  |
| 7.010                  |       |             |                            |  |
| 7.315                  |       |             |                            |  |
| 7.620                  |       |             |                            |  |
| 7.925                  |       |             |                            |  |
| 8.230                  |       |             |                            |  |
| 8.534                  |       |             |                            |  |
| 8.839                  |       |             |                            |  |
| 9.144                  |       |             |                            |  |
| 9.449                  |       |             |                            |  |
| 9.754                  |       |             |                            |  |
| 10.058                 |       |             |                            |  |
| 10.363                 |       |             |                            |  |
| 10.668                 |       |             |                            |  |
| 10.973                 |       |             |                            |  |
| 11.278                 |       |             |                            |  |
| 11.582                 |       |             |                            |  |
| 11.887                 |       |             |                            |  |
| 12.192                 |       |             |                            |  |
| 12.497                 |       |             |                            |  |
| 12.802                 |       |             |                            |  |
| 13.106                 |       |             |                            |  |
| 13.411                 |       |             |                            |  |
| 13.716                 |       |             |                            |  |
| 14.021                 |       |             |                            |  |
| 14.326                 |       |             |                            |  |
| 14.630                 |       |             |                            |  |
| 14.935                 |       |             |                            |  |
| 15.240                 |       |             |                            | Splice #1, vis. insp. shows no sign of bent pile.  |
| 15.545                 | 29    | 10.51       | 660680                     |  |
| 15.850                 | 28    | 10.89       | 642208                     |  |
| 16.154                 | 30    | 10.16       | 678905                     |  |
| 16.459                 | 31    | 9.83        | 696890                     |  |
| 16.764                 | 29    | 10.51       | 660680                     |  |
| 17.069                 | 30    | 10.16       | 678905                     |  |
| 17.374                 | 31    | 9.83        | 696890                     |  |
| 17.678                 | 33    | 9.24        | 732153                     |  |
| 17.983                 | 33    | 9.24        | 732153                     |  |
| 18.288                 | 33    | 9.24        | 732153                     |  |
| 18.593                 | 34    | 8.96        | 749441                     |  |
| 18.898                 | 34    | 8.96        | 749441                     |  |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 33 | 9.24  | 732153 |   |
| 19.507 | 33 | 9.24  | 732153 |   |
| 19.812 | 30 | 10.16 | 678905 |   |
| 20.117 | 30 | 10.16 | 678905 |   |
| 20.422 | 30 | 10.16 | 678905 |   |
| 20.726 | 27 | 11.29 | 623485 |   |
| 21.031 | 30 | 10.16 | 678905 |   |
| 21.336 | 33 | 9.24  | 732153 |   |
| 21.641 | 30 | 10.16 | 678905 |   |
| 21.946 | 31 | 9.83  | 696890 |   |
| 22.250 | 32 | 9.53  | 714637 |   |
| 22.555 | 30 | 10.16 | 678905 |   |
| 22.860 | 34 | 8.96  | 749441 |   |
| 23.165 | 32 | 9.53  | 714637 |   |
| 23.470 | 34 | 8.96  | 749441 |   |
| 23.699 | 35 | 6.53  | 950468 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 4  
Rear Abut. Abut / Pier  
Date Driven 04/10/00

Guernsey          County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 250.984Elev. of nominal point of zero penetration: 250.384Elev. of pile point at final penetration: 225.655Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 2     | 152.40      | 55648                      |   |
| 3.353                  | 13    | 23.45       | 331796                     |   |
| 3.658                  | 13    | 23.45       | 331796                     |   |
| 3.962                  | 13    | 23.45       | 331796                     |   |
| 4.267                  | 13    | 23.45       | 331796                     |   |
| 4.572                  | 13    | 23.45       | 331796                     |   |
| 4.877                  | 13    | 23.45       | 331796                     |   |
| 5.182                  | 14    | 21.77       | 354652                     |   |
| 5.486                  | 14    | 21.77       | 354652                     |   |
| 5.791                  | 14    | 21.77       | 354652                     |   |
| 6.096                  | 14    | 21.77       | 354652                     |   |
| 6.401                  | 15    | 20.32       | 377170                     |   |
| 6.706                  | 15    | 20.32       | 377170                     |   |
| 7.010                  | 15    | 20.32       | 377170                     |   |
| 7.315                  | 15    | 20.32       | 377170                     |   |
| 7.620                  | 15    | 20.32       | 377170                     |   |
| 7.925                  | 15    | 20.32       | 377170                     |   |
| 8.230                  | 15    | 20.32       | 377170                     |   |
| 8.534                  | 15    | 20.32       | 377170                     |   |
| 8.839                  | 15    | 20.32       | 377170                     |   |
| 9.144                  | 15    | 20.32       | 377170                     |   |
| 9.449                  | 18    | 16.93       | 442764                     |   |
| 9.754                  | 18    | 16.93       | 442764                     |   |
| 10.058                 | 19    | 16.04       | 464000                     |   |
| 10.363                 | 19    | 16.04       | 464000                     |   |
| 10.668                 | 19    | 16.04       | 464000                     |   |
| 10.973                 | 21    | 14.51       | 505568                     |   |
| 11.278                 | 21    | 14.51       | 505568                     |   |
| 11.582                 | 22    | 13.85       | 525913                     |   |
| 11.887                 | 22    | 13.85       | 525913                     |   |
| 12.192                 | 22    | 13.85       | 525913                     |   |
| 12.497                 | 22    | 13.85       | 525913                     |   |
| 12.802                 | 22    | 13.85       | 525913                     |   |
| 13.106                 | 22    | 13.85       | 525913                     |   |
| 13.411                 | 22    | 13.85       | 525913                     |   |
| 13.716                 | 23    | 13.25       | 545973                     |   |
| 14.021                 | 25    | 12.19       | 585263                     |   |
| 14.326                 | 25    | 12.19       | 585263                     |   |
| 14.630                 | 26    | 11.72       | 604505                     |   |
| 14.935                 | 26    | 11.72       | 604505                     |   |
| 15.240                 | 26    | 11.72       | 604505                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 15.545                 | 29    | 10.51       | 660680                     |   |
| 15.850                 | 28    | 10.89       | 642208                     |   |
| 16.154                 | 27    | 11.29       | 623485                     |   |
| 16.459                 | 25    | 12.19       | 585263                     |   |
| 16.764                 | 25    | 12.19       | 585263                     |   |
| 17.069                 | 23    | 13.25       | 545973                     |   |
| 17.374                 | 26    | 11.72       | 604505                     |   |
| 17.678                 | 26    | 11.72       | 604505                     |   |
| 17.983                 | 25    | 12.19       | 585263                     |   |
| 18.288                 | 26    | 11.72       | 604505                     |   |
| 18.593                 | 26    | 11.72       | 604505                     |   |
| 18.898                 | 28    | 10.89       | 642208                     |   |



|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 25 | 12.19 | 585263 |   |
| 19.507 | 27 | 11.29 | 623485 |   |
| 19.812 | 23 | 13.25 | 545973 |   |
| 20.117 | 26 | 11.72 | 604505 |   |
| 20.422 | 22 | 13.85 | 525913 |   |
| 20.726 | 26 | 11.72 | 604505 |   |
| 21.031 | 25 | 12.19 | 585263 |   |
| 21.336 | 26 | 11.72 | 604505 |   |
| 21.641 | 24 | 12.70 | 565755 |   |
| 21.946 | 28 | 10.89 | 642208 |   |
| 22.250 | 25 | 12.19 | 585263 |   |
| 22.555 | 25 | 12.19 | 585263 |   |
| 22.860 | 27 | 11.29 | 623485 |   |
| 23.165 | 25 | 12.19 | 585263 |   |
| 23.470 | 30 | 10.16 | 678905 |   |
| 23.774 | 29 | 10.51 | 660680 |   |
| 24.079 | 28 | 10.89 | 642208 |   |
| 24.384 | 31 | 9.83  | 696890 |   |
| 24.689 | 27 | 11.29 | 623485 |   |
| 24.994 | 31 | 9.83  | 696890 |   |
| 25.273 | 35 | 7.98  | 819369 | Bearing obtained. No penetration after 279mm. |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 5  
 Rear Abut. \_\_\_\_\_ Abut / Pier  
 Date Driven 06/13/00

Guernsey \_\_\_\_\_ County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.984  
 Elev. of nominal point of zero penetration: 250.384  
 Elev. of pile point at final penetration: 225.533  
 Length of pile in leads 18.288 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  |       |             |                            |   |
| 0.610                  |       |             |                            |   |
| 0.914                  |       |             |                            |   |
| 1.219                  |       |             |                            |   |
| 1.524                  |       |             |                            |   |
| 1.829                  |       |             |                            |   |
| 2.134                  |       |             |                            |   |
| 2.438                  |       |             |                            |   |
| 2.743                  |       |             |                            |   |
| 3.048                  |       |             |                            |   |
| 3.353                  |       |             |                            |   |
| 3.658                  |       |             |                            |   |
| 3.962                  |       |             |                            |   |
| 4.267                  |       |             |                            |   |
| 4.572                  |       |             |                            |   |
| 4.877                  |       |             |                            |   |
| 5.182                  |       |             |                            |   |
| 5.486                  |       |             |                            |   |
| 5.791                  |       |             |                            |   |
| 6.096                  |       |             |                            |   |
| 6.401                  |       |             |                            |   |
| 6.706                  |       |             |                            |   |
| 7.010                  |       |             |                            |   |
| 7.315                  |       |             |                            |   |
| 7.620                  |       |             |                            |   |
| 7.925                  |       |             |                            |   |
| 8.230                  |       |             |                            |   |
| 8.534                  |       |             |                            |   |
| 8.839                  |       |             |                            |   |
| 9.144                  |       |             |                            |   |
| 9.449                  |       |             |                            |   |
| 9.754                  |       |             |                            |   |
| 10.058                 |       |             |                            |   |
| 10.363                 |       |             |                            |   |
| 10.668                 |       |             |                            |   |
| 10.973                 |       |             |                            |   |
| 11.278                 |       |             |                            |   |
| 11.582                 |       |             |                            |   |
| 11.887                 | 18    | 16.93       | 442764                     |   |
| 12.192                 | 18    | 16.93       | 442764                     |   |
| 12.497                 | 18    | 16.93       | 442764                     |   |
| 12.802                 | 20    | 15.24       | 484932                     |   |
| 13.106                 | 21    | 14.51       | 505568                     |   |
| 13.411                 | 22    | 13.85       | 525913                     |   |
| 13.716                 | 20    | 15.24       | 484932                     |   |
| 14.021                 | 20    | 15.24       | 484932                     |   |
| 14.326                 | 20    | 15.24       | 484932                     |   |
| 14.630                 | 21    | 14.51       | 505568                     |   |
| 14.935                 | 21    | 14.51       | 505568                     |   |
| 15.240                 | 21    | 14.51       | 505568                     |   |
| 15.545                 | 21    | 14.51       | 505568                     |   |
| 15.850                 | 20    | 15.24       | 484932                     |   |
| 16.154                 | 22    | 13.85       | 525913                     |   |
| 16.459                 | 20    | 15.24       | 484932                     |   |
| 16.764                 | 23    | 13.25       | 545973                     |   |
| 17.069                 | 22    | 13.85       | 525913                     |   |
| 17.374                 | 24    | 12.70       | 565755                     |   |
| 17.678                 | 23    | 13.25       | 545973                     |   |
| 17.983                 | 25    | 12.19       | 585263                     |   |
| 18.288                 | 29    | 10.51       | 660680                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 18.593                 | 26    | 11.72       | 604505                     |   |
| 18.898                 | 30    | 10.16       | 678905                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 26 | 11.72 | 604505 |   |
| 19.507 | 27 | 11.29 | 623485 |   |
| 19.812 | 29 | 10.51 | 660680 |   |
| 20.117 | 28 | 10.89 | 642208 |   |
| 20.422 | 29 | 10.51 | 660680 |   |
| 20.726 | 29 | 10.51 | 660680 |   |
| 21.031 | 27 | 11.29 | 623485 |   |
| 21.336 | 29 | 10.51 | 660680 |   |
| 21.641 | 28 | 10.89 | 642208 |   |
| 21.946 | 29 | 10.51 | 660680 |   |
| 22.250 | 28 | 10.89 | 642208 |   |
| 22.555 | 27 | 11.29 | 623485 |   |
| 22.860 | 28 | 10.89 | 642208 |   |
| 23.165 | 28 | 10.89 | 642208 |   |
| 23.470 | 27 | 11.29 | 623485 |   |
| 23.774 | 26 | 11.72 | 604505 |   |
| 24.079 | 31 | 9.83  | 696890 |   |
| 24.384 | 28 | 10.89 | 642208 |   |
| 24.689 | 30 | 10.16 | 678905 |   |
| 24.994 | 30 | 10.16 | 678905 |   |
| 25.298 | 30 | 10.16 | 678905 |   |
| 25.527 | 35 | 6.53  | 950468 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 6  
 Rear Abut.          Abut / Pier  
 Date Driven 06/13/00

Guernsey          County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 250.984Elev. of nominal point of zero penetration: 250.384Elev. of pile point at final penetration: 227.057Length of pile in leads 18.288 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  |       |             |                            |   |
| 0.610                  |       |             |                            |   |
| 0.914                  |       |             |                            |   |
| 1.219                  |       |             |                            |   |
| 1.524                  |       |             |                            |   |
| 1.829                  |       |             |                            |   |
| 2.134                  |       |             |                            |   |
| 2.438                  |       |             |                            |   |
| 2.743                  |       |             |                            |   |
| 3.048                  |       |             |                            |   |
| 3.353                  |       |             |                            |   |
| 3.658                  |       |             |                            |   |
| 3.962                  |       |             |                            |   |
| 4.267                  |       |             |                            |   |
| 4.572                  |       |             |                            |   |
| 4.877                  |       |             |                            |   |
| 5.182                  |       |             |                            |   |
| 5.486                  |       |             |                            |   |
| 5.791                  |       |             |                            |   |
| 6.096                  |       |             |                            |   |
| 6.401                  |       |             |                            |   |
| 6.706                  |       |             |                            |   |
| 7.010                  |       |             |                            |   |
| 7.315                  |       |             |                            |   |
| 7.620                  |       |             |                            |   |
| 7.925                  |       |             |                            |   |
| 8.230                  |       |             |                            |   |
| 8.534                  |       |             |                            |   |
| 8.839                  |       |             |                            |   |
| 9.144                  |       |             |                            |   |
| 9.449                  |       |             |                            |   |
| 9.754                  |       |             |                            |   |
| 10.058                 |       |             |                            |   |
| 10.363                 |       |             |                            |   |
| 10.668                 |       |             |                            |   |
| 10.973                 |       |             |                            |   |
| 11.278                 |       |             |                            |   |
| 11.582                 |       |             |                            |   |
| 11.887                 | 19    | 16.04       | 464000                     |   |
| 12.192                 | 20    | 15.24       | 484932                     |   |
| 12.497                 | 20    | 15.24       | 484932                     |   |
| 12.802                 | 20    | 15.24       | 484932                     |   |
| 13.106                 | 19    | 16.04       | 464000                     |   |
| 13.411                 | 19    | 16.04       | 464000                     |   |
| 13.716                 | 20    | 15.24       | 484932                     |   |
| 14.021                 | 18    | 16.93       | 442764                     |   |
| 14.326                 | 21    | 14.51       | 505568                     |   |
| 14.630                 | 20    | 15.24       | 484932                     |   |
| 14.935                 | 20    | 15.24       | 484932                     |   |
| 15.240                 | 19    | 16.04       | 464000                     |   |
| 15.545                 | 20    | 15.24       | 484932                     |   |
| 15.850                 | 21    | 14.51       | 505568                     |   |
| 16.154                 | 20    | 15.24       | 484932                     |   |
| 16.459                 | 22    | 13.85       | 525913                     |   |
| 16.764                 | 21    | 14.51       | 505568                     |   |
| 17.069                 | 21    | 14.51       | 505568                     |   |
| 17.374                 | 22    | 13.85       | 525913                     |   |
| 17.678                 | 19    | 16.04       | 464000                     |   |
| 17.983                 | 27    | 11.29       | 623485                     |   |
| 18.288                 | 26    | 11.72       | 604505                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 18.593                 | 25    | 12.19       | 585263                     |   |
| 18.898                 | 27    | 11.29       | 623485                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 27 | 11.29 | 623485 |   |
| 19.507 | 27 | 11.29 | 623485 |   |
| 19.812 | 26 | 11.72 | 604505 |   |
| 20.117 | 28 | 10.89 | 642208 |   |
| 20.422 | 28 | 10.89 | 642208 |   |
| 20.726 | 28 | 10.89 | 642208 |   |
| 21.031 | 27 | 11.29 | 623485 |   |
| 21.336 | 29 | 10.51 | 660680 |   |
| 21.641 | 28 | 10.89 | 642208 |   |
| 21.946 | 29 | 10.51 | 660680 |   |
| 22.250 | 30 | 10.16 | 678905 |   |
| 22.555 | 28 | 10.89 | 642208 |   |
| 22.860 | 31 | 9.83  | 696890 |   |
| 23.165 | 32 | 9.53  | 714637 |   |
| 23.470 | 33 | 9.24  | 732153 |   |
| 23.774 | 33 | 9.24  | 732153 |   |
| 24.079 | 36 | 8.47  | 783352 | Bearing obtained. No penetration after 305mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 7  
Rear Abut. \_\_\_\_\_ Abut / Pier  
Date Driven 06/13/00

Guernsey County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILE DRIVING LOG**

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
Elev. of top of pile (cut-off elev.) 250.984  
Elev. of nominal point of zero penetration: 250.384  
Elev. of pile point at final penetration: 226.356  
Length of pile in leads 18.288 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         |   |
| 12.497              |       |          |                         |   |
| 12.802              |       |          |                         |   |
| 13.106              |       |          |                         |   |
| 13.411              |       |          |                         |   |
| 13.716              |       |          |                         |   |
| 14.021              |       |          |                         |   |
| 14.326              |       |          |                         |   |
| 14.630              |       |          |                         |   |
| 14.935              |       |          |                         |   |
| 15.240              |       |          |                         |   |
| 15.545              |       |          |                         |   |
| 15.850              |       |          |                         |   |
| 16.154              |       |          |                         |   |
| 16.459              |       |          |                         |   |
| 16.764              |       |          |                         |   |
| 17.069              |       |          |                         |   |
| 17.374              |       |          |                         |   |
| 17.678              |       |          |                         |   |
| 17.983              | 22    | 13.85    | 525913                  |   |
| 18.288              | 24    | 12.70    | 565755                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 18.593              | 23    | 13.25    | 545973                  |   |
| 18.898              | 25    | 12.19    | 585263                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 24 | 12.70 | 565755 |   |
| 19.507 | 26 | 11.72 | 604505 |   |
| 19.812 | 23 | 13.25 | 545973 |   |
| 20.117 | 22 | 13.85 | 525913 |   |
| 20.422 | 26 | 11.72 | 604505 |   |
| 20.726 | 26 | 11.72 | 604505 |   |
| 21.031 | 24 | 12.70 | 565755 |   |
| 21.336 | 25 | 12.19 | 585263 |   |
| 21.641 | 29 | 10.51 | 660680 |   |
| 21.946 | 26 | 11.72 | 604505 |   |
| 22.250 | 28 | 10.89 | 642208 |   |
| 22.555 | 29 | 10.51 | 660680 |   |
| 22.860 | 26 | 11.72 | 604505 |   |
| 23.165 | 33 | 9.24  | 732153 |   |
| 23.470 | 29 | 10.51 | 660680 |   |
| 23.774 | 29 | 10.51 | 660680 |   |
| 24.079 | 36 | 8.47  | 783352 | Bearing obtained. No penetration after 305mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 8  
 Rear Abut. Abut / Pier  
 Date Driven 06/13/00

 Guernsey County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.984  
 Elev. of nominal point of zero penetration: 250.384  
 Elev. of pile point at final penetration: 226.143  
 Length of pile in leads 18.288 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  |       |             |                            |   |
| 0.610                  |       |             |                            |   |
| 0.914                  |       |             |                            |   |
| 1.219                  |       |             |                            |   |
| 1.524                  |       |             |                            |   |
| 1.829                  |       |             |                            |   |
| 2.134                  |       |             |                            |   |
| 2.438                  |       |             |                            |   |
| 2.743                  |       |             |                            |   |
| 3.048                  |       |             |                            |   |
| 3.353                  |       |             |                            |   |
| 3.658                  |       |             |                            |   |
| 3.962                  |       |             |                            |   |
| 4.267                  |       |             |                            |   |
| 4.572                  |       |             |                            |   |
| 4.877                  |       |             |                            |   |
| 5.182                  |       |             |                            |   |
| 5.486                  |       |             |                            |   |
| 5.791                  |       |             |                            |   |
| 6.096                  |       |             |                            |   |
| 6.401                  |       |             |                            |   |
| 6.706                  |       |             |                            |   |
| 7.010                  |       |             |                            |   |
| 7.315                  |       |             |                            |   |
| 7.620                  |       |             |                            |   |
| 7.925                  |       |             |                            |   |
| 8.230                  |       |             |                            |   |
| 8.534                  |       |             |                            |   |
| 8.839                  |       |             |                            |   |
| 9.144                  |       |             |                            |   |
| 9.449                  |       |             |                            |   |
| 9.754                  |       |             |                            |   |
| 10.058                 |       |             |                            |   |
| 10.363                 |       |             |                            |   |
| 10.668                 |       |             |                            |   |
| 10.973                 |       |             |                            |   |
| 11.278                 |       |             |                            |   |
| 11.582                 |       |             |                            |   |
| 11.887                 |       |             |                            |   |
| 12.192                 |       |             |                            |   |
| 12.497                 |       |             |                            |   |
| 12.802                 |       |             |                            |   |
| 13.106                 |       |             |                            |   |
| 13.411                 |       |             |                            |   |
| 13.716                 |       |             |                            |   |
| 14.021                 |       |             |                            |   |
| 14.326                 |       |             |                            |   |
| 14.630                 |       |             |                            |   |
| 14.935                 |       |             |                            |   |
| 15.240                 |       |             |                            |   |
| 15.545                 |       |             |                            |   |
| 15.850                 |       |             |                            |   |
| 16.154                 |       |             |                            |   |
| 16.459                 |       |             |                            |   |
| 16.764                 |       |             |                            |   |
| 17.069                 |       |             |                            |   |
| 17.374                 |       |             |                            |   |
| 17.678                 |       |             |                            |   |
| 17.983                 |       |             |                            |   |
| 18.288                 |       |             |                            | Splice #1, vis. insp. shows no sign of bent pile. |
| 18.593                 |       |             |                            |   |
| 18.898                 |       |             |                            |   |



|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 |    |       |        |   |
| 19.507 | 22 | 13.85 | 525913 |   |
| 19.812 | 23 | 13.25 | 545973 |   |
| 20.117 | 24 | 12.70 | 565755 |   |
| 20.422 | 22 | 13.85 | 525913 |   |
| 20.726 | 22 | 13.85 | 525913 |   |
| 21.031 | 22 | 13.85 | 525913 |   |
| 21.336 | 22 | 13.85 | 525913 |   |
| 21.641 | 21 | 14.51 | 505568 |   |
| 21.946 | 22 | 13.85 | 525913 |   |
| 22.250 | 23 | 13.25 | 545973 |   |
| 22.555 | 24 | 12.70 | 565755 |   |
| 22.860 | 24 | 12.70 | 565755 |   |
| 23.165 | 23 | 13.25 | 545973 |   |
| 23.470 | 24 | 12.70 | 565755 |   |
| 23.774 | 25 | 12.19 | 585263 |   |
| 24.079 | 25 | 12.19 | 585263 |   |
| 24.384 | 28 | 10.89 | 642208 |   |
| 24.689 | 30 | 10.16 | 678905 |   |
| 24.994 | 33 | 9.24  | 732153 |   |
| 25.233 | 36 | 6.35  | 969865 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 9  
Rear Abut.          Abut / Pier  
Date Driven 06/13/00

