Preliminary Foundation Recommendations
Bridge 25: I-75 Reversible Lanes over Canton Road
Northwest Corridor Project
GDOT Project No. NH000-0073-03(242), PI No. 714130
Cobb County, Georgia

WILLMER ENGINEERING INC.
Project No. ATL-171-3463BFI3

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Prepared For

GEORGIA TRANSPORTATION PARTNERS
Atlanta, Georgia

Prepared By

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770.939.0089

PWR AND AUGER REFUSAL ELEVATIONS (feet)			
Bent No.	**Reference Boring No.**	**Top of PWR**	**Auger Refusal**
1	A-3	-	1040
2	A-4	1032.5	1029
3	A-5	1032	1030
4	A-6	1027.5	1020
5	A-7	1031	1029
6	A-8	1038.5	1035
7	B-230	1015	1013
8	B-231	1046	1045
9	B-232	1062	1058
10	B-233	1066	1065
11	B-234	1067	1066
12	B-235	1057	1056
13	B-236	1062	1057
14	B-237	1071	1053
15	B-238	1074	1034
16	B-239	1049	1047
17	B-240	1071	-
18	EB-4	1067	-
19	EB-23	1097	-
20	B-241	1084	1077
21	B-242	1038	-
22	B-243	1034	1028
23	B-244	1058.5	1058
24	B-245	1076	1075
25	B-246	1088	-
26	B-247	1056	-
27	B-248	1062	-
28	B-249	1067	-
29	B-249, B-251	1061(interpolated)	-
30	B-251	1055	-
31	B-252	1063	1053.5
32	B-253	1088	1079
33	B-254	1088	1082
34	B-255	1103	1101.5
35	B-256	1107	1105.5
	B-256A	1105	1095
36	B-257	1090	1087
37	B-258	1064	1062
38	B-259	1072	-
39	B-260	1072	-

MAXIMUM PILE DESIGN LOADS			
Pile Type	Load Transfer (%)		Design Load
	Friction	End Bearing	
H-Piles	30	70	HP 10x42 = 55 Tons
			HP 12x53 = 70 Tons
			HP 14x73 = 96 Tons
			HP 14x89 = 117 Tons

FOUNDATION RECOMMENDATIONS						
Bent No.	Drilled Shaft			Spread Footing (Bearing)	Pile Footing (Type)	Pile Bent (Type)
	Skin Friction (ksf)[1]		End Bearing (ksf)			
	PWR	Rock				
1						H
2					H	
3					H	
4					H	
5					H	
6	2	5	60		H (ALT)	
7	2	5	60		H (ALT)	
8	-	-	100		H (ALT)	
9	2	5	60		H (ALT)	
10	2	5	60		H (ALT)	
11	2	5	60		H (ALT)	
12	-	-	100		H (ALT)	
13	2	5	60		H (ALT)	
14	2	-	60		H (ALT)	
15	2	-	60		H (ALT)	
16	2	5	60		H (ALT)	
17					H	
18					H	
19	2 (ALT)	-	40 (ALT)	10 ksf on PWR		
20					H	
21					H	
22					H	
23					H	
24					H	
25					H	
26					H	
27					H	
28					H	
29					H	
30					H	
31					H	
32					H	
33					H	
34	2 (ALT)	5 (ALT)	60 (ALT)	6 ksf on Soil (ALT)	H	
35	2 (ALT)	5 (ALT)	60 (ALT)	10 ksf on PWR		
36					H	
37					H	
38					H	
39						H

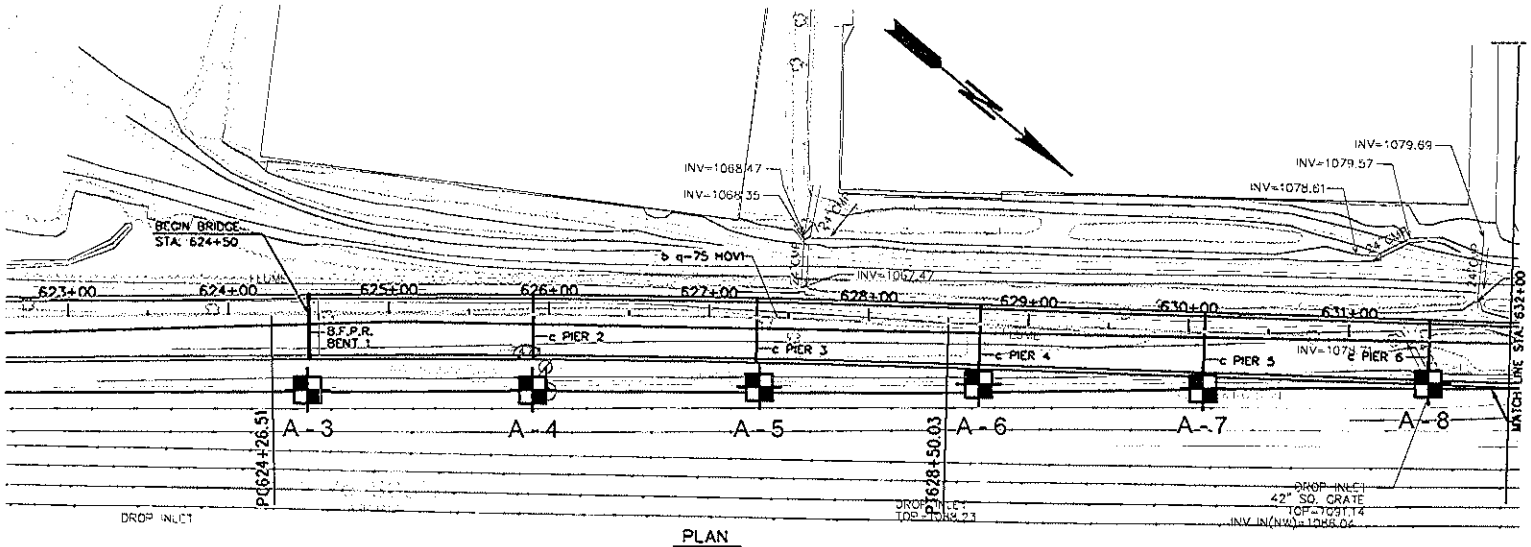
Note:

1. Skin friction values for PWR and/or rock are listed only for the bent locations where skin friction was relied upon for achieving the required axial load capacity of the drilled shafts. At the other locations, the required load capacity was achieved solely by end bearing using GDOT's minimum rock embedment requirement for drilled shafts.

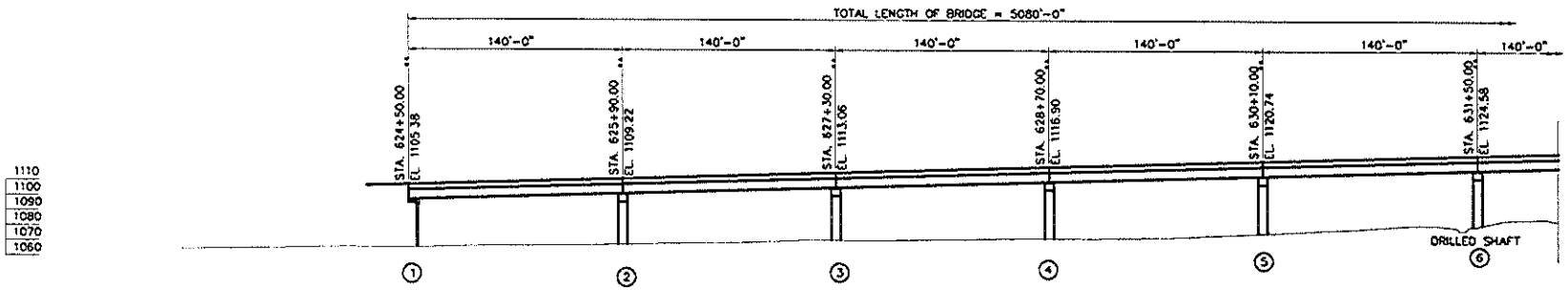
ELEVATIONS (feet)					
Bent No.	Reference Boring No.	Bottom of Drilled Shaft [1, 2]	Bottom of Spread Footing	H-Pile (ALT)	
				Minimum Tip	Estimated Tip
1	A-3			1040±	1040±
2	A-4			1031±	1029±
3	A-5			1031±	1030±
4	A-6			1026±	1024±
5	A-7			1031±	1029±
6	A-8	1029±		1037±	1035±
7	B-230	1007±		1013±	1013±
8	B-231	1039±		1045±	1045±
9	B-232	1048±		1061±	1058±
10	B-233	1055±		1065±	1065±
11	B-234	1057±		1066±	1066±
12	B-235	1051±		1056±	1056±
13	B-236	1047±		1057±	1057±
14	B-237	1048±		1070±	1068±
15	B-238	1034±		1073±	1069±
16	B-239	1041±		1048±	1047±
17	B-240			1070±	1068±
18	EB-4			1066±	1064±
19	EB-23	1062± (ALT)	1095 or below		
20	B-241			1083±	1081±
21	B-242			1038±	1037±
22	B-243			1050±	1048±
23	B-244			1058±	1058±
24	B-245			1075±	1075±
25	B-246			1087±	1085±
26	B-247			1056±	1055±
27	B-248			1061±	1059±
28	B-249			1066±	1064±
29	B-249 & B-251			1060±	1058±
30	B-251			1055±	1053±
31	B-252			1062±	1060±
32	B-253			1087±	1085±
33	B-254			1087±	1086±
34	B-255	1091± (ALT)	1115 or below (ALT)	1101±	1101±
35	B-256& B-256A	1085± (ALT)	1107 or below		
36	B-257			1089±	1087±
37	B-258			1063±	1062±
38	B-259			1069±	1068±
39	B-260			1071±	1070±

Notes:

1. Based on information provided by the Structural Engineer, the required minimum diameter of drilled shafts is 7 feet, and the maximum axial load for each shaft is 2,500 to 3,000 kips. The recommended bottom elevations of drilled shafts are for a shaft diameter of 7 feet and an axial load capacity of 3,000 kips.
2. The proposed pier locations at Bents 6 through 10 were not accessible for drilling, and the borings were offset 12 to 17 feet from the corresponding pier locations. Rock depths and conditions could be different at the pier locations and should be confirmed by the Geotechnical Engineer during construction.



PLAN



ELEVATION

LEGEND:

BORING LOCATION

A - 3

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

GDOT PROJECT NUMBER
NH000-0073-03(242)
PI No. 714130

SCALE: 1" = 120'	
DATE: 10/27/2009	
DRAWN BY: JK	
REVIEWED BY: MK	

WILLMER ENGINEERING INC.

WE

GEOTECHNICAL ENGINEERING ▪ CONSTRUCTION SERVICES
ENVIRONMENTAL SERVICES AND ENGINEERING
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