Guernsey          County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
Elev. of top of pile (cut-off elev.) 250.984  
Elev. of nominal point of zero penetration: 250.384  
Elev. of pile point at final penetration: 226.234  
Length of pile in leads 18.288 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         |   |
| 12.497              |       |          |                         |   |
| 12.802              |       |          |                         |   |
| 13.106              |       |          |                         |   |
| 13.411              |       |          |                         |   |
| 13.716              |       |          |                         |   |
| 14.021              |       |          |                         |   |
| 14.326              |       |          |                         |   |
| 14.630              |       |          |                         |   |
| 14.935              |       |          |                         |   |
| 15.240              |       |          |                         |   |
| 15.545              |       |          |                         |   |
| 15.850              |       |          |                         |   |
| 16.154              |       |          |                         |   |
| 16.459              |       |          |                         |   |
| 16.764              |       |          |                         |   |
| 17.069              |       |          |                         |   |
| 17.374              |       |          |                         |   |
| 17.678              |       |          |                         |   |
| 17.983              |       |          |                         |   |
| 18.288              |       |          |                         | Splice #1, vis. insp. shows no sign of bent pile. |
| 18.593              | 25    | 12.19    | 585263                  |   |
| 18.898              | 25    | 12.19    | 585263                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 28 | 10.89 | 642208 |   |
| 19.507 | 25 | 12.19 | 585263 |   |
| 19.812 | 26 | 11.72 | 604505 |   |
| 20.117 | 24 | 12.70 | 565755 |   |
| 20.422 | 26 | 11.72 | 604505 |   |
| 20.726 | 24 | 12.70 | 565755 |   |
| 21.031 | 26 | 11.72 | 604505 |   |
| 21.336 | 25 | 12.19 | 585263 |   |
| 21.641 | 26 | 11.72 | 604505 |   |
| 21.946 | 26 | 11.72 | 604505 |   |
| 22.250 | 26 | 11.72 | 604505 |   |
| 22.555 | 27 | 11.29 | 623485 |   |
| 22.860 | 26 | 11.72 | 604505 |   |
| 23.165 | 26 | 11.72 | 604505 |   |
| 23.470 | 26 | 11.72 | 604505 |   |
| 23.774 | 26 | 11.72 | 604505 |   |
| 24.079 | 27 | 11.29 | 623485 |   |
| 24.384 | 27 | 11.29 | 623485 |   |
| 24.689 | 28 | 10.89 | 642208 |   |
| 24.968 | 35 | 7.98  | 819369 | Bearing obtained. No penetration after 279mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD** Pier #1 **FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile  
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F= 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 872000 Newtons  
 Elev of top of pile (cut-off elev.): 243.96  
 Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks                 | Misc. |
|----------|----------------|-------------------|-------------------------|-------|
| 10       | 28.37          | 1454797           |                         |       |
| 11       | 28.44          | 1865848           |                         |       |
| 12       | 27.43          | 1284338           | Piling at a 1:4 batter. |       |
| 13       | 27.94          | 1168808           | Piling at a 1:4 batter. |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |

Total = 112.18 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 File No. 10  
 Pier #1 Abut / Pier  
 Date Driven 02/23/00

 Guernsey                      County  
 Bridge No GUE-77-14352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 215.59  
 Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               | 1     | 304.80   | 28054                   |   |
| 0.610               | 1     | 304.80   | 28054                   |   |
| 0.914               | 1     | 304.80   | 28054                   |   |
| 1.219               | 1     | 304.80   | 28054                   |   |
| 1.524               | 1     | 304.80   | 28054                   |   |
| 1.829               | 1     | 304.80   | 28054                   |   |
| 2.134               | 1     | 304.80   | 28054                   |   |
| 2.438               | 1     | 304.80   | 28054                   |   |
| 2.743               | 1     | 304.80   | 28054                   |   |
| 3.048               | 1     | 304.80   | 28054                   |   |
| 3.353               | 1     | 304.80   | 28054                   |   |
| 3.658               | 1     | 304.80   | 28054                   |   |
| 3.962               | 1     | 304.80   | 28054                   |   |
| 4.267               | 1     | 304.80   | 28054                   |   |
| 4.572               | 1     | 304.80   | 28054                   |   |
| 4.877               | 1     | 304.80   | 28054                   |   |
| 5.182               | 1     | 304.80   | 28054                   |   |
| 5.486               | 1     | 304.80   | 28054                   |   |
| 5.791               | 2     | 152.40   | 55648                   |   |
| 6.096               | 2     | 152.40   | 55648                   |   |
| 6.401               | 3     | 101.60   | 82793                   |   |
| 6.706               | 4     | 76.20    | 109501                  |   |
| 7.010               | 4     | 76.20    | 109501                  |   |
| 7.315               | 4     | 76.20    | 109501                  |   |
| 7.620               | 4     | 76.20    | 109501                  |   |
| 7.925               | 4     | 76.20    | 109501                  |   |
| 8.230               | 4     | 76.20    | 109501                  |   |
| 8.534               | 4     | 76.20    | 109501                  |   |
| 8.839               | 4     | 76.20    | 109501                  |   |
| 9.144               | 4     | 76.20    | 109501                  |   |
| 9.449               | 7     | 43.54    | 187100                  |   |
| 9.754               | 7     | 43.54    | 187100                  |   |
| 10.058              | 7     | 43.54    | 187100                  |   |
| 10.363              | 8     | 38.10    | 212158                  |   |
| 10.668              | 8     | 38.10    | 212158                  |   |
| 10.973              | 8     | 38.10    | 212158                  |   |
| 11.278              | 8     | 38.10    | 212158                  |   |
| 11.582              | 8     | 38.10    | 212158                  |   |
| 11.887              | 8     | 38.10    | 212158                  |   |
| 12.192              | 8     | 38.10    | 212158                  |   |
| 12.497              | 9     | 33.87    | 236827                  |   |
| 12.802              | 9     | 33.87    | 236827                  |   |
| 13.106              | 9     | 33.87    | 236827                  |   |
| 13.411              | 10    | 30.48    | 261117                  |   |
| 13.716              | 10    | 30.48    | 261117                  |   |
| 14.021              | 9     | 33.87    | 236827                  |   |
| 14.326              | 11    | 27.71    | 285037                  |   |
| 14.630              | 12    | 25.40    | 308593                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935              | 11    | 27.71    | 285037                  |   |
| 15.240              | 7     | 43.54    | 187100                  |   |
| 15.545              | 12    | 25.40    | 308593                  |   |
| 15.850              | 12    | 25.40    | 308593                  |   |
| 16.154              | 12    | 25.40    | 308593                  |   |
| 16.459              | 12    | 25.40    | 308593                  |   |
| 16.764              | 13    | 23.45    | 331796                  |   |
| 17.069              | 14    | 21.77    | 354652                  |   |
| 17.374              | 14    | 21.77    | 354652                  |   |
| 17.678              | 14    | 21.77    | 354652                  |   |
| 17.983              | 15    | 20.32    | 377170                  |   |
| 18.288              | 15    | 20.32    | 377170                  |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 13 | 23.45 | 331796  |   |
| 18.898 | 12 | 25.40 | 308593  |   |
| 19.202 | 14 | 21.77 | 354652  |   |
| 19.507 | 13 | 23.45 | 331796  |   |
| 19.812 | 12 | 25.40 | 308593  |   |
| 20.117 | 13 | 23.45 | 331796  |   |
| 20.422 | 13 | 23.45 | 331796  |   |
| 20.726 | 13 | 23.45 | 331796  |   |
| 21.031 | 12 | 25.40 | 308593  |   |
| 21.336 | 16 | 19.05 | 399356  |   |
| 21.641 | 14 | 21.77 | 354652  |   |
| 21.946 | 20 | 15.24 | 484932  |   |
| 22.250 | 18 | 16.93 | 442764  |   |
| 22.555 | 23 | 13.25 | 545973  |   |
| 22.860 | 24 | 12.70 | 565755  |   |
| 23.165 | 17 | 17.93 | 421219  |   |
| 23.470 | 19 | 16.04 | 464000  |   |
| 23.774 | 16 | 19.05 | 399356  |   |
| 24.079 | 16 | 19.05 | 399356  |   |
| 24.384 | 18 | 16.93 | 442764  |   |
| 24.689 | 15 | 20.32 | 377170  |   |
| 24.994 | 18 | 16.93 | 442764  |   |
| 25.298 | 15 | 20.32 | 377170  |   |
| 25.603 | 17 | 17.93 | 421219  |   |
| 25.908 | 18 | 16.93 | 442764  |   |
| 26.213 | 14 | 10.89 | 642208  |   |
| 26.518 | 14 | 10.89 | 642208  |   |
| 26.822 | 15 | 10.16 | 678905  |   |
| 27.127 | 13 | 11.72 | 604505  |   |
| 27.432 | 20 | 7.62  | 848632  |   |
| 27.737 | 23 | 6.63  | 940652  |   |
| 28.042 | 19 | 8.02  | 816405  |   |
| 28.194 | 45 | 3.39  | 1454797 | Bearing obtained. No penetration after 152mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 11  
 Pier #1 Abut / Pier  
 Date Driven 02/23/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 215.52Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 1     | 304.80      | 28054                      |   |
| 0.610                  | 1     | 304.80      | 28054                      |   |
| 0.914                  | 1     | 304.80      | 28054                      |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 1     | 304.80      | 28054                      |   |
| 1.829                  | 1     | 304.80      | 28054                      |   |
| 2.134                  | 1     | 304.80      | 28054                      |   |
| 2.438                  | 1     | 304.80      | 28054                      |   |
| 2.743                  | 1     | 304.80      | 28054                      |   |
| 3.048                  | 1     | 304.80      | 28054                      |   |
| 3.353                  | 2     | 152.40      | 55648                      |   |
| 3.658                  | 2     | 152.40      | 55648                      |   |
| 3.962                  | 2     | 152.40      | 55648                      |   |
| 4.267                  | 2     | 152.40      | 55648                      |   |
| 4.572                  | 2     | 152.40      | 55648                      |   |
| 4.877                  | 2     | 152.40      | 55648                      |   |
| 5.182                  | 2     | 152.40      | 55648                      |   |
| 5.486                  | 2     | 152.40      | 55648                      |   |
| 5.791                  | 2     | 152.40      | 55648                      |   |
| 6.096                  | 2     | 152.40      | 55648                      |   |
| 6.401                  | 4     | 76.20       | 109501                     |   |
| 6.706                  | 4     | 76.20       | 109501                     |   |
| 7.010                  | 5     | 60.96       | 135781                     |   |
| 7.315                  | 5     | 60.96       | 135781                     |   |
| 7.620                  | 5     | 60.96       | 135781                     |   |
| 7.925                  | 5     | 60.96       | 135781                     |   |
| 8.230                  | 5     | 60.96       | 135781                     |   |
| 8.534                  | 5     | 60.96       | 135781                     |   |
| 8.839                  | 5     | 60.96       | 135781                     |   |
| 9.144                  | 5     | 60.96       | 135781                     |   |
| 9.449                  | 8     | 38.10       | 212158                     |   |
| 9.754                  | 8     | 38.10       | 212158                     |   |
| 10.058                 | 8     | 38.10       | 212158                     |   |
| 10.363                 | 8     | 38.10       | 212158                     |   |
| 10.668                 | 8     | 38.10       | 212158                     |   |
| 10.973                 | 8     | 38.10       | 212158                     |   |
| 11.278                 | 8     | 38.10       | 212158                     |   |
| 11.582                 | 8     | 38.10       | 212158                     |   |
| 11.887                 | 9     | 33.87       | 236827                     |   |
| 12.192                 | 9     | 33.87       | 236827                     |   |
| 12.497                 | 10    | 30.48       | 261117                     |   |
| 12.802                 | 10    | 30.48       | 261117                     |   |
| 13.106                 | 10    | 30.48       | 261117                     |   |
| 13.411                 | 10    | 30.48       | 261117                     |   |
| 13.716                 | 11    | 27.71       | 285037                     |   |
| 14.021                 | 9     | 33.87       | 236827                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 10    | 30.48       | 261117                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 19    | 16.04       | 464000                     |   |
| 15.240                 | 12    | 25.40       | 308593                     |   |
| 15.545                 | 15    | 20.32       | 377170                     |   |
| 15.850                 | 15    | 20.32       | 377170                     |   |
| 16.154                 | 15    | 20.32       | 377170                     |   |
| 16.459                 | 15    | 20.32       | 377170                     |   |
| 16.764                 | 16    | 19.05       | 399356                     |   |
| 17.069                 | 16    | 19.05       | 399356                     |   |
| 17.374                 | 16    | 19.05       | 399356                     |   |
| 17.678                 | 16    | 19.05       | 399356                     |   |
| 17.983                 | 17    | 17.93       | 421219                     |   |
| 18.288                 | 14    | 21.77       | 354652                     |   |

|        |    |       |         |  |
|--------|----|-------|---------|--|
| 18.593 | 14 | 21.77 | 354652  |  |
| 18.898 | 16 | 19.05 | 399356  |  |
| 19.202 | 13 | 23.45 | 331796  |  |
| 19.507 | 15 | 20.32 | 377170  |  |
| 19.812 | 14 | 21.77 | 354652  |  |
| 20.117 | 15 | 20.32 | 377170  |  |
| 20.422 | 13 | 23.45 | 331796  |  |
| 20.726 | 14 | 21.77 | 354652  |  |
| 21.031 | 13 | 23.45 | 331796  |  |
| 21.336 | 16 | 19.05 | 399356  |  |
| 21.641 | 15 | 20.32 | 377170  |  |
| 21.946 | 19 | 16.04 | 464000  |  |
| 22.250 | 19 | 16.04 | 464000  |  |
| 22.555 | 17 | 17.93 | 421219  |  |
| 22.860 | 20 | 15.24 | 484932  |  |
| 23.165 | 18 | 16.93 | 442764  |  |
| 23.470 | 17 | 17.93 | 421219  |  |
| 23.774 | 15 | 20.32 | 377170  |  |
| 24.079 | 15 | 20.32 | 377170  |  |
| 24.384 | 15 | 20.32 | 377170  |  |
| 24.689 | 16 | 19.05 | 399356  |  |
| 24.994 | 14 | 21.77 | 354652  |  |
| 25.298 | 14 | 21.77 | 354652  |  |
| 25.603 | 17 | 17.93 | 421219  |  |
| 25.908 | 14 | 21.77 | 354652  |  |
| 26.213 | 14 | 10.89 | 642208  |  |
| 26.518 | 16 | 9.53  | 714637  |  |
| 26.822 | 16 | 9.53  | 714637  |  |
| 27.127 | 17 | 8.96  | 749441  |  |
| 27.432 | 17 | 8.96  | 749441  |  |
| 27.737 | 19 | 8.02  | 816405  |  |
| 28.042 | 21 | 7.26  | 880063  |  |
| 28.093 | 25 | 2.03  | 1885848 | Bearing obtained. No penetration after 51mm. |
|        |    |       |         |  |
|        |    |       |         |  |



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 File No. 12(BAT)  
 Pier #4 Abut / Pier  
 Date Driven 02/22/00

 Guemsey County  
 Bridge No GUE-77-14.352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (394DF)/S+2.54 Required "R" = 824815 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 216.53  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 52637                      | Piling at a 1:4 batter.                           |
| 0.610                  | 2     | 152.40      | 52637                      |   |
| 0.914                  | 2     | 152.40      | 52637                      |   |
| 1.219                  | 2     | 152.40      | 52637                      |   |
| 1.524                  | 2     | 152.40      | 52637                      |   |
| 1.829                  | 2     | 152.40      | 52637                      |   |
| 2.134                  | 3     | 101.60      | 78313                      |   |
| 2.438                  | 3     | 101.60      | 78313                      |   |
| 2.743                  | 3     | 101.60      | 78313                      |   |
| 3.048                  | 3     | 101.60      | 78313                      |   |
| 3.353                  | 3     | 101.60      | 78313                      |   |
| 3.658                  | 3     | 101.60      | 78313                      |   |
| 3.962                  | 3     | 101.60      | 78313                      |   |
| 4.267                  | 3     | 101.60      | 78313                      |   |
| 4.572                  | 3     | 101.60      | 78313                      |   |
| 4.877                  | 3     | 101.60      | 78313                      |   |
| 5.182                  | 3     | 101.60      | 78313                      |   |
| 5.486                  | 3     | 101.60      | 78313                      |   |
| 5.791                  | 3     | 101.60      | 78313                      |   |
| 6.096                  | 3     | 101.60      | 78313                      |   |
| 6.401                  | 6     | 50.80       | 152897                     |   |
| 6.706                  | 6     | 50.80       | 152897                     |   |
| 7.010                  | 6     | 50.80       | 152897                     |   |
| 7.315                  | 6     | 50.80       | 152897                     |   |
| 7.620                  | 6     | 50.80       | 152897                     |   |
| 7.925                  | 6     | 50.80       | 152897                     |   |
| 8.230                  | 7     | 43.54       | 176976                     |   |
| 8.534                  | 7     | 43.54       | 176976                     |   |
| 8.839                  | 7     | 43.54       | 176976                     |   |
| 9.144                  | 7     | 43.54       | 176976                     |   |
| 9.449                  | 7     | 43.54       | 176976                     |   |
| 9.754                  | 8     | 38.10       | 200678                     |   |
| 10.058                 | 8     | 38.10       | 200678                     |   |
| 10.363                 | 8     | 38.10       | 200678                     |   |
| 10.668                 | 8     | 38.10       | 200678                     |   |
| 10.973                 | 8     | 38.10       | 200678                     |   |
| 11.278                 | 8     | 38.10       | 200678                     |   |
| 11.582                 | 8     | 38.10       | 200678                     |   |
| 11.887                 | 8     | 38.10       | 200678                     |   |
| 12.192                 | 8     | 38.10       | 200678                     |   |
| 12.497                 | 8     | 38.10       | 200678                     |   |
| 12.802                 | 9     | 33.87       | 224012                     |   |
| 13.106                 | 9     | 33.87       | 224012                     |   |
| 13.411                 | 9     | 33.87       | 224012                     |   |
| 13.716                 | 9     | 33.87       | 224012                     |   |
| 14.021                 | 9     | 33.87       | 224012                     |   |
| 14.326                 | 10    | 30.48       | 246988                     |   |
| 14.630                 | 9     | 33.87       | 224012                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 12    | 25.40       | 291895                     |   |
| 15.240                 | 11    | 27.71       | 269613                     |   |
| 15.545                 | 9     | 33.87       | 224012                     |   |
| 15.850                 | 10    | 30.48       | 246988                     |   |
| 16.154                 | 10    | 30.48       | 246988                     |   |
| 16.459                 | 10    | 30.48       | 246988                     |   |
| 16.764                 | 12    | 25.40       | 291895                     |   |
| 17.069                 | 11    | 27.71       | 269613                     |   |
| 17.374                 | 10    | 30.48       | 246988                     |   |
| 17.678                 | 12    | 25.40       | 291895                     |   |
| 17.983                 | 11    | 27.71       | 269613                     |   |
| 18.288                 | 10    | 30.48       | 246988                     |   |

|        |    |       |         |  |
|--------|----|-------|---------|--|
| 18.593 | 11 | 27.71 | 269613  |  |
| 18.898 | 11 | 27.71 | 269613  |  |
| 19.202 | 10 | 30.48 | 246988  |  |
| 19.507 | 10 | 30.48 | 246988  |  |
| 19.812 | 11 | 27.71 | 269613  |  |
| 20.117 | 11 | 27.71 | 269613  |  |
| 20.422 | 11 | 27.71 | 269613  |  |
| 20.726 | 11 | 27.71 | 269613  |  |
| 21.031 | 10 | 30.48 | 246988  |  |
| 21.336 | 12 | 25.40 | 291895  |  |
| 21.641 | 13 | 23.45 | 313842  |  |
| 21.946 | 13 | 23.45 | 313842  |  |
| 22.250 | 15 | 20.32 | 356761  |  |
| 22.555 | 18 | 16.93 | 418806  |  |
| 22.860 | 17 | 17.93 | 398426  |  |
| 23.165 | 16 | 19.05 | 377747  |  |
| 23.470 | 14 | 21.77 | 335461  |  |
| 23.774 | 13 | 23.45 | 313842  |  |
| 24.079 | 14 | 21.77 | 335461  |  |
| 24.384 | 12 | 25.40 | 291895  |  |
| 24.689 | 15 | 20.32 | 356761  |  |
| 24.994 | 14 | 21.77 | 335461  |  |
| 25.298 | 16 | 19.05 | 377747  |  |
| 25.603 | 12 | 25.40 | 291895  |  |
| 25.908 | 15 | 20.32 | 356761  |  |
| 26.213 | 16 | 19.05 | 377747  |  |
| 26.518 | 17 | 17.93 | 398426  |  |
| 26.822 | 22 | 13.85 | 497455  |  |
| 27.127 | 49 | 6.22  | 930955  |  |
| 27.203 | 20 | 3.81  | 1284338 | Bearing obtained. No penetration after 70mm. |
|        |    |       |         |  |
|        |    |       |         |  |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 13(BAT)

Guernsey County

Pier #4 Abut / Pier

Bridge No GUE-77-14 352 LDate Driven 02/22/00

## PILE DRIVING LOG

Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R": 824815 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 216.02Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 3     | 101.60      | 78313                      | Piling at a 1:4 batter.                           |
| 0.610                  | 3     | 101.60      | 78313                      |   |
| 0.914                  | 3     | 101.60      | 78313                      |   |
| 1.219                  | 3     | 101.60      | 78313                      |   |
| 1.524                  | 3     | 101.60      | 78313                      |   |
| 1.829                  | 3     | 101.60      | 78313                      |   |
| 2.134                  | 3     | 101.60      | 78313                      |   |
| 2.438                  | 3     | 101.60      | 78313                      |   |
| 2.743                  | 3     | 101.60      | 78313                      |   |
| 3.048                  | 3     | 101.60      | 78313                      |   |
| 3.353                  | 3     | 101.60      | 78313                      |   |
| 3.658                  | 3     | 101.60      | 78313                      |   |
| 3.962                  | 4     | 76.20       | 103576                     |   |
| 4.267                  | 4     | 76.20       | 103576                     |   |
| 4.572                  | 4     | 76.20       | 103576                     |   |
| 4.877                  | 4     | 76.20       | 103576                     |   |
| 5.182                  | 4     | 76.20       | 103576                     |   |
| 5.486                  | 4     | 76.20       | 103576                     |   |
| 5.791                  | 4     | 76.20       | 103576                     |   |
| 6.096                  | 4     | 76.20       | 103576                     |   |
| 6.401                  | 8     | 38.10       | 200678                     |   |
| 6.706                  | 8     | 38.10       | 200678                     |   |
| 7.010                  | 8     | 38.10       | 200678                     |   |
| 7.315                  | 8     | 38.10       | 200678                     |   |
| 7.620                  | 8     | 38.10       | 200678                     |   |
| 7.925                  | 8     | 38.10       | 200678                     |   |
| 8.230                  | 8     | 38.10       | 200678                     |   |
| 8.534                  | 8     | 38.10       | 200678                     |   |
| 8.839                  | 9     | 33.87       | 224012                     |   |
| 9.144                  | 9     | 33.87       | 224012                     |   |
| 9.449                  | 10    | 30.48       | 246988                     |   |
| 9.754                  | 10    | 30.48       | 246988                     |   |
| 10.058                 | 10    | 30.48       | 246988                     |   |
| 10.363                 | 10    | 30.48       | 246988                     |   |
| 10.668                 | 10    | 30.48       | 246988                     |   |
| 10.973                 | 11    | 27.71       | 269613                     |   |
| 11.278                 | 11    | 27.71       | 269613                     |   |
| 11.582                 | 11    | 27.71       | 269613                     |   |
| 11.887                 | 11    | 27.71       | 269613                     |   |
| 12.192                 | 11    | 27.71       | 269613                     |   |
| 12.497                 | 13    | 23.45       | 313842                     |   |
| 12.802                 | 11    | 27.71       | 269613                     |   |
| 13.106                 | 11    | 27.71       | 269613                     |   |
| 13.411                 | 12    | 25.40       | 291895                     |   |
| 13.716                 | 11    | 27.71       | 269613                     |   |
| 14.021                 | 12    | 25.40       | 291895                     |   |
| 14.326                 | 13    | 23.45       | 313842                     |   |
| 14.630                 | 17    | 17.93       | 398426                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 12    | 25.40       | 291895                     |   |
| 15.240                 | 7     | 43.54       | 176976                     |   |
| 15.545                 | 9     | 33.87       | 224012                     |   |
| 15.850                 | 11    | 27.71       | 269613                     |   |
| 16.154                 | 12    | 25.40       | 291895                     |   |
| 16.459                 | 11    | 27.71       | 269613                     |   |
| 16.764                 | 10    | 30.48       | 246988                     |   |
| 17.069                 | 12    | 25.40       | 291895                     |   |
| 17.374                 | 11    | 27.71       | 269613                     |   |
| 17.678                 | 12    | 25.40       | 291895                     |   |
| 17.983                 | 10    | 30.48       | 246988                     |   |
| 18.288                 | 13    | 23.45       | 313842                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 12 | 25.40 | 291895  |   |
| 18.898 | 12 | 25.40 | 291895  |   |
| 19.202 | 10 | 30.48 | 246988  |   |
| 19.507 | 11 | 27.71 | 269613  |   |
| 19.812 | 11 | 27.71 | 269613  |   |
| 20.117 | 11 | 27.71 | 269613  |   |
| 20.422 | 12 | 25.40 | 291895  |   |
| 20.726 | 11 | 27.71 | 269613  |   |
| 21.031 | 11 | 27.71 | 269613  |   |
| 21.336 | 12 | 25.40 | 291895  |   |
| 21.641 | 12 | 25.40 | 291895  |   |
| 21.946 | 11 | 27.71 | 269613  |   |
| 22.250 | 16 | 19.05 | 377747  |   |
| 22.555 | 15 | 20.32 | 356761  |   |
| 22.860 | 17 | 17.93 | 398426  |   |
| 23.165 | 16 | 19.05 | 377747  |   |
| 23.470 | 15 | 20.32 | 356761  |   |
| 23.774 | 14 | 21.77 | 335461  |   |
| 24.079 | 14 | 21.77 | 335461  |   |
| 24.384 | 14 | 21.77 | 335461  |   |
| 24.689 | 14 | 21.77 | 335461  |   |
| 24.994 | 14 | 21.77 | 335461  |   |
| 25.298 | 15 | 20.32 | 356761  |   |
| 25.603 | 16 | 19.05 | 377747  |   |
| 25.908 | 16 | 19.05 | 377747  |   |
| 26.213 | 16 | 19.05 | 377747  |   |
| 26.518 | 16 | 19.05 | 377747  |   |
| 26.822 | 17 | 17.93 | 398426  |   |
| 27.127 | 13 | 23.45 | 313842  |   |
| 27.432 | 25 | 12.19 | 553594  |   |
| 27.711 | 70 | 3.99  | 1248662 | Bearing obtained. No penetration after 279mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guemsey \_\_\_\_\_ County  
Section 14.352  
Br. No. Gue-77-14.352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Pier #2

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25868 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 243.96

Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks | Misc. |
|----------|----------------|-------------------|---------|-------|
| 14       | 26.28          | 1397746           |         |       |
| 15       | 26.26          | 1175882           |         |       |
| 16       | 26.06          | 1227808           |         |       |
| 17       | 26.23          | 1294820           |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |

Total = 104.83 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 14  
Pier #2 Abut / Pier  
Date Driven 02/22/00Guemsey                      County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 Newtons  
Elev. of top of pile (cut-off elev.) 243.96  
Elev. of nominal point of zero penetration: 243.35  
Elev. of pile point at final penetration: 217.68  
Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               | 3     | 101.60   | 82793                   |   |
| 0.610               | 3     | 101.60   | 82793                   |   |
| 0.914               | 3     | 101.60   | 82793                   |   |
| 1.219               | 4     | 76.20    | 109501                  |   |
| 1.524               | 4     | 76.20    | 109501                  |   |
| 1.829               | 4     | 76.20    | 109501                  |   |
| 2.134               | 4     | 76.20    | 109501                  |   |
| 2.438               | 4     | 76.20    | 109501                  |   |
| 2.743               | 4     | 76.20    | 109501                  |   |
| 3.048               | 4     | 76.20    | 109501                  |   |
| 3.353               | 4     | 76.20    | 109501                  |   |
| 3.658               | 4     | 76.20    | 109501                  |   |
| 3.962               | 4     | 76.20    | 109501                  |   |
| 4.267               | 4     | 76.20    | 109501                  |   |
| 4.572               | 4     | 76.20    | 109501                  |   |
| 4.877               | 4     | 76.20    | 109501                  |   |
| 5.182               | 4     | 76.20    | 109501                  |   |
| 5.486               | 4     | 76.20    | 109501                  |   |
| 5.791               | 4     | 76.20    | 109501                  |   |
| 6.096               | 4     | 76.20    | 109501                  |   |
| 6.401               | 7     | 43.54    | 187100                  |   |
| 6.706               | 7     | 43.54    | 187100                  |   |
| 7.010               | 7     | 43.54    | 187100                  |   |
| 7.315               | 7     | 43.54    | 187100                  |   |
| 7.620               | 8     | 38.10    | 212158                  |   |
| 7.925               | 8     | 38.10    | 212158                  |   |
| 8.230               | 8     | 38.10    | 212158                  |   |
| 8.534               | 9     | 33.87    | 236827                  |   |
| 8.839               | 9     | 33.87    | 236827                  |   |
| 9.144               | 9     | 33.87    | 236827                  |   |
| 9.449               | 9     | 33.87    | 236827                  |   |
| 9.754               | 9     | 33.87    | 236827                  |   |
| 10.058              | 9     | 33.87    | 236827                  |   |
| 10.363              | 9     | 33.87    | 236827                  |   |
| 10.668              | 9     | 33.87    | 236827                  |   |
| 10.973              | 10    | 30.48    | 261117                  |   |
| 11.278              | 10    | 30.48    | 261117                  |   |
| 11.582              | 10    | 30.48    | 261117                  |   |
| 11.887              | 11    | 27.71    | 285037                  |   |
| 12.192              | 11    | 27.71    | 285037                  |   |
| 12.497              | 12    | 25.40    | 308593                  |   |
| 12.802              | 12    | 25.40    | 308593                  |   |
| 13.106              | 12    | 25.40    | 308593                  |   |
| 13.411              | 12    | 25.40    | 308593                  |   |
| 13.716              | 12    | 25.40    | 308593                  |   |
| 14.021              | 17    | 17.93    | 421219                  |   |
| 14.326              | 12    | 25.40    | 308593                  |   |
| 14.630              | 12    | 25.40    | 308593                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935              | 10    | 30.48    | 261117                  |   |
| 15.240              | 10    | 30.48    | 261117                  |   |
| 15.545              | 13    | 23.45    | 331796                  |   |
| 15.850              | 14    | 21.77    | 354652                  |   |
| 16.154              | 14    | 21.77    | 354652                  |   |
| 16.459              | 16    | 19.05    | 399356                  |   |
| 16.764              | 16    | 19.05    | 399356                  |   |
| 17.069              | 16    | 19.05    | 399356                  |   |
| 17.374              | 19    | 16.04    | 464000                  |   |
| 17.678              | 19    | 16.04    | 464000                  |   |
| 17.983              | 19    | 16.04    | 464000                  |   |
| 18.288              | 17    | 17.93    | 421219                  |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 17 | 17.93 | 421219  |   |
| 18.898 | 15 | 20.32 | 377170  |   |
| 19.202 | 17 | 17.93 | 421219  |   |
| 19.507 | 17 | 17.93 | 421219  |   |
| 19.812 | 18 | 19.05 | 399356  |   |
| 20.117 | 17 | 17.93 | 421219  |   |
| 20.422 | 18 | 19.05 | 399356  |   |
| 20.726 | 17 | 17.93 | 421219  |   |
| 21.031 | 16 | 19.05 | 399356  |   |
| 21.336 | 17 | 17.93 | 421219  |   |
| 21.641 | 17 | 17.93 | 421219  |   |
| 21.946 | 19 | 18.04 | 464000  |   |
| 22.250 | 18 | 16.93 | 442764  |   |
| 22.555 | 21 | 14.51 | 505568  |   |
| 22.860 | 28 | 11.72 | 604505  |   |
| 23.165 | 17 | 17.93 | 421219  |   |
| 23.470 | 21 | 14.51 | 505568  |   |
| 23.774 | 18 | 16.93 | 442764  |   |
| 24.079 | 18 | 16.93 | 442764  |   |
| 24.384 | 18 | 16.93 | 442764  |   |
| 24.689 | 17 | 17.93 | 421219  |   |
| 24.994 | 18 | 16.93 | 442764  |   |
| 25.298 | 21 | 14.51 | 505568  |   |
| 25.603 | 34 | 8.96  | 749441  |   |
| 25.908 | 54 | 5.64  | 1053474 |   |
| 26.060 | 42 | 3.63  | 1397746 | Bearing obtained. No penetration after 152mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 15  
 Pier #2 Abut / Pier  
 Date Driven 02/22/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.7  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 3     | 101.60      | 82793                      |   |
| 3.353                  | 3     | 101.60      | 82793                      |   |
| 3.658                  | 3     | 101.60      | 82793                      |   |
| 3.962                  | 3     | 101.60      | 82793                      |   |
| 4.267                  | 3     | 101.60      | 82793                      |   |
| 4.572                  | 3     | 101.60      | 82793                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 6     | 50.80       | 161644                     |   |
| 6.706                  | 6     | 50.80       | 161644                     |   |
| 7.010                  | 6     | 50.80       | 161644                     |   |
| 7.315                  | 7     | 43.54       | 187100                     |   |
| 7.620                  | 7     | 43.54       | 187100                     |   |
| 7.925                  | 10    | 30.48       | 261117                     |   |
| 8.230                  | 10    | 30.48       | 261117                     |   |
| 8.534                  | 10    | 30.48       | 261117                     |   |
| 8.839                  | 10    | 30.48       | 261117                     |   |
| 9.144                  | 10    | 30.48       | 261117                     |   |
| 9.449                  | 9     | 33.87       | 236827                     |   |
| 9.754                  | 9     | 33.87       | 236827                     |   |
| 10.058                 | 10    | 30.48       | 261117                     |   |
| 10.363                 | 10    | 30.48       | 261117                     |   |
| 10.668                 | 10    | 30.48       | 261117                     |   |
| 10.973                 | 10    | 30.48       | 261117                     |   |
| 11.278                 | 10    | 30.48       | 261117                     |   |
| 11.582                 | 11    | 27.71       | 285037                     |   |
| 11.887                 | 11    | 27.71       | 285037                     |   |
| 12.192                 | 11    | 27.71       | 285037                     |   |
| 12.497                 | 12    | 25.40       | 308593                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 13    | 23.45       | 331796                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 19    | 16.04       | 464000                     |   |
| 15.240                 | 12    | 25.40       | 308593                     |   |
| 15.545                 | 16    | 19.05       | 399356                     |   |
| 15.850                 | 15    | 20.32       | 377170                     |   |
| 16.154                 | 17    | 17.93       | 421219                     |   |
| 16.459                 | 17    | 17.93       | 421219                     |   |
| 16.764                 | 16    | 19.05       | 399356                     |   |
| 17.069                 | 19    | 16.04       | 464000                     |   |
| 17.374                 | 18    | 16.93       | 442764                     |   |
| 17.678                 | 19    | 16.04       | 464000                     |   |
| 17.983                 | 22    | 13.85       | 525913                     |   |
| 18.288                 | 16    | 19.05       | 399356                     |   |



|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 16 | 19.05 | 399356  |   |
| 18.898 | 15 | 20.32 | 377170  |   |
| 19.202 | 15 | 20.32 | 377170  |   |
| 19.507 | 14 | 21.77 | 354652  |   |
| 19.812 | 12 | 25.40 | 308593  |   |
| 20.117 | 13 | 23.45 | 331796  |   |
| 20.422 | 14 | 21.77 | 354652  |   |
| 20.726 | 11 | 27.71 | 285037  |   |
| 21.031 | 11 | 27.71 | 285037  |   |
| 21.336 | 13 | 23.45 | 331796  |   |
| 21.641 | 12 | 25.40 | 308593  |   |
| 21.946 | 15 | 20.32 | 377170  |   |
| 22.250 | 15 | 20.32 | 377170  |   |
| 22.555 | 15 | 20.32 | 377170  |   |
| 22.860 | 19 | 16.04 | 464000  |   |
| 23.165 | 15 | 20.32 | 377170  |   |
| 23.470 | 14 | 21.77 | 354652  |   |
| 23.774 | 15 | 20.32 | 377170  |   |
| 24.079 | 14 | 21.77 | 354652  |   |
| 24.384 | 15 | 20.32 | 377170  |   |
| 24.689 | 13 | 23.45 | 331796  |   |
| 24.994 | 17 | 17.93 | 421219  |   |
| 25.298 | 19 | 16.04 | 464000  |   |
| 25.603 | 29 | 10.51 | 660680  |   |
| 25.908 | 41 | 7.43  | 864445  |   |
| 26.162 | 53 | 4.79  | 1175882 | Bearing obtained. No penetration after 254mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 16  
 Pier #2 Abut / Pier  
 Date Driven 02/22/00

 Guemsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 217.9Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 2     | 152.40      | 55648                      |   |
| 3.353                  | 2     | 152.40      | 55648                      |   |
| 3.658                  | 2     | 152.40      | 55648                      |   |
| 3.962                  | 3     | 101.60      | 82793                      |   |
| 4.267                  | 3     | 101.60      | 82793                      |   |
| 4.572                  | 3     | 101.60      | 82793                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 7     | 43.54       | 187100                     |   |
| 6.706                  | 7     | 43.54       | 187100                     |   |
| 7.010                  | 7     | 43.54       | 187100                     |   |
| 7.315                  | 8     | 38.10       | 212158                     |   |
| 7.620                  | 8     | 38.10       | 212158                     |   |
| 7.925                  | 8     | 38.10       | 212158                     |   |
| 8.230                  | 9     | 33.87       | 236827                     |   |
| 8.534                  | 9     | 33.87       | 236827                     |   |
| 8.839                  | 9     | 33.87       | 236827                     |   |
| 9.144                  | 9     | 33.87       | 236827                     |   |
| 9.449                  | 8     | 38.10       | 212158                     |   |
| 9.754                  | 9     | 33.87       | 236827                     |   |
| 10.058                 | 9     | 33.87       | 236827                     |   |
| 10.363                 | 9     | 33.87       | 236827                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 10    | 30.48       | 261117                     |   |
| 11.278                 | 10    | 30.48       | 261117                     |   |
| 11.582                 | 10    | 30.48       | 261117                     |   |
| 11.887                 | 10    | 30.48       | 261117                     |   |
| 12.192                 | 11    | 27.71       | 285037                     |   |
| 12.497                 | 11    | 27.71       | 285037                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 12    | 25.40       | 308593                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 18    | 16.93       | 442764                     |   |
| 15.240                 | 11    | 27.71       | 285037                     |   |
| 15.545                 | 15    | 20.32       | 377170                     |   |
| 15.850                 | 16    | 19.05       | 399356                     |   |
| 16.154                 | 16    | 19.05       | 399356                     |   |
| 16.459                 | 14    | 21.77       | 354652                     |   |
| 16.764                 | 17    | 17.93       | 421219                     |   |
| 17.069                 | 15    | 20.32       | 377170                     |   |
| 17.374                 | 18    | 16.93       | 442764                     |   |
| 17.678                 | 18    | 16.93       | 442764                     |   |
| 17.983                 | 17    | 17.93       | 421219                     |   |
| 18.288                 | 15    | 20.32       | 377170                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 16 | 19.05 | 399356  |   |
| 18.898 | 13 | 23.45 | 331796  |   |
| 19.202 | 13 | 23.45 | 331796  |   |
| 19.507 | 14 | 21.77 | 354652  |   |
| 19.812 | 13 | 23.45 | 331796  |   |
| 20.117 | 13 | 23.45 | 331796  |   |
| 20.422 | 14 | 21.77 | 354652  |   |
| 20.726 | 15 | 20.32 | 377170  |   |
| 21.031 | 13 | 23.45 | 331796  |   |
| 21.336 | 15 | 20.32 | 377170  |   |
| 21.641 | 15 | 20.32 | 377170  |   |
| 21.946 | 17 | 17.93 | 421219  |   |
| 22.250 | 19 | 16.04 | 464000  |   |
| 22.555 | 22 | 13.85 | 525913  |   |
| 22.860 | 22 | 13.85 | 525913  |   |
| 23.165 | 17 | 17.93 | 421219  |   |
| 23.470 | 17 | 17.93 | 421219  |   |
| 23.774 | 17 | 17.93 | 421219  |   |
| 24.079 | 16 | 19.05 | 399356  |   |
| 24.384 | 18 | 16.93 | 442764  |   |
| 24.689 | 15 | 20.32 | 377170  |   |
| 24.994 | 20 | 15.24 | 484932  |   |
| 25.298 | 23 | 13.25 | 545973  |   |
| 25.603 | 40 | 7.62  | 848632  |   |
| 25.832 | 51 | 4.48  | 1227808 | Bearing obtained. No penetration after 229mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 17  
 Pier #2 Abut / Pier  
 Date Driven 02/22/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 217.73Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 2     | 152.40      | 55648                      |   |
| 3.353                  | 2     | 152.40      | 55648                      |   |
| 3.658                  | 3     | 101.60      | 82793                      |   |
| 3.962                  | 3     | 101.60      | 82793                      |   |
| 4.267                  | 3     | 101.60      | 82793                      |   |
| 4.572                  | 3     | 101.60      | 82793                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 7     | 43.54       | 187100                     |   |
| 6.706                  | 7     | 43.54       | 187100                     |   |
| 7.010                  | 7     | 43.54       | 187100                     |   |
| 7.315                  | 7     | 43.54       | 187100                     |   |
| 7.620                  | 8     | 38.10       | 212158                     |   |
| 7.925                  | 8     | 38.10       | 212158                     |   |
| 8.230                  | 8     | 38.10       | 212158                     |   |
| 8.534                  | 8     | 38.10       | 212158                     |   |
| 8.839                  | 9     | 33.87       | 236827                     |   |
| 9.144                  | 9     | 33.87       | 236827                     |   |
| 9.449                  | 9     | 33.87       | 236827                     |   |
| 9.754                  | 9     | 33.87       | 236827                     |   |
| 10.058                 | 9     | 33.87       | 236827                     |   |
| 10.363                 | 9     | 33.87       | 236827                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 10    | 30.48       | 261117                     |   |
| 11.278                 | 10    | 30.48       | 261117                     |   |
| 11.582                 | 10    | 30.48       | 261117                     |   |
| 11.887                 | 10    | 30.48       | 261117                     |   |
| 12.192                 | 10    | 30.48       | 261117                     |   |
| 12.497                 | 11    | 27.71       | 285037                     |   |
| 12.802                 | 11    | 27.71       | 285037                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 11    | 27.71       | 285037                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 12    | 25.40       | 308593                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 12    | 25.40       | 308593                     |   |
| 15.240                 | 12    | 25.40       | 308593                     |   |
| 15.545                 | 10    | 30.48       | 261117                     |   |
| 15.850                 | 16    | 19.05       | 399356                     |   |
| 16.154                 | 15    | 20.32       | 377170                     |   |
| 16.459                 | 16    | 19.05       | 399356                     |   |
| 16.764                 | 17    | 17.93       | 421219                     |   |
| 17.069                 | 18    | 16.93       | 442764                     |   |
| 17.374                 | 18    | 16.93       | 442764                     |   |
| 17.678                 | 17    | 17.93       | 421219                     |   |
| 17.983                 | 19    | 16.04       | 464000                     |   |
| 18.288                 | 17    | 17.93       | 421219                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 14 | 21.77 | 354652  |   |
| 18.898 | 14 | 21.77 | 354652  |   |
| 19.202 | 15 | 20.32 | 377170  |   |
| 19.507 | 15 | 20.32 | 377170  |   |
| 19.812 | 14 | 21.77 | 354652  |   |
| 20.117 | 14 | 21.77 | 354652  |   |
| 20.422 | 14 | 21.77 | 354652  |   |
| 20.726 | 15 | 20.32 | 377170  |   |
| 21.031 | 14 | 21.77 | 354652  |   |
| 21.336 | 17 | 17.93 | 421219  |   |
| 21.641 | 13 | 23.45 | 331796  |   |
| 21.946 | 19 | 16.04 | 464000  |   |
| 22.250 | 19 | 16.04 | 464000  |   |
| 22.555 | 20 | 15.24 | 484932  |   |
| 22.860 | 21 | 14.51 | 505568  |   |
| 23.165 | 19 | 16.04 | 464000  |   |
| 23.470 | 19 | 16.04 | 464000  |   |
| 23.774 | 18 | 16.93 | 442764  |   |
| 24.079 | 17 | 17.93 | 421219  |   |
| 24.384 | 19 | 16.04 | 464000  |   |
| 24.689 | 14 | 21.77 | 354652  |   |
| 24.994 | 17 | 17.93 | 421219  |   |
| 25.298 | 23 | 13.25 | 545973  |   |
| 25.603 | 27 | 11.29 | 623485  |   |
| 25.908 | 53 | 5.75  | 1039942 |   |
| 26.060 | 37 | 4.12  | 1294820 | Bearing obtained. No penetration after 152mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Pier #3

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 243.96

Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks | Misc. |
|----------|----------------|-------------------|---------|-------|
| 18       | 26.121         | 1204510           |         |       |
| 19       | 25.969         | 937961            |         |       |
| 20       | 28.091         | 1168608           |         |       |
| 21       | 26.121         | 1305587           |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |

Total = 104.302 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 18  
 Pier #3 Abut / Pier  
 Date Driven 01/25/00

 Guernsey County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.839  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 0     | 0           | 0                          |   |
| 0.610                  | 0     | 0           | 0                          |   |
| 0.914                  | 0     | 0           | 0                          |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 0     | 0           | 0                          |   |
| 1.829                  | 0     | 0           | 0                          |   |
| 2.134                  | 0     | 0           | 0                          |   |
| 2.438                  | 1     | 304.80      | 28054                      |   |
| 2.743                  | 1     | 304.80      | 28054                      |   |
| 3.048                  | 1     | 304.80      | 28054                      |   |
| 3.353                  | 1     | 304.80      | 28054                      |   |
| 3.658                  | 1     | 304.80      | 28054                      |   |
| 3.962                  | 1     | 304.80      | 28054                      |   |
| 4.267                  | 1     | 304.80      | 28054                      |   |
| 4.572                  | 1     | 304.80      | 28054                      |   |
| 4.877                  | 0     | 0           | 0                          |   |
| 5.182                  | 0     | 0           | 0                          |   |
| 5.486                  | 0     | 0           | 0                          |   |
| 5.791                  | 1     | 304.80      | 28054                      |   |
| 6.096                  | 1     | 304.80      | 28054                      |   |
| 6.401                  | 1     | 304.80      | 28054                      |   |
| 6.706                  | 1     | 304.80      | 28054                      |   |
| 7.010                  | 1     | 304.80      | 28054                      |   |
| 7.315                  | 1     | 304.80      | 28054                      |   |
| 7.620                  | 1     | 304.80      | 28054                      |   |
| 7.925                  | 1     | 304.80      | 28054                      |   |
| 8.230                  | 1     | 304.80      | 28054                      |   |
| 8.534                  | 1     | 304.80      | 28054                      |   |
| 8.839                  | 1     | 304.80      | 28054                      |   |
| 9.144                  | 2     | 152.40      | 55648                      |   |
| 9.449                  | 1     | 304.80      | 28054                      |   |
| 9.754                  | 1     | 304.80      | 28054                      |   |
| 10.058                 | 1     | 304.80      | 28054                      |   |
| 10.363                 | 1     | 304.80      | 28054                      |   |
| 10.668                 | 2     | 152.40      | 55648                      |   |
| 10.973                 | 1     | 304.80      | 28054                      |   |
| 11.278                 | 1     | 304.80      | 28054                      |   |
| 11.582                 | 1     | 304.80      | 28054                      |   |
| 11.887                 | 2     | 152.40      | 55648                      |   |
| 12.192                 | 2     | 152.40      | 55648                      |   |
| 12.497                 | 2     | 152.40      | 55648                      |   |
| 12.802                 | 2     | 152.40      | 55648                      |   |
| 13.106                 | 2     | 152.40      | 55648                      |   |
| 13.411                 | 2     | 152.40      | 55648                      |   |
| 13.716                 | 2     | 152.40      | 55648                      |   |
| 14.021                 | 3     | 101.60      | 82793                      |   |
| 14.326                 | 3     | 101.60      | 82793                      |   |
| 14.630                 | 2     | 152.40      | 55648                      | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 3     | 101.60      | 82793                      |   |
| 15.240                 | 3     | 101.60      | 82793                      |   |
| 15.545                 | 4     | 76.20       | 109501                     |   |
| 15.850                 | 4     | 76.20       | 109501                     |   |
| 16.154                 | 4     | 76.20       | 109501                     |   |
| 16.459                 | 4     | 76.20       | 109501                     |   |
| 16.764                 | 4     | 76.20       | 109501                     |   |
| 17.069                 | 11    | 27.71       | 285037                     |   |
| 17.374                 | 11    | 27.71       | 285037                     |   |
| 17.678                 | 12    | 25.40       | 308593                     |   |
| 17.983                 | 12    | 25.40       | 308593                     |   |
| 18.288                 | 12    | 25.40       | 308593                     |   |





STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 19  
Pier #3 Abut / Pier  
Date Driven 07/25/00 2:18/daGuernsey                      County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
Elev. of top of pile (cut-off elev.) 243.96  
Elev. of nominal point of zero penetration: 243.35  
Elev. of pile point at final penetration: 217.991  
Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 3     | 101.60      | 82793                      |   |
| 0.610                  | 3     | 101.60      | 82793                      |   |
| 0.914                  | 3     | 101.60      | 82793                      |   |
| 1.219                  | 3     | 101.60      | 82793                      |   |
| 1.524                  | 3     | 101.60      | 82793                      |   |
| 1.829                  | 3     | 101.60      | 82793                      |   |
| 2.134                  | 3     | 101.60      | 82793                      |   |
| 2.438                  | 3     | 101.60      | 82793                      |   |
| 2.743                  | 3     | 101.60      | 82793                      |   |
| 3.048                  | 3     | 101.60      | 82793                      |   |
| 3.353                  | 3     | 101.60      | 82793                      |   |
| 3.658                  | 3     | 101.60      | 82793                      |   |
| 3.962                  | 3     | 101.60      | 82793                      |   |
| 4.267                  | 3     | 101.60      | 82793                      |   |
| 4.572                  | 3     | 101.60      | 82793                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 3     | 101.60      | 82793                      |   |
| 6.706                  | 3     | 101.60      | 82793                      |   |
| 7.010                  | 3     | 101.60      | 82793                      |   |
| 7.315                  | 3     | 101.60      | 82793                      |   |
| 7.620                  | 4     | 76.20       | 109501                     |   |
| 7.925                  | 8     | 38.10       | 212158                     |   |
| 8.230                  | 8     | 38.10       | 212158                     |   |
| 8.534                  | 8     | 38.10       | 212158                     |   |
| 8.839                  | 8     | 38.10       | 212158                     |   |
| 9.144                  | 8     | 38.10       | 212158                     |   |
| 9.449                  | 9     | 33.87       | 236827                     |   |
| 9.754                  | 9     | 33.87       | 236827                     |   |
| 10.058                 | 9     | 33.87       | 236827                     |   |
| 10.363                 | 9     | 33.87       | 236827                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 9     | 33.87       | 236827                     |   |
| 11.278                 | 9     | 33.87       | 236827                     |   |
| 11.582                 | 10    | 30.48       | 261117                     |   |
| 11.887                 | 10    | 30.48       | 261117                     |   |
| 12.192                 | 10    | 30.48       | 261117                     |   |
| 12.497                 | 11    | 27.71       | 285037                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 13    | 23.45       | 331796                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 13    | 23.45       | 331796                     |   |
| 15.240                 | 30    | 10.16       | 678905                     |   |
| 15.545                 | 31    | 9.83        | 696890                     |   |
| 15.850                 | 31    | 9.83        | 696890                     |   |
| 16.154                 | 31    | 9.83        | 696890                     |   |
| 16.459                 | 31    | 9.83        | 696890                     |   |
| 16.764                 | 31    | 9.83        | 696890                     |   |
| 17.069                 | 31    | 9.83        | 696890                     |   |
| 17.374                 | 26    | 11.72       | 604505                     |   |
| 17.678                 | 23    | 13.25       | 545973                     |   |
| 17.983                 | 24    | 12.70       | 565755                     |   |
| 18.288                 | 21    | 14.51       | 505568                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 18.593 | 23 | 13.25 | 545973 |   |
| 18.898 | 24 | 12.70 | 565755 |   |
| 19.202 | 24 | 12.70 | 565755 |   |
| 19.507 | 24 | 12.70 | 565755 |   |
| 19.812 | 22 | 13.85 | 525913 |   |
| 20.117 | 24 | 12.70 | 565755 |   |
| 20.422 | 21 | 14.51 | 505568 |   |
| 20.726 | 22 | 13.85 | 525913 |   |
| 21.031 | 25 | 12.19 | 585263 |   |
| 21.336 | 28 | 10.89 | 642208 |   |
| 21.641 | 27 | 11.29 | 623485 |   |
| 21.946 | 32 | 9.53  | 714637 |   |
| 22.250 | 28 | 10.89 | 642208 |   |
| 22.555 | 25 | 12.19 | 585263 |   |
| 22.860 | 25 | 12.19 | 585263 |   |
| 23.165 | 25 | 12.19 | 585263 |   |
| 23.470 | 28 | 10.89 | 642208 |   |
| 23.774 | 27 | 11.29 | 623485 |   |
| 24.079 | 29 | 10.51 | 660680 |   |
| 24.384 | 30 | 10.16 | 678905 |   |
| 24.689 | 30 | 10.16 | 678905 |   |
| 24.994 | 34 | 8.96  | 749441 |   |
| 25.273 | 42 | 6.65  | 937961 | Bearing obtained. No penetration after 279mm. |
|        |    |       |        |   |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 20  
 Pier #3 Abut / Pier  
 Date Driven 02/09/00

 Guernsey County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.869  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 1     | 304.80      | 28054                      |   |
| 0.610                  | 1     | 304.80      | 28054                      |   |
| 0.914                  | 1     | 304.80      | 28054                      |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 1     | 304.80      | 28054                      |   |
| 1.829                  | 1     | 304.80      | 28054                      |   |
| 2.134                  | 1     | 304.80      | 28054                      |   |
| 2.438                  | 1     | 304.80      | 28054                      |   |
| 2.743                  | 1     | 304.80      | 28054                      |   |
| 3.048                  | 1     | 304.80      | 28054                      |   |
| 3.353                  | 1     | 304.80      | 28054                      |   |
| 3.658                  | 1     | 304.80      | 28054                      |   |
| 3.962                  | 1     | 304.80      | 28054                      |   |
| 4.267                  | 1     | 304.80      | 28054                      |   |
| 4.572                  | 1     | 304.80      | 28054                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 3     | 101.60      | 82793                      |   |
| 6.706                  | 3     | 101.60      | 82793                      |   |
| 7.010                  | 3     | 101.60      | 82793                      |   |
| 7.315                  | 3     | 101.60      | 82793                      |   |
| 7.620                  | 3     | 101.60      | 82793                      |   |
| 7.925                  | 3     | 101.60      | 82793                      |   |
| 8.230                  | 3     | 101.60      | 82793                      |   |
| 8.534                  | 3     | 101.60      | 82793                      |   |
| 8.839                  | 3     | 101.60      | 82793                      |   |
| 9.144                  | 4     | 76.20       | 109501                     |   |
| 9.449                  | 7     | 43.54       | 187100                     |   |
| 9.754                  | 7     | 43.54       | 187100                     |   |
| 10.058                 | 7     | 43.54       | 187100                     |   |
| 10.363                 | 7     | 43.54       | 187100                     |   |
| 10.668                 | 8     | 38.10       | 212158                     |   |
| 10.973                 | 8     | 38.10       | 212158                     |   |
| 11.278                 | 9     | 33.87       | 236827                     |   |
| 11.582                 | 9     | 33.87       | 236827                     |   |
| 11.887                 | 9     | 33.87       | 236827                     |   |
| 12.192                 | 9     | 33.87       | 236827                     |   |
| 12.497                 | 12    | 25.40       | 308593                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.108                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 12    | 25.40       | 308593                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 12    | 25.40       | 308593                     |   |
| 15.240                 | 12    | 25.40       | 308593                     |   |
| 15.545                 | 13    | 23.45       | 331796                     |   |
| 15.850                 | 13    | 23.45       | 331796                     |   |
| 16.154                 | 13    | 23.45       | 331796                     |   |
| 16.459                 | 13    | 23.45       | 331796                     |   |
| 16.764                 | 13    | 23.45       | 331796                     |   |
| 17.069                 | 18    | 16.93       | 442764                     |   |
| 17.374                 | 18    | 16.93       | 442764                     |   |
| 17.678                 | 19    | 16.04       | 464000                     |   |
| 17.983                 | 19    | 16.04       | 464000                     |   |
| 18.288                 | 19    | 16.04       | 464000                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 16 | 19.05 | 399356  |   |
| 18.898 | 16 | 19.05 | 399356  |   |
| 19.202 | 16 | 19.05 | 399356  |   |
| 19.507 | 17 | 17.93 | 421219  |   |
| 19.812 | 17 | 17.93 | 421219  |   |
| 20.117 | 15 | 20.32 | 377170  |   |
| 20.422 | 16 | 19.05 | 399356  |   |
| 20.726 | 16 | 19.05 | 399356  |   |
| 21.031 | 16 | 19.05 | 399356  |   |
| 21.336 | 16 | 19.05 | 399356  |   |
| 21.641 | 17 | 17.93 | 421219  |   |
| 21.946 | 18 | 16.93 | 442764  |   |
| 22.250 | 18 | 16.93 | 442764  |   |
| 22.555 | 18 | 16.93 | 442764  |   |
| 22.860 | 18 | 16.93 | 442764  |   |
| 23.165 | 16 | 19.05 | 399356  |   |
| 23.470 | 17 | 17.93 | 421219  |   |
| 23.774 | 17 | 17.93 | 421219  |   |
| 24.079 | 17 | 17.93 | 421219  |   |
| 24.384 | 17 | 17.93 | 421219  |   |
| 24.689 | 15 | 20.32 | 377170  |   |
| 24.994 | 16 | 19.05 | 399356  |   |
| 25.298 | 20 | 15.24 | 484932  |   |
| 25.603 | 22 | 13.85 | 525913  |   |
| 25.908 | 23 | 13.25 | 545973  |   |
| 26.111 | 42 | 4.84  | 1168608 | Bearing obtained. No penetration after 203mm. |
|        |    |       |         |   |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 21  
Pier #3 Abut / Pier  
Date Driven 01/25/00Guernsey                      County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 244.633  
Elev. of nominal point of zero penetration: 244.023  
Elev. of pile point at final penetration: 219.243  
Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 0     | 0.00        | 0                          |   |
| 0.610                  | 0     | 0.00        | 0                          |   |
| 0.914                  | 0     | 0.00        | 0                          |   |
| 1.219                  | 0     | 0.00        | 0                          |   |
| 1.524                  | 0     | 0.00        | 0                          |   |
| 1.829                  | 0     | 0.00        | 0                          |   |
| 2.134                  | 0     | 0.00        | 0                          |   |
| 2.438                  | 0     | 0.00        | 0                          |   |
| 2.743                  | 0     | 0.00        | 0                          |   |
| 3.048                  | 4     | 76.20       | 109501                     |   |
| 3.353                  | 4     | 76.20       | 109501                     |   |
| 3.658                  | 4     | 76.20       | 109501                     |   |
| 3.962                  | 4     | 76.20       | 109501                     |   |
| 4.267                  | 4     | 76.20       | 109501                     |   |
| 4.572                  | 4     | 76.20       | 109501                     |   |
| 4.877                  | 4     | 76.20       | 109501                     |   |
| 5.182                  | 4     | 76.20       | 109501                     |   |
| 5.486                  | 4     | 76.20       | 109501                     |   |
| 5.791                  | 4     | 76.20       | 109501                     |   |
| 6.096                  | 5     | 60.96       | 135781                     |   |
| 6.401                  | 7     | 43.54       | 187100                     |   |
| 6.706                  | 7     | 43.54       | 187100                     |   |
| 7.010                  | 8     | 38.10       | 212158                     |   |
| 7.315                  | 8     | 38.10       | 212158                     |   |
| 7.620                  | 8     | 38.10       | 212158                     |   |
| 7.925                  | 8     | 38.10       | 212158                     |   |
| 8.230                  | 8     | 38.10       | 212158                     |   |
| 8.534                  | 8     | 38.10       | 212158                     |   |
| 8.839                  | 9     | 33.87       | 236827                     |   |
| 9.144                  | 9     | 33.87       | 236827                     |   |
| 9.449                  | 8     | 38.10       | 212158                     |   |
| 9.754                  | 8     | 38.10       | 212158                     |   |
| 10.058                 | 8     | 38.10       | 212158                     |   |
| 10.363                 | 8     | 38.10       | 212158                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 8     | 38.10       | 212158                     |   |
| 11.278                 | 8     | 38.10       | 212158                     |   |
| 11.582                 | 8     | 38.10       | 212158                     |   |
| 11.887                 | 9     | 33.87       | 236827                     |   |
| 12.192                 | 9     | 33.87       | 236827                     |   |
| 12.497                 | 9     | 33.87       | 236827                     |   |
| 12.802                 | 9     | 33.87       | 236827                     |   |
| 13.106                 | 10    | 30.48       | 261117                     |   |
| 13.411                 | 10    | 30.48       | 261117                     |   |
| 13.716                 | 10    | 30.48       | 261117                     |   |
| 14.021                 | 10    | 30.48       | 261117                     |   |
| 14.326                 | 10    | 30.48       | 261117                     |   |
| 14.630                 | 7     | 43.54       | 187100                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 7     | 43.54       | 187100                     |   |
| 15.240                 | 7     | 43.54       | 187100                     |   |
| 15.545                 | 7     | 43.54       | 187100                     |   |
| 15.850                 | 19    | 16.04       | 464000                     |   |
| 16.154                 | 13    | 23.45       | 331796                     |   |
| 16.459                 | 14    | 21.77       | 354652                     |   |
| 16.764                 | 14    | 21.77       | 354652                     |   |
| 17.069                 | 13    | 23.45       | 331796                     |   |
| 17.374                 | 15    | 20.32       | 377170                     |   |
| 17.678                 | 19    | 16.04       | 464000                     |   |
| 17.983                 | 16    | 19.05       | 399356                     |   |
| 18.288                 | 15    | 20.32       | 377170                     |   |



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey                      County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Pier #4

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25868 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 243.98

Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks                 | Misc. |
|----------|----------------|-------------------|-------------------------|-------|
| 22       | 26.944         | 842189            | Piling at a 1:4 batter. |       |
| 23       | 27.005         | 842189            | Piling at a 1:4 batter. |       |
| 24       | 26.396         | 2224001           |                         |       |
| 25       | 26.365         | 1576030           |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |

Total = 106.71 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPier No. 22(BAT)Pier #4 Abut / PierDate Driven 02/09/00Guernsey CountyBridge No GUE-77-14 352 LLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R": 824815 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 217.016Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 52637                      | Piling at a 1:4 batter.                           |
| 0.610                  | 2     | 152.40      | 52637                      |   |
| 0.914                  | 2     | 152.40      | 52637                      |   |
| 1.219                  | 2     | 152.40      | 52637                      |   |
| 1.524                  | 2     | 152.40      | 52637                      |   |
| 1.829                  | 2     | 152.40      | 52637                      |   |
| 2.134                  | 2     | 152.40      | 52637                      |   |
| 2.438                  | 2     | 152.40      | 52637                      |   |
| 2.743                  | 2     | 152.40      | 52637                      |   |
| 3.048                  | 2     | 152.40      | 52637                      |   |
| 3.353                  | 2     | 152.40      | 52637                      |   |
| 3.658                  | 2     | 152.40      | 52637                      |   |
| 3.962                  | 2     | 152.40      | 52637                      |   |
| 4.267                  | 2     | 152.40      | 52637                      |   |
| 4.572                  | 2     | 152.40      | 52637                      |   |
| 4.877                  | 2     | 152.40      | 52637                      |   |
| 5.182                  | 2     | 152.40      | 52637                      |   |
| 5.486                  | 2     | 152.40      | 52637                      |   |
| 5.791                  | 3     | 101.60      | 78313                      |   |
| 6.096                  | 3     | 101.60      | 78313                      |   |
| 6.401                  | 5     | 60.96       | 128434                     |   |
| 6.706                  | 6     | 50.80       | 152897                     |   |
| 7.010                  | 6     | 50.80       | 152897                     |   |
| 7.315                  | 6     | 50.80       | 152897                     |   |
| 7.620                  | 6     | 50.80       | 152897                     |   |
| 7.925                  | 6     | 50.80       | 152897                     |   |
| 8.230                  | 7     | 43.54       | 176976                     |   |
| 8.534                  | 7     | 43.54       | 176976                     |   |
| 8.839                  | 7     | 43.54       | 176976                     |   |
| 9.144                  | 7     | 43.54       | 176976                     |   |
| 9.449                  | 7     | 43.54       | 176976                     |   |
| 9.754                  | 7     | 43.54       | 176976                     |   |
| 10.058                 | 7     | 43.54       | 176976                     |   |
| 10.363                 | 7     | 43.54       | 176976                     |   |
| 10.668                 | 8     | 38.10       | 200678                     |   |
| 10.973                 | 8     | 38.10       | 200678                     |   |
| 11.278                 | 8     | 38.10       | 200678                     |   |
| 11.582                 | 8     | 38.10       | 200678                     |   |
| 11.887                 | 9     | 33.87       | 224012                     |   |
| 12.192                 | 9     | 33.87       | 224012                     |   |
| 12.497                 | 9     | 33.87       | 224012                     |   |
| 12.802                 | 9     | 33.87       | 224012                     |   |
| 13.106                 | 9     | 33.87       | 224012                     |   |
| 13.411                 | 10    | 30.48       | 246988                     |   |
| 13.716                 | 10    | 30.48       | 246988                     |   |
| 14.021                 | 10    | 30.48       | 246988                     |   |
| 14.326                 | 10    | 30.48       | 246988                     |   |
| 14.630                 | 10    | 30.48       | 246988                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 10    | 30.48       | 246988                     |   |
| 15.240                 | 11    | 27.71       | 269613                     |   |
| 15.545                 | 11    | 27.71       | 269613                     |   |
| 15.850                 | 11    | 27.71       | 269613                     |   |
| 16.154                 | 11    | 27.71       | 269613                     |   |
| 16.459                 | 11    | 27.71       | 269613                     |   |
| 16.764                 | 11    | 27.71       | 269613                     |   |
| 17.069                 | 11    | 27.71       | 269613                     |   |
| 17.374                 | 11    | 27.71       | 269613                     |   |
| 17.678                 | 11    | 27.71       | 269613                     |   |
| 17.983                 | 11    | 27.71       | 269613                     |   |
| 18.288                 | 11    | 27.71       | 269613                     |   |



|        |    |       |        |   |
|--------|----|-------|--------|---|
| 18.593 | 11 | 27.71 | 269613 |   |
| 18.898 | 11 | 27.71 | 269613 |   |
| 19.202 | 12 | 25.40 | 291895 |   |
| 19.507 | 12 | 25.40 | 291895 |   |
| 19.812 | 12 | 25.40 | 291895 |   |
| 20.117 | 10 | 30.48 | 246988 |   |
| 20.422 | 11 | 27.71 | 269613 |   |
| 20.726 | 11 | 27.71 | 269613 |   |
| 21.031 | 11 | 27.71 | 269613 |   |
| 21.336 | 11 | 27.71 | 269613 |   |
| 21.641 | 12 | 25.40 | 291895 |   |
| 21.946 | 13 | 23.45 | 313842 |   |
| 22.250 | 13 | 23.45 | 313842 |   |
| 22.555 | 13 | 23.45 | 313842 |   |
| 22.860 | 13 | 23.45 | 313842 |   |
| 23.165 | 12 | 25.40 | 291895 |   |
| 23.470 | 12 | 25.40 | 291895 |   |
| 23.774 | 12 | 25.40 | 291895 |   |
| 24.079 | 12 | 25.40 | 291895 |   |
| 24.384 | 12 | 25.40 | 291895 |   |
| 24.689 | 12 | 25.40 | 291895 |   |
| 24.994 | 12 | 25.40 | 291895 |   |
| 25.298 | 12 | 25.40 | 291895 |   |
| 25.603 | 13 | 23.45 | 313842 |   |
| 25.908 | 13 | 23.45 | 313842 |   |
| 26.213 | 15 | 20.32 | 356761 |   |
| 26.518 | 16 | 19.05 | 377747 |   |
| 26.747 | 32 | 7.14  | 842189 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 23(BAT)  
 Pier #4 \_\_\_\_\_ Abut / Pier  
 Date Driven 02/09/00

 Guernsey \_\_\_\_\_ County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" 824815 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 216.955Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 5     | 60.96       | 128434                     | Piling at a 1:4 batter.                           |
| 0.610                  | 5     | 60.96       | 128434                     |   |
| 0.914                  | 5     | 60.96       | 128434                     |   |
| 1.219                  | 5     | 60.96       | 128434                     |   |
| 1.524                  | 5     | 60.96       | 128434                     |   |
| 1.829                  | 5     | 60.96       | 128434                     |   |
| 2.134                  | 5     | 60.96       | 128434                     |   |
| 2.438                  | 5     | 60.96       | 128434                     |   |
| 2.743                  | 5     | 60.96       | 128434                     |   |
| 3.048                  | 5     | 60.96       | 128434                     |   |
| 3.353                  | 5     | 60.96       | 128434                     |   |
| 3.658                  | 5     | 60.96       | 128434                     |   |
| 3.962                  | 5     | 60.96       | 128434                     |   |
| 4.267                  | 5     | 60.96       | 128434                     |   |
| 4.572                  | 5     | 60.96       | 128434                     |   |
| 4.877                  | 5     | 60.96       | 128434                     |   |
| 5.182                  | 5     | 60.96       | 128434                     |   |
| 5.486                  | 5     | 60.96       | 128434                     |   |
| 5.791                  | 5     | 60.96       | 128434                     |   |
| 6.096                  | 5     | 60.96       | 128434                     |   |
| 6.401                  | 5     | 60.96       | 128434                     |   |
| 6.706                  | 5     | 60.96       | 128434                     |   |
| 7.010                  | 5     | 60.96       | 128434                     |   |
| 7.315                  | 5     | 60.96       | 128434                     |   |
| 7.620                  | 5     | 60.96       | 128434                     |   |
| 7.925                  | 5     | 60.96       | 128434                     |   |
| 8.230                  | 5     | 60.96       | 128434                     |   |
| 8.534                  | 6     | 50.80       | 152897                     |   |
| 8.839                  | 6     | 50.80       | 152897                     |   |
| 9.144                  | 6     | 50.80       | 152897                     |   |
| 9.449                  | 9     | 33.87       | 224012                     |   |
| 9.754                  | 9     | 33.87       | 224012                     |   |
| 10.058                 | 9     | 33.87       | 224012                     |   |
| 10.363                 | 9     | 33.87       | 224012                     |   |
| 10.668                 | 10    | 30.48       | 246988                     |   |
| 10.973                 | 11    | 27.71       | 269613                     |   |
| 11.278                 | 11    | 27.71       | 269613                     |   |
| 11.582                 | 11    | 27.71       | 269613                     |   |
| 11.887                 | 11    | 27.71       | 269613                     |   |
| 12.192                 | 11    | 27.71       | 269613                     |   |
| 12.497                 | 11    | 27.71       | 269613                     |   |
| 12.802                 | 11    | 27.71       | 269613                     |   |
| 13.106                 | 11    | 27.71       | 269613                     |   |
| 13.411                 | 12    | 25.40       | 291895                     |   |
| 13.716                 | 12    | 25.40       | 291895                     |   |
| 14.021                 | 7     | 43.54       | 176976                     |   |
| 14.326                 | 7     | 43.54       | 176976                     |   |
| 14.630                 | 7     | 43.54       | 176976                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 7     | 43.54       | 176976                     |   |
| 15.240                 | 8     | 38.10       | 200678                     |   |
| 15.545                 | 14    | 21.77       | 335461                     |   |
| 15.850                 | 14    | 21.77       | 335461                     |   |
| 16.154                 | 14    | 21.77       | 335461                     |   |
| 16.459                 | 14    | 21.77       | 335461                     |   |
| 16.764                 | 14    | 21.77       | 335461                     |   |
| 17.069                 | 14    | 21.77       | 335461                     |   |
| 17.374                 | 15    | 20.32       | 356761                     |   |
| 17.678                 | 15    | 20.32       | 356761                     |   |
| 17.983                 | 15    | 20.32       | 356761                     |   |
| 18.288                 | 15    | 20.32       | 356761                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 18.593 | 11 | 27.71 | 269613 |   |
| 18.898 | 12 | 25.40 | 291895 |   |
| 19.202 | 12 | 25.40 | 291895 |   |
| 19.507 | 12 | 25.40 | 291895 |   |
| 19.812 | 12 | 25.40 | 291895 |   |
| 20.117 | 12 | 25.40 | 291895 |   |
| 20.422 | 12 | 25.40 | 291895 |   |
| 20.726 | 12 | 25.40 | 291895 |   |
| 21.031 | 12 | 25.40 | 291895 |   |
| 21.336 | 12 | 25.40 | 291895 |   |
| 21.641 | 12 | 25.40 | 291895 |   |
| 21.946 | 13 | 23.45 | 313842 |   |
| 22.250 | 13 | 23.45 | 313842 |   |
| 22.555 | 13 | 23.45 | 313842 |   |
| 22.860 | 13 | 23.45 | 313842 |   |
| 23.165 | 14 | 21.77 | 335461 |   |
| 23.470 | 14 | 21.77 | 335461 |   |
| 23.774 | 15 | 20.32 | 356761 |   |
| 24.079 | 15 | 20.32 | 356761 |   |
| 24.384 | 15 | 20.32 | 356761 |   |
| 24.689 | 14 | 21.77 | 335461 |   |
| 24.994 | 13 | 23.45 | 313842 |   |
| 25.298 | 15 | 20.32 | 356761 |   |
| 25.603 | 14 | 21.77 | 335461 |   |
| 25.908 | 15 | 20.32 | 356761 |   |
| 26.213 | 15 | 20.32 | 356761 |   |
| 26.518 | 15 | 20.32 | 356761 |   |
| 26.822 | 16 | 19.05 | 377747 |   |
| 27.127 | 19 | 16.04 | 438893 |   |
| 27.661 | 32 | 7.14  | 842189 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 24  
 Pier #4 Abut / Pier  
 Date Driven 02/10/00

 Guernsey County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 872000 Newtons

 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.564  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 1     | 304.80      | 28054                      |   |
| 0.610                  | 1     | 304.80      | 28054                      |   |
| 0.914                  | 1     | 304.80      | 28054                      |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 2     | 152.40      | 55648                      |   |
| 3.353                  | 2     | 152.40      | 55648                      |   |
| 3.658                  | 2     | 152.40      | 55648                      |   |
| 3.962                  | 2     | 152.40      | 55648                      |   |
| 4.267                  | 2     | 152.40      | 55648                      |   |
| 4.572                  | 2     | 152.40      | 55648                      |   |
| 4.877                  | 2     | 152.40      | 55648                      |   |
| 5.182                  | 2     | 152.40      | 55648                      |   |
| 5.486                  | 2     | 152.40      | 55648                      |   |
| 5.791                  | 2     | 152.40      | 55648                      |   |
| 6.096                  | 2     | 152.40      | 55648                      |   |
| 6.401                  | 2     | 152.40      | 55648                      |   |
| 6.706                  | 2     | 152.40      | 55648                      |   |
| 7.010                  | 2     | 152.40      | 55648                      |   |
| 7.315                  | 2     | 152.40      | 55648                      |   |
| 7.620                  | 2     | 152.40      | 55648                      |   |
| 7.925                  | 2     | 152.40      | 55648                      |   |
| 8.230                  | 2     | 152.40      | 55648                      |   |
| 8.534                  | 2     | 152.40      | 55648                      |   |
| 8.839                  | 2     | 152.40      | 55648                      |   |
| 9.144                  | 2     | 152.40      | 55648                      |   |
| 9.449                  | 4     | 76.20       | 109501                     |   |
| 9.754                  | 5     | 60.96       | 135781                     |   |
| 10.058                 | 5     | 60.96       | 135781                     |   |
| 10.363                 | 5     | 60.96       | 135781                     |   |
| 10.668                 | 5     | 60.96       | 135781                     |   |
| 10.973                 | 8     | 38.10       | 212158                     |   |
| 11.278                 | 8     | 38.10       | 212158                     |   |
| 11.582                 | 8     | 38.10       | 212158                     |   |
| 11.887                 | 9     | 33.87       | 236827                     |   |
| 12.192                 | 9     | 33.87       | 236827                     |   |
| 12.497                 | 7     | 43.54       | 187100                     |   |
| 12.802                 | 7     | 43.54       | 187100                     |   |
| 13.106                 | 7     | 43.54       | 187100                     |   |
| 13.411                 | 7     | 43.54       | 187100                     |   |
| 13.716                 | 8     | 38.10       | 212158                     |   |
| 14.021                 | 8     | 38.10       | 212158                     |   |
| 14.326                 | 8     | 38.10       | 212158                     |   |
| 14.630                 | 9     | 33.87       | 236827                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 10    | 30.48       | 261117                     |   |
| 15.240                 | 10    | 30.48       | 261117                     |   |
| 15.545                 | 11    | 27.71       | 285037                     |   |
| 15.850                 | 11    | 27.71       | 285037                     |   |
| 16.154                 | 11    | 27.71       | 285037                     |   |
| 16.459                 | 11    | 27.71       | 285037                     |   |
| 16.764                 | 11    | 27.71       | 285037                     |   |
| 17.069                 | 11    | 27.71       | 285037                     |   |
| 17.374                 | 11    | 27.71       | 285037                     |   |
| 17.678                 | 11    | 27.71       | 285037                     |   |
| 17.983                 | 11    | 27.71       | 285037                     |   |
| 18.288                 | 11    | 27.71       | 285037                     |   |

|        |    |       |         |  |
|--------|----|-------|---------|--|
| 18.593 | 10 | 30.48 | 261117  |  |
| 18.898 | 10 | 30.48 | 261117  |  |
| 19.202 | 11 | 27.71 | 285037  |  |
| 19.507 | 11 | 27.71 | 285037  |  |
| 19.812 | 11 | 27.71 | 285037  |  |
| 20.117 | 9  | 33.87 | 236827  |  |
| 20.422 | 10 | 30.48 | 261117  |  |
| 20.728 | 10 | 30.48 | 261117  |  |
| 21.031 | 10 | 30.48 | 261117  |  |
| 21.336 | 10 | 30.48 | 261117  |  |
| 21.641 | 14 | 21.77 | 354652  |  |
| 21.946 | 14 | 21.77 | 354652  |  |
| 22.250 | 14 | 21.77 | 354652  |  |
| 22.555 | 14 | 21.77 | 354652  |  |
| 22.860 | 14 | 21.77 | 354652  |  |
| 23.165 | 13 | 23.45 | 331796  |  |
| 23.470 | 13 | 23.45 | 331796  |  |
| 23.774 | 14 | 21.77 | 354652  |  |
| 24.079 | 14 | 21.77 | 354652  |  |
| 24.384 | 14 | 21.77 | 354652  |  |
| 24.689 | 13 | 23.45 | 331796  |  |
| 24.994 | 15 | 20.32 | 377170  |  |
| 25.298 | 18 | 16.93 | 442764  |  |
| 25.603 | 18 | 16.93 | 442764  |  |
| 25.908 | 20 | 15.24 | 484932  |  |
| 25.933 | 19 | 1.34  | 2224001 | Bearing obtained. No penetration after 25mm. |
|        |    |       |         |  |
|        |    |       |         |  |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 25  
 Pier #4 Abut / Pier  
 Date Driven 02/09/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

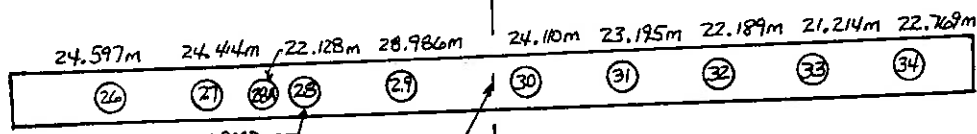
## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.595  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 4     | 76.20       | 109501                     |   |
| 0.610                  | 4     | 76.20       | 109501                     |   |
| 0.914                  | 4     | 76.20       | 109501                     |   |
| 1.219                  | 4     | 76.20       | 109501                     |   |
| 1.524                  | 4     | 76.20       | 109501                     |   |
| 1.829                  | 4     | 76.20       | 109501                     |   |
| 2.134                  | 4     | 76.20       | 109501                     |   |
| 2.438                  | 4     | 76.20       | 109501                     |   |
| 2.743                  | 4     | 76.20       | 109501                     |   |
| 3.048                  | 4     | 76.20       | 109501                     |   |
| 3.353                  | 5     | 60.96       | 135781                     |   |
| 3.658                  | 5     | 60.96       | 135781                     |   |
| 3.962                  | 5     | 60.96       | 135781                     |   |
| 4.267                  | 5     | 60.96       | 135781                     |   |
| 4.572                  | 5     | 60.96       | 135781                     |   |
| 4.877                  | 5     | 60.96       | 135781                     |   |
| 5.182                  | 5     | 60.96       | 135781                     |   |
| 5.486                  | 5     | 60.96       | 135781                     |   |
| 5.791                  | 5     | 60.96       | 135781                     |   |
| 6.096                  | 5     | 60.96       | 135781                     |   |
| 6.401                  | 5     | 60.96       | 135781                     |   |
| 6.706                  | 5     | 60.96       | 135781                     |   |
| 7.010                  | 5     | 60.96       | 135781                     |   |
| 7.315                  | 5     | 60.96       | 135781                     |   |
| 7.620                  | 5     | 60.96       | 135781                     |   |
| 7.925                  | 5     | 60.96       | 135781                     |   |
| 8.230                  | 5     | 60.96       | 135781                     |   |
| 8.534                  | 5     | 60.96       | 135781                     |   |
| 8.839                  | 5     | 60.96       | 135781                     |   |
| 9.144                  | 5     | 60.96       | 135781                     |   |
| 9.449                  | 8     | 38.10       | 212158                     |   |
| 9.754                  | 8     | 38.10       | 212158                     |   |
| 10.058                 | 8     | 38.10       | 212158                     |   |
| 10.363                 | 9     | 33.87       | 236827                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 10    | 30.48       | 261117                     |   |
| 11.278                 | 10    | 30.48       | 261117                     |   |
| 11.582                 | 10    | 30.48       | 261117                     |   |
| 11.887                 | 10    | 30.48       | 261117                     |   |
| 12.192                 | 10    | 30.48       | 261117                     |   |
| 12.497                 | 11    | 27.71       | 285037                     |   |
| 12.802                 | 11    | 27.71       | 285037                     |   |
| 13.106                 | 11    | 27.71       | 285037                     |   |
| 13.411                 | 11    | 27.71       | 285037                     |   |
| 13.716                 | 11    | 27.71       | 285037                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 13    | 23.45       | 331796                     |   |
| 14.630                 | 13    | 23.45       | 331796                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 15    | 20.32       | 377170                     |   |
| 15.240                 | 15    | 20.32       | 377170                     |   |
| 15.545                 | 15    | 20.32       | 377170                     |   |
| 15.850                 | 15    | 20.32       | 377170                     |   |
| 16.154                 | 16    | 19.05       | 399356                     |   |
| 16.459                 | 16    | 19.05       | 399356                     |   |
| 16.764                 | 16    | 19.05       | 399356                     |   |
| 17.069                 | 15    | 20.32       | 377170                     |   |
| 17.374                 | 16    | 19.05       | 399356                     |   |
| 17.678                 | 16    | 19.05       | 399356                     |   |
| 17.983                 | 16    | 19.05       | 399356                     |   |
| 18.288                 | 16    | 19.05       | 399356                     |   |

|        |    |       |         |  |
|--------|----|-------|---------|--|
| 18.593 | 14 | 21.77 | 354652  |  |
| 18.898 | 14 | 21.77 | 354652  |  |
| 19.202 | 14 | 21.77 | 354652  |  |
| 19.507 | 15 | 20.32 | 377170  |  |
| 19.812 | 15 | 20.32 | 377170  |  |
| 20.117 | 14 | 21.77 | 354652  |  |
| 20.422 | 14 | 21.77 | 354652  |  |
| 20.726 | 14 | 21.77 | 354652  |  |
| 21.031 | 15 | 20.32 | 377170  |  |
| 21.336 | 15 | 20.32 | 377170  |  |
| 21.641 | 17 | 17.93 | 421219  |  |
| 21.946 | 17 | 17.93 | 421219  |  |
| 22.250 | 18 | 16.93 | 442764  |  |
| 22.555 | 18 | 16.93 | 442764  |  |
| 22.860 | 18 | 16.93 | 442764  |  |
| 23.165 | 16 | 19.05 | 399356  |  |
| 23.470 | 16 | 19.05 | 399356  |  |
| 23.774 | 16 | 19.05 | 399356  |  |
| 24.079 | 16 | 19.05 | 399356  |  |
| 24.384 | 16 | 19.05 | 399356  |  |
| 24.689 | 16 | 19.05 | 399356  |  |
| 24.994 | 16 | 19.05 | 399356  |  |
| 25.298 | 18 | 16.93 | 442764  |  |
| 25.603 | 18 | 16.93 | 442764  |  |
| 25.908 | 21 | 14.51 | 505568  |  |
| 25.984 | 26 | 2.93  | 1576030 | Bearing obtained. No penetration after 75mm. |
|        |    |       |         |  |
|        |    |       |         |  |

REF. NO. 48-(507) 300MM CAST-IN-PLACE REINFORCED CONCRETE PILES.



ESTIMATED PAY LENGTH:

ABUTMENTS = 17 METERS

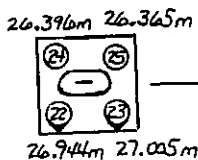
PIERS = 11 METERS

ULTIMATE BEARING:

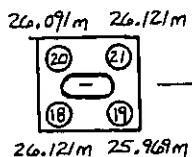
ABUTMENTS = 773KN

PIERS = 872KN

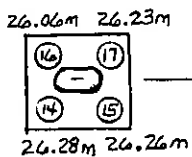
○ = 300MM BATTERED 1:4 PILE



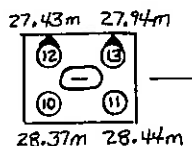
PIER 4  
STA. 15+840.520



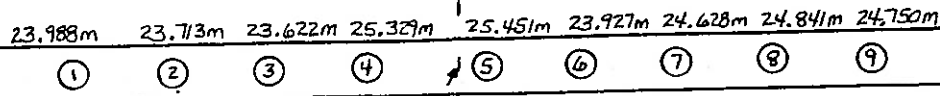
PIER 3  
STA. 15+822.994



PIER 2  
STA. 15+805.468



PIER 1  
STA. 15+787.942



REAR ABUTMENT  
STA. 15+713.922



| SUMMARY TOTALS |                   |
|----------------|-------------------|
| REAR ABUT.     | = 220.249m        |
| PIER 1         | = 112.18m         |
| PIER 2         | = 104.83m         |
| PIER 3         | = 104.302m        |
| PIER 4         | = 106.710m        |
| FORWARD ABUT.  | = 213.602m        |
| TOTAL          | = <u>861.873m</u> |



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Pier #4

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 243.96

Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks                 | Misc. |
|----------|----------------|-------------------|-------------------------|-------|
| 22       | 26.944         | 842189            | Piling at a 1:4 batter. |       |
| 23       | 27.005         | 842189            | Piling at a 1:4 batter. |       |
| 24       | 26.398         | 2224001           |                         |       |
| 25       | 26.365         | 1576030           |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |

Total = 108.71 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 22(BAT)  
 Pier #4 Abut / Pier  
 Date Driven 02/09/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" 824815 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 217.016Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               | 2     | 152.40   | 52637                   | Piling at a 1:4 batter.                           |
| 0.610               | 2     | 152.40   | 52637                   |   |
| 0.914               | 2     | 152.40   | 52637                   |   |
| 1.219               | 2     | 152.40   | 52637                   |   |
| 1.524               | 2     | 152.40   | 52637                   |   |
| 1.829               | 2     | 152.40   | 52637                   |   |
| 2.134               | 2     | 152.40   | 52637                   |   |
| 2.438               | 2     | 152.40   | 52637                   |   |
| 2.743               | 2     | 152.40   | 52637                   |   |
| 3.048               | 2     | 152.40   | 52637                   |   |
| 3.353               | 2     | 152.40   | 52637                   |   |
| 3.658               | 2     | 152.40   | 52637                   |   |
| 3.962               | 2     | 152.40   | 52637                   |   |
| 4.267               | 2     | 152.40   | 52637                   |   |
| 4.572               | 2     | 152.40   | 52637                   |   |
| 4.877               | 2     | 152.40   | 52637                   |   |
| 5.182               | 2     | 152.40   | 52637                   |   |
| 5.486               | 2     | 152.40   | 52637                   |   |
| 5.791               | 3     | 101.60   | 78313                   |   |
| 6.096               | 3     | 101.60   | 78313                   |   |
| 6.401               | 5     | 60.96    | 128434                  |   |
| 6.706               | 6     | 50.80    | 152897                  |   |
| 7.010               | 6     | 50.80    | 152897                  |   |
| 7.315               | 6     | 50.80    | 152897                  |   |
| 7.620               | 6     | 50.80    | 152897                  |   |
| 7.925               | 6     | 50.80    | 152897                  |   |
| 8.230               | 7     | 43.54    | 176976                  |   |
| 8.534               | 7     | 43.54    | 176976                  |   |
| 8.839               | 7     | 43.54    | 176976                  |   |
| 9.144               | 7     | 43.54    | 176976                  |   |
| 9.449               | 7     | 43.54    | 176976                  |   |
| 9.754               | 7     | 43.54    | 176976                  |   |
| 10.058              | 7     | 43.54    | 176976                  |   |
| 10.363              | 7     | 43.54    | 176976                  |   |
| 10.668              | 8     | 38.10    | 200678                  |   |
| 10.973              | 8     | 38.10    | 200678                  |   |
| 11.278              | 8     | 38.10    | 200678                  |   |
| 11.582              | 8     | 38.10    | 200678                  |   |
| 11.887              | 9     | 33.87    | 224012                  |   |
| 12.192              | 9     | 33.87    | 224012                  |   |
| 12.497              | 9     | 33.87    | 224012                  |   |
| 12.802              | 9     | 33.87    | 224012                  |   |
| 13.106              | 9     | 33.87    | 224012                  |   |
| 13.411              | 10    | 30.48    | 246988                  |   |
| 13.716              | 10    | 30.48    | 246988                  |   |
| 14.021              | 10    | 30.48    | 246988                  |   |
| 14.326              | 10    | 30.48    | 246988                  |   |
| 14.630              | 10    | 30.48    | 246988                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935              | 10    | 30.48    | 246988                  |   |
| 15.240              | 11    | 27.71    | 269613                  |   |
| 15.545              | 11    | 27.71    | 269613                  |   |
| 15.850              | 11    | 27.71    | 269613                  |   |
| 16.154              | 11    | 27.71    | 269613                  |   |
| 16.459              | 11    | 27.71    | 269613                  |   |
| 16.764              | 11    | 27.71    | 269613                  |   |
| 17.069              | 11    | 27.71    | 269613                  |   |
| 17.374              | 11    | 27.71    | 269613                  |   |
| 17.678              | 11    | 27.71    | 269613                  |   |
| 17.983              | 11    | 27.71    | 269613                  |   |
| 18.288              | 11    | 27.71    | 269613                  |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 18.593 | 11 | 27.71 | 269613 |   |
| 18.898 | 11 | 27.71 | 269613 |   |
| 19.202 | 12 | 25.40 | 291895 |   |
| 19.507 | 12 | 25.40 | 291895 |   |
| 19.812 | 12 | 25.40 | 291895 |   |
| 20.117 | 10 | 30.48 | 246988 |   |
| 20.422 | 11 | 27.71 | 269613 |   |
| 20.728 | 11 | 27.71 | 269613 |   |
| 21.031 | 11 | 27.71 | 269613 |   |
| 21.336 | 11 | 27.71 | 269613 |   |
| 21.641 | 12 | 25.40 | 291895 |   |
| 21.946 | 13 | 23.45 | 313842 |   |
| 22.250 | 13 | 23.45 | 313842 |   |
| 22.555 | 13 | 23.45 | 313842 |   |
| 22.860 | 13 | 23.45 | 313842 |   |
| 23.165 | 12 | 25.40 | 291895 |   |
| 23.470 | 12 | 25.40 | 291895 |   |
| 23.774 | 12 | 25.40 | 291895 |   |
| 24.079 | 12 | 25.40 | 291895 |   |
| 24.384 | 12 | 25.40 | 291895 |   |
| 24.689 | 12 | 25.40 | 291895 |   |
| 24.994 | 12 | 25.40 | 291895 |   |
| 25.298 | 12 | 25.40 | 291895 |   |
| 25.603 | 13 | 23.45 | 313842 |   |
| 25.908 | 13 | 23.45 | 313842 |   |
| 26.213 | 15 | 20.32 | 356761 |   |
| 26.518 | 16 | 19.05 | 377747 |   |
| 26.747 | 32 | 7.14  | 842189 | Bearing obtained. No penetration after 229mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 File No. 24  
 Pier #4 Abut / Pier  
 Date Driven 02/10/00

 Guemsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" = 872000 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 217.564Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 1     | 304.80      | 28054                      |   |
| 0.610                  | 1     | 304.80      | 28054                      |   |
| 0.914                  | 1     | 304.80      | 28054                      |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 2     | 152.40      | 55648                      |   |
| 3.353                  | 2     | 152.40      | 55648                      |   |
| 3.658                  | 2     | 152.40      | 55648                      |   |
| 3.962                  | 2     | 152.40      | 55648                      |   |
| 4.267                  | 2     | 152.40      | 55648                      |   |
| 4.572                  | 2     | 152.40      | 55648                      |   |
| 4.877                  | 2     | 152.40      | 55648                      |   |
| 5.182                  | 2     | 152.40      | 55648                      |   |
| 5.486                  | 2     | 152.40      | 55648                      |   |
| 5.791                  | 2     | 152.40      | 55648                      |   |
| 6.096                  | 2     | 152.40      | 55648                      |   |
| 6.401                  | 2     | 152.40      | 55648                      |   |
| 6.706                  | 2     | 152.40      | 55648                      |   |
| 7.010                  | 2     | 152.40      | 55648                      |   |
| 7.315                  | 2     | 152.40      | 55648                      |   |
| 7.620                  | 2     | 152.40      | 55648                      |   |
| 7.925                  | 2     | 152.40      | 55648                      |   |
| 8.230                  | 2     | 152.40      | 55648                      |   |
| 8.534                  | 2     | 152.40      | 55648                      |   |
| 8.839                  | 2     | 152.40      | 55648                      |   |
| 9.144                  | 2     | 152.40      | 55648                      |   |
| 9.449                  | 4     | 76.20       | 109501                     |   |
| 9.754                  | 5     | 60.96       | 135781                     |   |
| 10.058                 | 5     | 60.96       | 135781                     |   |
| 10.363                 | 5     | 60.96       | 135781                     |   |
| 10.668                 | 5     | 60.96       | 135781                     |   |
| 10.973                 | 8     | 38.10       | 212158                     |   |
| 11.278                 | 8     | 38.10       | 212158                     |   |
| 11.582                 | 8     | 38.10       | 212158                     |   |
| 11.887                 | 9     | 33.87       | 236827                     |   |
| 12.192                 | 9     | 33.87       | 236827                     |   |
| 12.497                 | 7     | 43.54       | 187100                     |   |
| 12.802                 | 7     | 43.54       | 187100                     |   |
| 13.106                 | 7     | 43.54       | 187100                     |   |
| 13.411                 | 7     | 43.54       | 187100                     |   |
| 13.716                 | 8     | 38.10       | 212158                     |   |
| 14.021                 | 8     | 38.10       | 212158                     |   |
| 14.326                 | 8     | 38.10       | 212158                     |   |
| 14.630                 | 9     | 33.87       | 236827                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 10    | 30.48       | 261117                     |   |
| 15.240                 | 10    | 30.48       | 261117                     |   |
| 15.545                 | 11    | 27.71       | 285037                     |   |
| 15.850                 | 11    | 27.71       | 285037                     |   |
| 16.154                 | 11    | 27.71       | 285037                     |   |
| 16.459                 | 11    | 27.71       | 285037                     |   |
| 16.764                 | 11    | 27.71       | 285037                     |   |
| 17.069                 | 11    | 27.71       | 285037                     |   |
| 17.374                 | 11    | 27.71       | 285037                     |   |
| 17.678                 | 11    | 27.71       | 285037                     |   |
| 17.983                 | 11    | 27.71       | 285037                     |   |
| 18.288                 | 11    | 27.71       | 285037                     |   |

|        |    |       |         |  |
|--------|----|-------|---------|--|
| 18.593 | 10 | 30.48 | 261117  |  |
| 18.898 | 10 | 30.48 | 261117  |  |
| 19.202 | 11 | 27.71 | 285037  |  |
| 19.507 | 11 | 27.71 | 285037  |  |
| 19.812 | 11 | 27.71 | 285037  |  |
| 20.117 | 9  | 33.87 | 236827  |  |
| 20.422 | 10 | 30.48 | 261117  |  |
| 20.726 | 10 | 30.48 | 261117  |  |
| 21.031 | 10 | 30.48 | 261117  |  |
| 21.336 | 10 | 30.48 | 261117  |  |
| 21.641 | 14 | 21.77 | 354652  |  |
| 21.946 | 14 | 21.77 | 354652  |  |
| 22.250 | 14 | 21.77 | 354652  |  |
| 22.555 | 14 | 21.77 | 354652  |  |
| 22.860 | 14 | 21.77 | 354652  |  |
| 23.165 | 13 | 23.45 | 331796  |  |
| 23.470 | 13 | 23.45 | 331796  |  |
| 23.774 | 14 | 21.77 | 354652  |  |
| 24.079 | 14 | 21.77 | 354652  |  |
| 24.384 | 14 | 21.77 | 354652  |  |
| 24.689 | 13 | 23.45 | 331796  |  |
| 24.994 | 15 | 20.32 | 377170  |  |
| 25.298 | 18 | 16.93 | 442764  |  |
| 25.603 | 18 | 16.93 | 442764  |  |
| 25.908 | 20 | 15.24 | 484932  |  |
| 25.933 | 19 | 1.34  | 2224001 | Bearing obtained. No penetration after 25mm. |
|        |    |       |         |  |
|        |    |       |         |  |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey                      County  
Section 14.352  
Br. No. Gue-77-14.352 L  
Location 1-77 over C.R. 431,  
TR-4958 & CSX R.R.

**PILING RECORD** Pier #3 **FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile  
Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer      WH or F= 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54      Required "R" = 872000 Newtons  
  
Elev of top of pile (cut-off elev.): 243.96  
Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks | Misc. |
|----------|----------------|-------------------|---------|-------|
| 18       | 28.121         | 1204510           |         |       |
| 19       | 25.969         | 937961            |         |       |
| 20       | 26.091         | 1168608           |         |       |
| 21       | 28.121         | 1305587           |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |

Total = 104.302 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 18  
Pier #3 Abut / Pier  
Date Driven 01/25/00Guemsey County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
Elev. of top of pile (cut-off elev.) 243.96  
Elev. of nominal point of zero penetration: 243.35  
Elev. of pile point at final penetration: 217.839  
Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 0     | 0           | 0                          |   |
| 0.610                  | 0     | 0           | 0                          |   |
| 0.914                  | 0     | 0           | 0                          |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 0     | 0           | 0                          |   |
| 1.829                  | 0     | 0           | 0                          |   |
| 2.134                  | 0     | 0           | 0                          |   |
| 2.438                  | 1     | 304.80      | 28054                      |   |
| 2.743                  | 1     | 304.80      | 28054                      |   |
| 3.048                  | 1     | 304.80      | 28054                      |   |
| 3.353                  | 1     | 304.80      | 28054                      |   |
| 3.658                  | 1     | 304.80      | 28054                      |   |
| 3.962                  | 1     | 304.80      | 28054                      |   |
| 4.267                  | 1     | 304.80      | 28054                      |   |
| 4.572                  | 1     | 304.80      | 28054                      |   |
| 4.877                  | 0     | 0           | 0                          |   |
| 5.182                  | 0     | 0           | 0                          |   |
| 5.486                  | 0     | 0           | 0                          |   |
| 5.791                  | 1     | 304.80      | 28054                      |   |
| 6.096                  | 1     | 304.80      | 28054                      |   |
| 6.401                  | 1     | 304.80      | 28054                      |   |
| 6.706                  | 1     | 304.80      | 28054                      |   |
| 7.010                  | 1     | 304.80      | 28054                      |   |
| 7.315                  | 1     | 304.80      | 28054                      |   |
| 7.620                  | 1     | 304.80      | 28054                      |   |
| 7.925                  | 1     | 304.80      | 28054                      |   |
| 8.230                  | 1     | 304.80      | 28054                      |   |
| 8.534                  | 1     | 304.80      | 28054                      |   |
| 8.839                  | 1     | 304.80      | 28054                      |   |
| 9.144                  | 2     | 152.40      | 55648                      |   |
| 9.449                  | 1     | 304.80      | 28054                      |   |
| 9.754                  | 1     | 304.80      | 28054                      |   |
| 10.058                 | 1     | 304.80      | 28054                      |   |
| 10.363                 | 1     | 304.80      | 28054                      |   |
| 10.668                 | 2     | 152.40      | 55648                      |   |
| 10.973                 | 1     | 304.80      | 28054                      |   |
| 11.278                 | 1     | 304.80      | 28054                      |   |
| 11.582                 | 1     | 304.80      | 28054                      |   |
| 11.887                 | 2     | 152.40      | 55648                      |   |
| 12.192                 | 2     | 152.40      | 55648                      |   |
| 12.497                 | 2     | 152.40      | 55648                      |   |
| 12.802                 | 2     | 152.40      | 55648                      |   |
| 13.106                 | 2     | 152.40      | 55648                      |   |
| 13.411                 | 2     | 152.40      | 55648                      |   |
| 13.716                 | 2     | 152.40      | 55648                      |   |
| 14.021                 | 3     | 101.60      | 82793                      |   |
| 14.326                 | 3     | 101.60      | 82793                      |   |
| 14.630                 | 2     | 152.40      | 55648                      | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 3     | 101.60      | 82793                      |   |
| 15.240                 | 3     | 101.60      | 82793                      |   |
| 15.545                 | 4     | 76.20       | 109501                     |   |
| 15.850                 | 4     | 76.20       | 109501                     |   |
| 16.154                 | 4     | 76.20       | 109501                     |   |
| 16.459                 | 4     | 76.20       | 109501                     |   |
| 16.764                 | 4     | 76.20       | 109501                     |   |
| 17.069                 | 11    | 27.71       | 285037                     |   |
| 17.374                 | 11    | 27.71       | 285037                     |   |
| 17.678                 | 12    | 25.40       | 308593                     |   |
| 17.983                 | 12    | 25.40       | 308593                     |   |
| 18.288                 | 12    | 25.40       | 308593                     |   |





STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 20  
 Pier #3 Abut / Pier  
 Date Driven 02/09/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R": 872000 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 217.869Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 1     | 304.80      | 28054                      |   |
| 0.610                  | 1     | 304.80      | 28054                      |   |
| 0.914                  | 1     | 304.80      | 28054                      |   |
| 1.219                  | 1     | 304.80      | 28054                      |   |
| 1.524                  | 1     | 304.80      | 28054                      |   |
| 1.829                  | 1     | 304.80      | 28054                      |   |
| 2.134                  | 1     | 304.80      | 28054                      |   |
| 2.438                  | 1     | 304.80      | 28054                      |   |
| 2.743                  | 1     | 304.80      | 28054                      |   |
| 3.048                  | 1     | 304.80      | 28054                      |   |
| 3.353                  | 1     | 304.80      | 28054                      |   |
| 3.658                  | 1     | 304.80      | 28054                      |   |
| 3.962                  | 1     | 304.80      | 28054                      |   |
| 4.267                  | 1     | 304.80      | 28054                      |   |
| 4.572                  | 1     | 304.80      | 28054                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 3     | 101.60      | 82793                      |   |
| 6.706                  | 3     | 101.60      | 82793                      |   |
| 7.010                  | 3     | 101.60      | 82793                      |   |
| 7.315                  | 3     | 101.60      | 82793                      |   |
| 7.620                  | 3     | 101.60      | 82793                      |   |
| 7.925                  | 3     | 101.60      | 82793                      |   |
| 8.230                  | 3     | 101.60      | 82793                      |   |
| 8.534                  | 3     | 101.60      | 82793                      |   |
| 8.839                  | 3     | 101.60      | 82793                      |   |
| 9.144                  | 4     | 76.20       | 109501                     |   |
| 9.449                  | 7     | 43.54       | 187100                     |   |
| 9.754                  | 7     | 43.54       | 187100                     |   |
| 10.058                 | 7     | 43.54       | 187100                     |   |
| 10.363                 | 7     | 43.54       | 187100                     |   |
| 10.668                 | 8     | 38.10       | 212158                     |   |
| 10.973                 | 8     | 38.10       | 212158                     |   |
| 11.278                 | 9     | 33.87       | 236827                     |   |
| 11.582                 | 9     | 33.87       | 236827                     |   |
| 11.887                 | 9     | 33.87       | 236827                     |   |
| 12.192                 | 9     | 33.87       | 236827                     |   |
| 12.497                 | 12    | 25.40       | 308593                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 12    | 25.40       | 308593                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 12    | 25.40       | 308593                     |   |
| 15.240                 | 12    | 25.40       | 308593                     |   |
| 15.545                 | 13    | 23.45       | 331796                     |   |
| 15.850                 | 13    | 23.45       | 331796                     |   |
| 16.154                 | 13    | 23.45       | 331796                     |   |
| 16.459                 | 13    | 23.45       | 331796                     |   |
| 16.764                 | 13    | 23.45       | 331796                     |   |
| 17.069                 | 18    | 16.93       | 442764                     |   |
| 17.374                 | 18    | 16.93       | 442764                     |   |
| 17.678                 | 19    | 16.04       | 464000                     |   |
| 17.983                 | 19    | 16.04       | 464000                     |   |
| 18.288                 | 19    | 16.04       | 464000                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 16 | 19.05 | 399356  |   |
| 18.898 | 16 | 19.05 | 399356  |   |
| 19.202 | 16 | 19.05 | 399356  |   |
| 19.507 | 17 | 17.93 | 421219  |   |
| 19.812 | 17 | 17.93 | 421219  |   |
| 20.117 | 15 | 20.32 | 377170  |   |
| 20.422 | 16 | 19.05 | 399356  |   |
| 20.726 | 16 | 19.05 | 399356  |   |
| 21.031 | 16 | 19.05 | 399356  |   |
| 21.336 | 16 | 19.05 | 399356  |   |
| 21.641 | 17 | 17.93 | 421219  |   |
| 21.946 | 18 | 16.93 | 442764  |   |
| 22.250 | 18 | 16.93 | 442764  |   |
| 22.555 | 18 | 16.93 | 442764  |   |
| 22.860 | 18 | 16.93 | 442764  |   |
| 23.165 | 16 | 19.05 | 399356  |   |
| 23.470 | 17 | 17.93 | 421219  |   |
| 23.774 | 17 | 17.93 | 421219  |   |
| 24.079 | 17 | 17.93 | 421219  |   |
| 24.384 | 17 | 17.93 | 421219  |   |
| 24.689 | 15 | 20.32 | 377170  |   |
| 24.994 | 16 | 19.05 | 399356  |   |
| 25.298 | 20 | 15.24 | 484932  |   |
| 25.603 | 22 | 13.85 | 525913  |   |
| 25.908 | 23 | 13.25 | 545973  |   |
| 26.111 | 42 | 4.84  | 1168608 | Bearing obtained. No penetration after 203mm. |
|        |    |       |         |   |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey                      County  
Section 14.352  
Br. No. Gue-77-14.352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Pier #2

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25868 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 243.98

Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks | Misc. |
|----------|----------------|-------------------|---------|-------|
| 14       | 26.28          | 1397746           |         |       |
| 15       | 26.26          | 1175882           |         |       |
| 16       | 26.06          | 1227808           |         |       |
| 17       | 26.23          | 1294820           |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |

Total = 104.83 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 14  
 Pier #2 Abut / Pier  
 Date Driven 02/22/00

 Guemsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons  
 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.68  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 3     | 101.60      | 82793                      |   |
| 0.610                  | 3     | 101.60      | 82793                      |   |
| 0.914                  | 3     | 101.60      | 82793                      |   |
| 1.219                  | 4     | 76.20       | 109501                     |   |
| 1.524                  | 4     | 76.20       | 109501                     |   |
| 1.829                  | 4     | 76.20       | 109501                     |   |
| 2.134                  | 4     | 76.20       | 109501                     |   |
| 2.438                  | 4     | 76.20       | 109501                     |   |
| 2.743                  | 4     | 76.20       | 109501                     |   |
| 3.048                  | 4     | 76.20       | 109501                     |   |
| 3.353                  | 4     | 76.20       | 109501                     |   |
| 3.658                  | 4     | 76.20       | 109501                     |   |
| 3.962                  | 4     | 76.20       | 109501                     |   |
| 4.267                  | 4     | 76.20       | 109501                     |   |
| 4.572                  | 4     | 76.20       | 109501                     |   |
| 4.877                  | 4     | 76.20       | 109501                     |   |
| 5.182                  | 4     | 76.20       | 109501                     |   |
| 5.486                  | 4     | 76.20       | 109501                     |   |
| 5.791                  | 4     | 76.20       | 109501                     |   |
| 6.096                  | 4     | 76.20       | 109501                     |   |
| 6.401                  | 7     | 43.54       | 187100                     |   |
| 6.706                  | 7     | 43.54       | 187100                     |   |
| 7.010                  | 7     | 43.54       | 187100                     |   |
| 7.315                  | 7     | 43.54       | 187100                     |   |
| 7.620                  | 8     | 38.10       | 212158                     |   |
| 7.925                  | 8     | 38.10       | 212158                     |   |
| 8.230                  | 8     | 38.10       | 212158                     |   |
| 8.534                  | 9     | 33.87       | 236827                     |   |
| 8.839                  | 9     | 33.87       | 236827                     |   |
| 9.144                  | 9     | 33.87       | 236827                     |   |
| 9.449                  | 9     | 33.87       | 236827                     |   |
| 9.754                  | 9     | 33.87       | 236827                     |   |
| 10.058                 | 9     | 33.87       | 236827                     |   |
| 10.363                 | 9     | 33.87       | 236827                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 10    | 30.48       | 261117                     |   |
| 11.278                 | 10    | 30.48       | 261117                     |   |
| 11.582                 | 10    | 30.48       | 261117                     |   |
| 11.887                 | 11    | 27.71       | 285037                     |   |
| 12.192                 | 11    | 27.71       | 285037                     |   |
| 12.497                 | 12    | 25.40       | 308593                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 17    | 17.93       | 421219                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 12    | 25.40       | 308593                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 10    | 30.48       | 261117                     |   |
| 15.240                 | 10    | 30.48       | 261117                     |   |
| 15.545                 | 13    | 23.45       | 331796                     |   |
| 15.850                 | 14    | 21.77       | 354652                     |   |
| 16.154                 | 14    | 21.77       | 354652                     |   |
| 16.459                 | 16    | 19.05       | 399356                     |   |
| 16.764                 | 16    | 19.05       | 399356                     |   |
| 17.069                 | 16    | 19.05       | 399356                     |   |
| 17.374                 | 19    | 16.04       | 464000                     |   |
| 17.678                 | 19    | 16.04       | 464000                     |   |
| 17.983                 | 19    | 16.04       | 464000                     |   |
| 18.288                 | 17    | 17.93       | 421219                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 17 | 17.93 | 421219  |   |
| 18.896 | 15 | 20.32 | 377170  |   |
| 19.202 | 17 | 17.93 | 421219  |   |
| 19.507 | 17 | 17.93 | 421219  |   |
| 19.812 | 16 | 19.05 | 399356  |   |
| 20.117 | 17 | 17.93 | 421219  |   |
| 20.422 | 16 | 19.05 | 399356  |   |
| 20.726 | 17 | 17.93 | 421219  |   |
| 21.031 | 16 | 19.05 | 399356  |   |
| 21.336 | 17 | 17.93 | 421219  |   |
| 21.641 | 17 | 17.93 | 421219  |   |
| 21.946 | 19 | 16.04 | 464000  |   |
| 22.250 | 18 | 16.93 | 442764  |   |
| 22.555 | 21 | 14.51 | 505568  |   |
| 22.860 | 26 | 11.72 | 604505  |   |
| 23.165 | 17 | 17.93 | 421219  |   |
| 23.470 | 21 | 14.51 | 505568  |   |
| 23.774 | 18 | 16.93 | 442764  |   |
| 24.079 | 18 | 16.93 | 442764  |   |
| 24.384 | 18 | 16.93 | 442764  |   |
| 24.689 | 17 | 17.93 | 421219  |   |
| 24.994 | 18 | 16.93 | 442764  |   |
| 25.298 | 21 | 14.51 | 505568  |   |
| 25.603 | 34 | 8.96  | 749441  |   |
| 25.908 | 54 | 5.64  | 1053474 |   |
| 26.060 | 42 | 3.63  | 1397746 | Bearing obtained. No penetration after 152mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 16  
 Pier #2 Abut / Pier  
 Date Driven 02/22/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 872000 Newtons

 Elev. of top of pile (cut-off elev.) 243.96  
 Elev. of nominal point of zero penetration: 243.35  
 Elev. of pile point at final penetration: 217.9  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 2     | 152.40      | 55648                      |   |
| 2.134                  | 2     | 152.40      | 55648                      |   |
| 2.438                  | 2     | 152.40      | 55648                      |   |
| 2.743                  | 2     | 152.40      | 55648                      |   |
| 3.048                  | 2     | 152.40      | 55648                      |   |
| 3.353                  | 2     | 152.40      | 55648                      |   |
| 3.658                  | 2     | 152.40      | 55648                      |   |
| 3.962                  | 3     | 101.60      | 82793                      |   |
| 4.267                  | 3     | 101.60      | 82793                      |   |
| 4.572                  | 3     | 101.60      | 82793                      |   |
| 4.877                  | 3     | 101.60      | 82793                      |   |
| 5.182                  | 3     | 101.60      | 82793                      |   |
| 5.486                  | 3     | 101.60      | 82793                      |   |
| 5.791                  | 3     | 101.60      | 82793                      |   |
| 6.096                  | 3     | 101.60      | 82793                      |   |
| 6.401                  | 7     | 43.54       | 187100                     |   |
| 6.706                  | 7     | 43.54       | 187100                     |   |
| 7.010                  | 7     | 43.54       | 187100                     |   |
| 7.315                  | 8     | 38.10       | 212158                     |   |
| 7.620                  | 8     | 38.10       | 212158                     |   |
| 7.925                  | 8     | 38.10       | 212158                     |   |
| 8.230                  | 9     | 33.87       | 236827                     |   |
| 8.534                  | 9     | 33.87       | 236827                     |   |
| 8.839                  | 9     | 33.87       | 236827                     |   |
| 9.144                  | 9     | 33.87       | 236827                     |   |
| 9.449                  | 8     | 38.10       | 212158                     |   |
| 9.754                  | 9     | 33.87       | 236827                     |   |
| 10.058                 | 9     | 33.87       | 236827                     |   |
| 10.363                 | 9     | 33.87       | 236827                     |   |
| 10.668                 | 9     | 33.87       | 236827                     |   |
| 10.973                 | 10    | 30.48       | 261117                     |   |
| 11.278                 | 10    | 30.48       | 261117                     |   |
| 11.582                 | 10    | 30.48       | 261117                     |   |
| 11.887                 | 10    | 30.48       | 261117                     |   |
| 12.192                 | 11    | 27.71       | 285037                     |   |
| 12.497                 | 11    | 27.71       | 285037                     |   |
| 12.802                 | 12    | 25.40       | 308593                     |   |
| 13.106                 | 12    | 25.40       | 308593                     |   |
| 13.411                 | 12    | 25.40       | 308593                     |   |
| 13.716                 | 12    | 25.40       | 308593                     |   |
| 14.021                 | 12    | 25.40       | 308593                     |   |
| 14.326                 | 12    | 25.40       | 308593                     |   |
| 14.630                 | 12    | 25.40       | 308593                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935                 | 18    | 16.93       | 442764                     |   |
| 15.240                 | 11    | 27.71       | 285037                     |   |
| 15.545                 | 15    | 20.32       | 377170                     |   |
| 15.850                 | 16    | 19.05       | 399356                     |   |
| 16.154                 | 16    | 19.05       | 399356                     |   |
| 16.459                 | 14    | 21.77       | 354652                     |   |
| 16.764                 | 17    | 17.93       | 421219                     |   |
| 17.069                 | 15    | 20.32       | 377170                     |   |
| 17.374                 | 18    | 16.93       | 442764                     |   |
| 17.678                 | 18    | 16.93       | 442764                     |   |
| 17.983                 | 17    | 17.93       | 421219                     |   |
| 18.288                 | 15    | 20.32       | 377170                     |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 16 | 19.05 | 399356  |   |
| 18.898 | 13 | 23.45 | 331796  |   |
| 19.202 | 13 | 23.45 | 331796  |   |
| 19.507 | 14 | 21.77 | 354652  |   |
| 19.812 | 13 | 23.45 | 331796  |   |
| 20.117 | 13 | 23.45 | 331796  |   |
| 20.422 | 14 | 21.77 | 354652  |   |
| 20.726 | 15 | 20.32 | 377170  |   |
| 21.031 | 13 | 23.45 | 331796  |   |
| 21.336 | 15 | 20.32 | 377170  |   |
| 21.641 | 15 | 20.32 | 377170  |   |
| 21.946 | 17 | 17.93 | 421219  |   |
| 22.250 | 19 | 16.04 | 464000  |   |
| 22.555 | 22 | 13.85 | 525913  |   |
| 22.860 | 22 | 13.85 | 525913  |   |
| 23.165 | 17 | 17.93 | 421219  |   |
| 23.470 | 17 | 17.93 | 421219  |   |
| 23.774 | 17 | 17.93 | 421219  |   |
| 24.079 | 16 | 19.05 | 399356  |   |
| 24.384 | 18 | 16.93 | 442764  |   |
| 24.689 | 15 | 20.32 | 377170  |   |
| 24.994 | 20 | 15.24 | 484932  |   |
| 25.298 | 23 | 13.25 | 545973  |   |
| 25.603 | 40 | 7.62  | 848632  |   |
| 25.832 | 51 | 4.48  | 1227808 | Bearing obtained. No penetration after 229mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 02/24/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD** Pier #1 **FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile  
Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F= 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 87200 Newtons

Elev of top of pile (cut-off elev.): 243.96  
Elev. of nominal point of zero penetration: 243.35

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks                 | Misc. |
|----------|----------------|-------------------|-------------------------|-------|
| 10       | 28.37          | 1454797           |                         |       |
| 11       | 28.44          | 1885848           |                         |       |
| 12       | 27.43          | 1284338           | Piling at a 1:4 batter. |       |
| 13       | 27.94          | 1168608           | Piling at a 1:4 batter. |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |
|          |                |                   |                         |       |

Total = 112.18 meters



STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 File No. 10  
 Pier #1 Abut / Pier  
 Date Driven 02/23/00

 Guernsey County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25868 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R": 872000 NewtonsElev. of top of pile (cut-off elev.) 243.96Elev. of nominal point of zero penetration: 243.35Elev. of pile point at final penetration: 215.59Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               | 1     | 304.80   | 28054                   |   |
| 0.610               | 1     | 304.80   | 28054                   |   |
| 0.914               | 1     | 304.80   | 28054                   |   |
| 1.219               | 1     | 304.80   | 28054                   |   |
| 1.524               | 1     | 304.80   | 28054                   |   |
| 1.829               | 1     | 304.80   | 28054                   |   |
| 2.134               | 1     | 304.80   | 28054                   |   |
| 2.438               | 1     | 304.80   | 28054                   |   |
| 2.743               | 1     | 304.80   | 28054                   |   |
| 3.048               | 1     | 304.80   | 28054                   |   |
| 3.353               | 1     | 304.80   | 28054                   |   |
| 3.658               | 1     | 304.80   | 28054                   |   |
| 3.962               | 1     | 304.80   | 28054                   |   |
| 4.267               | 1     | 304.80   | 28054                   |   |
| 4.572               | 1     | 304.80   | 28054                   |   |
| 4.877               | 1     | 304.80   | 28054                   |   |
| 5.182               | 1     | 304.80   | 28054                   |   |
| 5.486               | 1     | 304.80   | 28054                   |   |
| 5.791               | 2     | 152.40   | 55648                   |   |
| 6.096               | 2     | 152.40   | 55648                   |   |
| 6.401               | 3     | 101.60   | 82793                   |   |
| 6.706               | 4     | 76.20    | 109501                  |   |
| 7.010               | 4     | 76.20    | 109501                  |   |
| 7.315               | 4     | 76.20    | 109501                  |   |
| 7.620               | 4     | 76.20    | 109501                  |   |
| 7.925               | 4     | 76.20    | 109501                  |   |
| 8.230               | 4     | 76.20    | 109501                  |   |
| 8.534               | 4     | 76.20    | 109501                  |   |
| 8.839               | 4     | 76.20    | 109501                  |   |
| 9.144               | 4     | 76.20    | 109501                  |   |
| 9.449               | 7     | 43.54    | 187100                  |   |
| 9.754               | 7     | 43.54    | 187100                  |   |
| 10.058              | 7     | 43.54    | 187100                  |   |
| 10.363              | 8     | 38.10    | 212158                  |   |
| 10.668              | 8     | 38.10    | 212158                  |   |
| 10.973              | 8     | 38.10    | 212158                  |   |
| 11.278              | 8     | 38.10    | 212158                  |   |
| 11.582              | 8     | 38.10    | 212158                  |   |
| 11.887              | 8     | 38.10    | 212158                  |   |
| 12.192              | 8     | 38.10    | 212158                  |   |
| 12.497              | 9     | 33.87    | 236827                  |   |
| 12.802              | 9     | 33.87    | 236827                  |   |
| 13.106              | 9     | 33.87    | 236827                  |   |
| 13.411              | 10    | 30.48    | 261117                  |   |
| 13.716              | 10    | 30.48    | 261117                  |   |
| 14.021              | 9     | 33.87    | 236827                  |   |
| 14.326              | 11    | 27.71    | 285037                  |   |
| 14.630              | 12    | 25.40    | 308593                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935              | 11    | 27.71    | 285037                  |   |
| 15.240              | 7     | 43.54    | 187100                  |   |
| 15.545              | 12    | 25.40    | 308593                  |   |
| 15.850              | 12    | 25.40    | 308593                  |   |
| 16.154              | 12    | 25.40    | 308593                  |   |
| 16.459              | 12    | 25.40    | 308593                  |   |
| 16.764              | 13    | 23.45    | 331796                  |   |
| 17.069              | 14    | 21.77    | 354652                  |   |
| 17.374              | 14    | 21.77    | 354652                  |   |
| 17.678              | 14    | 21.77    | 354652                  |   |
| 17.983              | 15    | 20.32    | 377170                  |   |
| 18.288              | 15    | 20.32    | 377170                  |   |

|        |    |       |         |   |
|--------|----|-------|---------|---|
| 18.593 | 13 | 23.45 | 331 796 |   |
| 18.898 | 12 | 25.40 | 308593  |   |
| 19.202 | 14 | 21.77 | 354652  |   |
| 19.507 | 13 | 23.45 | 331 796 |   |
| 19.812 | 12 | 25.40 | 308593  |   |
| 20.117 | 13 | 23.45 | 331 796 |   |
| 20.422 | 13 | 23.45 | 331 796 |   |
| 20.726 | 13 | 23.45 | 331 796 |   |
| 21.031 | 12 | 25.40 | 308593  |   |
| 21.336 | 16 | 19.05 | 399356  |   |
| 21.641 | 14 | 21.77 | 354652  |   |
| 21.946 | 20 | 15.24 | 484932  |   |
| 22.250 | 18 | 16.93 | 442764  |   |
| 22.555 | 23 | 13.25 | 545973  |   |
| 22.860 | 24 | 12.70 | 565755  |   |
| 23.165 | 17 | 17.93 | 421219  |   |
| 23.470 | 19 | 16.04 | 464000  |   |
| 23.774 | 16 | 19.05 | 399356  |   |
| 24.079 | 16 | 19.05 | 399356  |   |
| 24.384 | 18 | 16.93 | 442764  |   |
| 24.689 | 15 | 20.32 | 377170  |   |
| 24.994 | 18 | 16.93 | 442764  |   |
| 25.298 | 15 | 20.32 | 377170  |   |
| 25.603 | 17 | 17.93 | 421219  |   |
| 25.908 | 18 | 16.93 | 442764  |   |
| 26.213 | 14 | 10.89 | 642208  |   |
| 26.518 | 14 | 10.89 | 642208  |   |
| 26.822 | 15 | 10.16 | 678905  |   |
| 27.127 | 13 | 11.72 | 604505  |   |
| 27.432 | 20 | 7.62  | 848632  |   |
| 27.737 | 23 | 6.63  | 940652  |   |
| 28.042 | 19 | 8.02  | 816405  |   |
| 28.194 | 45 | 3.39  | 1454797 | Bearing obtained. No penetration after 152mm. |
|        |    |       |         |   |
|        |    |       |         |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 12(BAT)  
Pier #4 \_\_\_\_\_ Abut / Pier  
Date Driven 02/22/00

Guemsey \_\_\_\_\_ County  
Bridge No GUE-77-14 352 L  
Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILE DRIVING LOG**

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25868 Joules  
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 824815 Newtons  
Elev. of top of pile (cut-off elev.) 243.96  
Elev. of nominal point of zero penetration: 243.35  
Elev. of pile point at final penetration: 216.53  
Length of pile in leads 15.24 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               | 2     | 152.40   | 52637                   | Piling at a 1:4 batter.                           |
| 0.610               | 2     | 152.40   | 52637                   |   |
| 0.914               | 2     | 152.40   | 52637                   |   |
| 1.219               | 2     | 152.40   | 52637                   |   |
| 1.524               | 2     | 152.40   | 52637                   |   |
| 1.829               | 2     | 152.40   | 52637                   |   |
| 2.134               | 3     | 101.60   | 78313                   |   |
| 2.438               | 3     | 101.60   | 78313                   |   |
| 2.743               | 3     | 101.60   | 78313                   |   |
| 3.048               | 3     | 101.60   | 78313                   |   |
| 3.353               | 3     | 101.60   | 78313                   |   |
| 3.658               | 3     | 101.60   | 78313                   |   |
| 3.962               | 3     | 101.60   | 78313                   |   |
| 4.267               | 3     | 101.60   | 78313                   |   |
| 4.572               | 3     | 101.60   | 78313                   |   |
| 4.877               | 3     | 101.60   | 78313                   |   |
| 5.182               | 3     | 101.60   | 78313                   |   |
| 5.486               | 3     | 101.60   | 78313                   |   |
| 5.791               | 3     | 101.60   | 78313                   |   |
| 6.096               | 3     | 101.60   | 78313                   |   |
| 6.401               | 6     | 50.80    | 152897                  |   |
| 6.706               | 6     | 50.80    | 152897                  |   |
| 7.010               | 6     | 50.80    | 152897                  |   |
| 7.315               | 6     | 50.80    | 152897                  |   |
| 7.620               | 6     | 50.80    | 152897                  |   |
| 7.925               | 6     | 50.80    | 152897                  |   |
| 8.230               | 7     | 43.54    | 176976                  |   |
| 8.534               | 7     | 43.54    | 176976                  |   |
| 8.839               | 7     | 43.54    | 176976                  |   |
| 9.144               | 7     | 43.54    | 176976                  |   |
| 9.449               | 7     | 43.54    | 176976                  |   |
| 9.754               | 8     | 38.10    | 200678                  |   |
| 10.058              | 8     | 38.10    | 200678                  |   |
| 10.363              | 8     | 38.10    | 200678                  |   |
| 10.668              | 8     | 38.10    | 200678                  |   |
| 10.973              | 8     | 38.10    | 200678                  |   |
| 11.278              | 8     | 38.10    | 200678                  |   |
| 11.582              | 8     | 38.10    | 200678                  |   |
| 11.887              | 8     | 38.10    | 200678                  |   |
| 12.192              | 8     | 38.10    | 200678                  |   |
| 12.497              | 8     | 38.10    | 200678                  |   |
| 12.802              | 9     | 33.87    | 224012                  |   |
| 13.106              | 9     | 33.87    | 224012                  |   |
| 13.411              | 9     | 33.87    | 224012                  |   |
| 13.716              | 9     | 33.87    | 224012                  |   |
| 14.021              | 9     | 33.87    | 224012                  |   |
| 14.326              | 10    | 30.48    | 246988                  |   |
| 14.630              | 9     | 33.87    | 224012                  | Splice #1, vis. insp. shows no sign of bent pile. |
| 14.935              | 12    | 25.40    | 291895                  |   |
| 15.240              | 11    | 27.71    | 269613                  |   |
| 15.545              | 9     | 33.87    | 224012                  |   |
| 15.850              | 10    | 30.48    | 246988                  |   |
| 16.154              | 10    | 30.48    | 246988                  |   |
| 16.459              | 10    | 30.48    | 246988                  |   |
| 16.764              | 12    | 25.40    | 291895                  |   |
| 17.069              | 11    | 27.71    | 269613                  |   |
| 17.374              | 10    | 30.48    | 246988                  |   |
| 17.678              | 12    | 25.40    | 291895                  |   |
| 17.983              | 11    | 27.71    | 269613                  |   |
| 18.288              | 10    | 30.48    | 246988                  |   |

|        |    |       |         |  |
|--------|----|-------|---------|--|
| 18.593 | 11 | 27.71 | 269613  |  |
| 18.898 | 11 | 27.71 | 269613  |  |
| 19.202 | 10 | 30.48 | 246988  |  |
| 19.507 | 10 | 30.48 | 246988  |  |
| 19.812 | 11 | 27.71 | 269613  |  |
| 20.117 | 11 | 27.71 | 269613  |  |
| 20.422 | 11 | 27.71 | 269613  |  |
| 20.726 | 11 | 27.71 | 269613  |  |
| 21.031 | 10 | 30.48 | 246988  |  |
| 21.336 | 12 | 25.40 | 291895  |  |
| 21.641 | 13 | 23.45 | 313842  |  |
| 21.946 | 13 | 23.45 | 313842  |  |
| 22.250 | 15 | 20.32 | 356761  |  |
| 22.555 | 18 | 16.93 | 418806  |  |
| 22.860 | 17 | 17.93 | 398426  |  |
| 23.165 | 16 | 19.05 | 377747  |  |
| 23.470 | 14 | 21.77 | 335461  |  |
| 23.774 | 13 | 23.45 | 313842  |  |
| 24.079 | 14 | 21.77 | 335461  |  |
| 24.384 | 12 | 25.40 | 291895  |  |
| 24.689 | 15 | 20.32 | 356761  |  |
| 24.994 | 14 | 21.77 | 335461  |  |
| 25.298 | 16 | 19.05 | 377747  |  |
| 25.603 | 12 | 25.40 | 291895  |  |
| 25.908 | 15 | 20.32 | 356761  |  |
| 26.213 | 16 | 19.05 | 377747  |  |
| 26.518 | 17 | 17.93 | 398426  |  |
| 26.822 | 22 | 13.85 | 497455  |  |
| 27.127 | 49 | 6.22  | 930955  |  |
| 27.203 | 20 | 3.81  | 1284338 | Bearing obtained. No penetration after 76mm. |
|        |    |       |         |  |
|        |    |       |         |  |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 04/15/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Rear Abutment

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules ✓

Capacity formula: "R" = (334DF)/S+2.54 ✓

Required "R" = 773000 Newtons

Elev of top of pile (cut-off elev.): 250.984

Elev. of nominal point of zero penetration: 250.384

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks | Misc. |
|----------|----------------|-------------------|---------|-------|
| 1        | 23.988 ✓       | 783352            |         |       |
| 2        | 23.713 ✓       | 819369            |         |       |
| 3        | 23.622 ✓       | 950468            |         |       |
| 4        | 25.329 ✓       | 819369            |         |       |
| 5        | 25.451 ✓       | 950468            |         |       |
| 6        | 23.927 ✓       | 783352            |         |       |
| 7        | 24.628 ✓       | 783352            |         |       |
| 8        | 24.841 ✓       | 969865            |         |       |
| 9        | 24.75 ✓        | 819369            |         |       |
|          |                |                   |         |       |
|          |                |                   |         |       |

Total = 220.249 meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 1  
 Rear Abut. Abut / Pier  
 Date Driven 04/11/00

 Guernsey                      County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.984  
 Elev. of nominal point of zero penetration: 250.384  
 Elev. of pile point at final penetration: ~~250.384~~ 226.996  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  |       |             |                            | Because of piles that have been driven on this job, blow counts won't start until after the first pile is in the ground(approx. 50'). |
| 0.610                  |       |             |                            |   |
| 0.914                  |       |             |                            |   |
| 1.219                  |       |             |                            |   |
| 1.524                  |       |             |                            |   |
| 1.829                  |       |             |                            |   |
| 2.134                  |       |             |                            |   |
| 2.438                  |       |             |                            |   |
| 2.743                  |       |             |                            |   |
| 3.048                  |       |             |                            |   |
| 3.353                  |       |             |                            |   |
| 3.658                  |       |             |                            |   |
| 3.962                  |       |             |                            |   |
| 4.267                  |       |             |                            |   |
| 4.572                  |       |             |                            |   |
| 4.877                  |       |             |                            |   |
| 5.182                  |       |             |                            |   |
| 5.486                  |       |             |                            |   |
| 5.791                  |       |             |                            |   |
| 6.096                  |       |             |                            |   |
| 6.401                  |       |             |                            |   |
| 6.706                  |       |             |                            |   |
| 7.010                  |       |             |                            |   |
| 7.315                  |       |             |                            |   |
| 7.620                  |       |             |                            |   |
| 7.925                  |       |             |                            |   |
| 8.230                  |       |             |                            |   |
| 8.534                  |       |             |                            |   |
| 8.839                  |       |             |                            |   |
| 9.144                  |       |             |                            |   |
| 9.449                  |       |             |                            |   |
| 9.754                  |       |             |                            |   |
| 10.058                 |       |             |                            |   |
| 10.363                 |       |             |                            |   |
| 10.668                 |       |             |                            |   |
| 10.973                 |       |             |                            |   |
| 11.278                 |       |             |                            |   |
| 11.582                 |       |             |                            |   |
| 11.887                 |       |             |                            |   |
| 12.192                 |       |             |                            |   |
| 12.497                 |       |             |                            |   |
| 12.802                 |       |             |                            |   |
| 13.106                 |       |             |                            |   |
| 13.411                 |       |             |                            |   |
| 13.716                 |       |             |                            |   |
| 14.021                 |       |             |                            |   |
| 14.326                 |       |             |                            |   |
| 14.630                 |       |             |                            |   |
| 14.935                 |       |             |                            |   |
| 15.240                 |       |             |                            | Splice #1, vis. insp. shows no sign of bent pile.   |
| 15.545                 | 28    | 10.89       | 642208                     |   |
| 15.850                 | 29    | 10.51       | 660680                     |   |
| 16.154                 | 30    | 10.16       | 678905                     |   |
| 16.459                 | 29    | 10.51       | 660680                     |   |
| 16.764                 | 27    | 11.29       | 623485                     |   |
| 17.069                 | 27    | 11.29       | 623485                     |   |
| 17.374                 | 29    | 10.51       | 660680                     |   |
| 17.678                 | 28    | 10.89       | 642208                     |   |
| 17.983                 | 30    | 10.16       | 678905                     |   |
| 18.288                 | 29    | 10.51       | 660680                     |   |
| 18.593                 | 27    | 11.29       | 623485                     |   |
| 18.898                 | 31    | 9.83        | 696890                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 33 | 9.24  | 732153 |   |
| 19.507 | 32 | 9.53  | 714637 |   |
| 19.812 | 29 | 10.51 | 660680 |   |
| 20.117 | 32 | 9.53  | 714637 |   |
| 20.422 | 31 | 9.83  | 696890 |   |
| 20.726 | 29 | 10.51 | 660680 |   |
| 21.031 | 30 | 10.16 | 678905 |   |
| 21.336 | 31 | 9.83  | 696890 |   |
| 21.641 | 30 | 10.16 | 678905 |   |
| 21.946 | 34 | 8.96  | 749441 |   |
| 22.250 | 33 | 9.24  | 732153 |   |
| 22.555 | 31 | 9.83  | 696890 |   |
| 22.860 | 30 | 10.16 | 678905 |   |
| 23.165 | 34 | 8.96  | 749441 |   |
| 23.470 | 30 | 10.16 | 678905 |   |
| 23.774 | 32 | 9.53  | 714637 |   |
| 24.079 | 36 | 8.47  | 783352 | Bearing obtained. No penetration after 305mm. |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION
 Pile No. 9  
 Rear Abut.          Abut / Pier  
 Date Driven 06/13/00

 Guemsey          County  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.984  
 Elev. of nominal point of zero penetration: 250.384  
 Elev. of pile point at final penetration: 226.234  
 Length of pile in leads 18.288 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  |       |             |                            |   |
| 0.610                  |       |             |                            |   |
| 0.914                  |       |             |                            |   |
| 1.219                  |       |             |                            |   |
| 1.524                  |       |             |                            |   |
| 1.829                  |       |             |                            |   |
| 2.134                  |       |             |                            |   |
| 2.438                  |       |             |                            |   |
| 2.743                  |       |             |                            |   |
| 3.048                  |       |             |                            |   |
| 3.353                  |       |             |                            |   |
| 3.658                  |       |             |                            |   |
| 3.962                  |       |             |                            |   |
| 4.267                  |       |             |                            |   |
| 4.572                  |       |             |                            |   |
| 4.877                  |       |             |                            |   |
| 5.182                  |       |             |                            |   |
| 5.486                  |       |             |                            |   |
| 5.791                  |       |             |                            |   |
| 6.096                  |       |             |                            |   |
| 6.401                  |       |             |                            |   |
| 6.706                  |       |             |                            |   |
| 7.010                  |       |             |                            |   |
| 7.315                  |       |             |                            |   |
| 7.620                  |       |             |                            |   |
| 7.925                  |       |             |                            |   |
| 8.230                  |       |             |                            |   |
| 8.534                  |       |             |                            |   |
| 8.839                  |       |             |                            |   |
| 9.144                  |       |             |                            |   |
| 9.449                  |       |             |                            |   |
| 9.754                  |       |             |                            |   |
| 10.058                 |       |             |                            |   |
| 10.363                 |       |             |                            |   |
| 10.668                 |       |             |                            |   |
| 10.973                 |       |             |                            |   |
| 11.278                 |       |             |                            |   |
| 11.582                 |       |             |                            |   |
| 11.887                 |       |             |                            |   |
| 12.192                 |       |             |                            |   |
| 12.497                 |       |             |                            |   |
| 12.802                 |       |             |                            |   |
| 13.106                 |       |             |                            |   |
| 13.411                 |       |             |                            |   |
| 13.716                 |       |             |                            |   |
| 14.021                 |       |             |                            |   |
| 14.326                 |       |             |                            |   |
| 14.630                 |       |             |                            |   |
| 14.935                 |       |             |                            |   |
| 15.240                 |       |             |                            |   |
| 15.545                 |       |             |                            |   |
| 15.850                 |       |             |                            |   |
| 16.154                 |       |             |                            |   |
| 16.459                 |       |             |                            |   |
| 16.764                 |       |             |                            |   |
| 17.069                 |       |             |                            |   |
| 17.374                 |       |             |                            |   |
| 17.678                 |       |             |                            |   |
| 17.983                 |       |             |                            |   |
| 18.288                 |       |             |                            | Splice #1, vis. insp. shows no sign of bent pile. |
| 18.593                 | 25    | 12.19       | 585263                     |   |
| 18.898                 | 25    | 12.19       | 585263                     |   |



|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 28 | 10.89 | 642208 |   |
| 19.507 | 25 | 12.19 | 585263 |   |
| 19.812 | 26 | 11.72 | 604505 |   |
| 20.117 | 24 | 12.70 | 565755 |   |
| 20.422 | 26 | 11.72 | 604505 |   |
| 20.726 | 24 | 12.70 | 565755 |   |
| 21.031 | 26 | 11.72 | 604505 |   |
| 21.336 | 25 | 12.19 | 585263 |   |
| 21.641 | 26 | 11.72 | 604505 |   |
| 21.946 | 26 | 11.72 | 604505 |   |
| 22.250 | 26 | 11.72 | 604505 |   |
| 22.555 | 27 | 11.29 | 623485 |   |
| 22.860 | 26 | 11.72 | 604505 |   |
| 23.165 | 26 | 11.72 | 604505 |   |
| 23.470 | 26 | 11.72 | 604505 |   |
| 23.774 | 26 | 11.72 | 604505 |   |
| 24.079 | 27 | 11.29 | 623485 |   |
| 24.384 | 27 | 11.29 | 623485 |   |
| 24.689 | 28 | 10.89 | 642208 |   |
| 24.968 | 35 | 7.98  | 819369 | Bearing obtained. No penetration after 279mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Sheet 1  
Recorder Doug George  
Date 04/15/00

Guernsey County  
Section 14.352  
Br. No. Gue-77-14 352 L  
Location 1-77 over C.R. 431,  
TR-4358 & CSX R.R.

**PILING RECORD**

Forward Abutment

**FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile  
Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F= 25866 Joules  
Capacity formula: "R" = (334DF)/S+2.54 ✓ Required "R" = 773000 Newtons

Elev of top of pile (cut-off elev.): 250.579  
Elev. of nominal point of zero penetration: 249.979

| Pile No. | Pay Length (m) | Indicated "R" (N) | Remarks                                   | Misc. |
|----------|----------------|-------------------|---|-------|
| 26       | 24.597 ✓       | 969865            |   |       |
| 27       | 24.414 ✓       | 950468            |   |       |
| 28-A     | 22.128 ✓       | 910727            | Pile #28 collapsed. Pile #28-A was added. |       |
| 29       | 28.986 ✓       | 880063            |   |       |
| 30       | 24.11 ✓        | 880063            |   |       |
| 31       | 23.195 ✓       | 819369            |   |       |
| 32       | 22.189 ✓       | 783352            |   |       |
| 33       | 21.214 ✓       | 783352            |   |       |
| 34       | 22.769 ✓       | 783352            |   |       |
|          |                |                   |   |       |
|          |                |                   |   |       |

Total = 213.602 ✓ meters

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

Pile No. 26  
 Fwd. Abut. \_\_\_\_\_ Abut / Pier \_\_\_\_\_  
 Date Driven 04/03/00

Guernsey \_\_\_\_\_ County \_\_\_\_\_  
 Bridge No GUE-77-14 352 L  
 Location I-77 over C.R. 431,  
TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules  
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons  
 Elev. of top of pile (cut-off elev.) 250.579  
 Elev. of nominal point of zero penetration: 249.979  
 Elev. of pile point at final penetration: 225.982  
 Length of pile in leads 15.24 Meters

| Penetration<br>(meter) | Blows | "S"<br>(mm) | Indicated "R"<br>(Newtons) | Remarks   |
|------------------------|-------|-------------|----------------------------|---|
| 0.305                  | 2     | 152.40      | 55648                      |   |
| 0.610                  | 2     | 152.40      | 55648                      |   |
| 0.914                  | 2     | 152.40      | 55648                      |   |
| 1.219                  | 2     | 152.40      | 55648                      |   |
| 1.524                  | 2     | 152.40      | 55648                      |   |
| 1.829                  | 5     | 60.96       | 135781                     |   |
| 2.134                  | 5     | 60.96       | 135781                     |   |
| 2.438                  | 6     | 50.80       | 161644                     |   |
| 2.743                  | 6     | 50.80       | 161644                     |   |
| 3.048                  | 6     | 50.80       | 161644                     |   |
| 3.353                  | 12    | 25.40       | 308593                     |   |
| 3.658                  | 13    | 23.45       | 331796                     |   |
| 3.962                  | 13    | 23.45       | 331796                     |   |
| 4.267                  | 13    | 23.45       | 331796                     |   |
| 4.572                  | 13    | 23.45       | 331796                     |   |
| 4.877                  | 11    | 27.71       | 285037                     |   |
| 5.182                  | 11    | 27.71       | 285037                     |   |
| 5.486                  | 11    | 27.71       | 285037                     |   |
| 5.791                  | 11    | 27.71       | 285037                     |   |
| 6.096                  | 12    | 25.40       | 308593                     |   |
| 6.401                  | 13    | 23.45       | 331796                     |   |
| 6.706                  | 13    | 23.45       | 331796                     |   |
| 7.010                  | 14    | 21.77       | 354652                     |   |
| 7.315                  | 14    | 21.77       | 354652                     |   |
| 7.620                  | 14    | 21.77       | 354652                     |   |
| 7.925                  | 19    | 16.04       | 464000                     |   |
| 8.230                  | 19    | 16.04       | 464000                     |   |
| 8.534                  | 20    | 15.24       | 484932                     |   |
| 8.839                  | 20    | 15.24       | 484932                     |   |
| 9.144                  | 20    | 15.24       | 484932                     |   |
| 9.449                  | 21    | 14.51       | 505568                     |   |
| 9.754                  | 16    | 19.05       | 399356                     |   |
| 10.058                 | 21    | 14.51       | 505568                     |   |
| 10.363                 | 21    | 14.51       | 505568                     |   |
| 10.668                 | 20    | 15.24       | 484932                     |   |
| 10.973                 | 19    | 16.04       | 464000                     |   |
| 11.278                 | 21    | 14.51       | 505568                     |   |
| 11.582                 | 20    | 15.24       | 484932                     |   |
| 11.887                 | 21    | 14.51       | 505568                     |   |
| 12.192                 | 18    | 16.93       | 442764                     |   |
| 12.497                 | 24    | 12.70       | 565755                     |   |
| 12.802                 | 21    | 14.51       | 505568                     |   |
| 13.106                 | 23    | 13.25       | 545973                     |   |
| 13.411                 | 20    | 15.24       | 484932                     |   |
| 13.716                 | 21    | 14.51       | 505568                     |   |
| 14.021                 | 22    | 13.85       | 525913                     |   |
| 14.326                 | 27    | 11.29       | 623485                     |   |
| 14.630                 | 27    | 11.29       | 623485                     |   |
| 14.935                 | 28    | 10.89       | 642208                     |   |
| 15.240                 | 29    | 10.51       | 660680                     | Splice #1, vis. insp. shows no sign of bent pile. |
| 15.545                 | 26    | 11.72       | 604505                     |   |
| 15.850                 | 26    | 11.72       | 604505                     |   |
| 16.154                 | 22    | 13.85       | 525913                     |   |
| 16.459                 | 28    | 10.89       | 642208                     |   |
| 16.764                 | 23    | 13.25       | 545973                     |   |
| 17.069                 | 24    | 12.70       | 565755                     |   |
| 17.374                 | 24    | 12.70       | 565755                     |   |
| 17.678                 | 26    | 11.72       | 604505                     |   |
| 17.983                 | 25    | 12.19       | 585263                     |   |
| 18.288                 | 25    | 12.19       | 585263                     |   |
| 18.593                 | 25    | 12.19       | 585263                     |   |
| 18.898                 | 26    | 11.72       | 604505                     |   |

|        |    |       |        |   |
|--------|----|-------|--------|---|
| 19.202 | 27 | 11.29 | 623485 |   |
| 19.507 | 25 | 12.19 | 585263 |   |
| 19.812 | 29 | 10.51 | 660680 |   |
| 20.117 | 27 | 11.29 | 623485 |   |
| 20.422 | 27 | 11.29 | 623485 |   |
| 20.726 | 29 | 10.51 | 660680 |   |
| 21.031 | 29 | 10.51 | 660680 |   |
| 21.336 | 27 | 11.29 | 623485 |   |
| 21.641 | 30 | 10.16 | 678905 |   |
| 21.946 | 30 | 10.16 | 678905 |   |
| 22.250 | 28 | 10.89 | 642208 |   |
| 22.555 | 27 | 11.29 | 623485 |   |
| 22.860 | 26 | 11.72 | 604505 |   |
| 23.165 | 30 | 10.16 | 678905 |   |
| 23.470 | 29 | 10.51 | 660680 |   |
| 23.774 | 34 | 8.96  | 749441 |   |
| 24.028 | 40 | 6.35  | 969865 | Bearing obtained. No penetration after 254mm. |
|        |    |       |        |   |
|        |    |       |        |   |

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATIONPile No. 34

Fwd. Abut. \_\_\_\_\_ Abut / Pier \_\_\_\_\_

Date Driven 06/12/00

Guernsey \_\_\_\_\_ County \_\_\_\_\_

Bridge No GUE-77-14 352 LLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

## PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 250.579Elev. of nominal point of zero penetration: 249.979Elev. of pile point at final penetration: 227.81Length of pile in leads 12.192 Meters

| Penetration (meter) | Blows | "S" (mm) | Indicated "R" (Newtons) | Remarks   |
|---------------------|-------|----------|-------------------------|---|
| 0.305               |       |          |                         |   |
| 0.610               |       |          |                         |   |
| 0.914               |       |          |                         |   |
| 1.219               |       |          |                         |   |
| 1.524               |       |          |                         |   |
| 1.829               |       |          |                         |   |
| 2.134               |       |          |                         |   |
| 2.438               |       |          |                         |   |
| 2.743               |       |          |                         |   |
| 3.048               |       |          |                         |   |
| 3.353               |       |          |                         |   |
| 3.658               |       |          |                         |   |
| 3.962               |       |          |                         |   |
| 4.267               |       |          |                         |   |
| 4.572               |       |          |                         |   |
| 4.877               |       |          |                         |   |
| 5.182               |       |          |                         |   |
| 5.486               |       |          |                         |   |
| 5.791               |       |          |                         |   |
| 6.096               |       |          |                         |   |
| 6.401               |       |          |                         |   |
| 6.706               |       |          |                         |   |
| 7.010               |       |          |                         |   |
| 7.315               |       |          |                         |   |
| 7.620               |       |          |                         |   |
| 7.925               |       |          |                         |   |
| 8.230               |       |          |                         |   |
| 8.534               |       |          |                         |   |
| 8.839               |       |          |                         |   |
| 9.144               |       |          |                         |   |
| 9.449               |       |          |                         |   |
| 9.754               |       |          |                         |   |
| 10.058              |       |          |                         |   |
| 10.363              |       |          |                         |   |
| 10.668              |       |          |                         |   |
| 10.973              |       |          |                         |   |
| 11.278              |       |          |                         |   |
| 11.582              |       |          |                         |   |
| 11.887              |       |          |                         |   |
| 12.192              |       |          |                         | Splice #1, vis. insp. shows no sign of bent pile. |
| 12.497              | 16    | 19.05    | 399356                  |   |
| 12.802              | 16    | 19.05    | 399356                  |   |
| 13.106              | 17    | 17.93    | 421219                  |   |
| 13.411              | 17    | 17.93    | 421219                  |   |
| 13.716              | 17    | 17.93    | 421219                  |   |
| 14.021              | 17    | 17.93    | 421219                  |   |
| 14.326              | 17    | 17.93    | 421219                  |   |
| 14.630              | 21    | 14.51    | 505568                  |   |
| 14.935              | 24    | 12.70    | 565755                  |   |
| 15.240              | 24    | 12.70    | 565755                  |   |
| 15.545              | 20    | 15.24    | 484932                  |   |
| 15.850              | 22    | 13.85    | 525913                  |   |
| 16.154              | 23    | 13.25    | 545973                  |   |
| 16.459              | 20    | 15.24    | 484932                  |   |
| 16.764              | 20    | 15.24    | 484932                  |   |
| 17.069              | 22    | 13.85    | 525913                  |   |
| 17.374              | 22    | 13.85    | 525913                  |   |
| 17.678              | 22    | 13.85    | 525913                  |   |
| 17.983              | 22    | 13.85    | 525913                  |   |
| 18.288              | 22    | 13.85    | 525913                  |   |
| 18.593              | 22    | 13.85    | 525913                  |   |
| 18.898              | 22    | 13.85    | 525913                  |   |

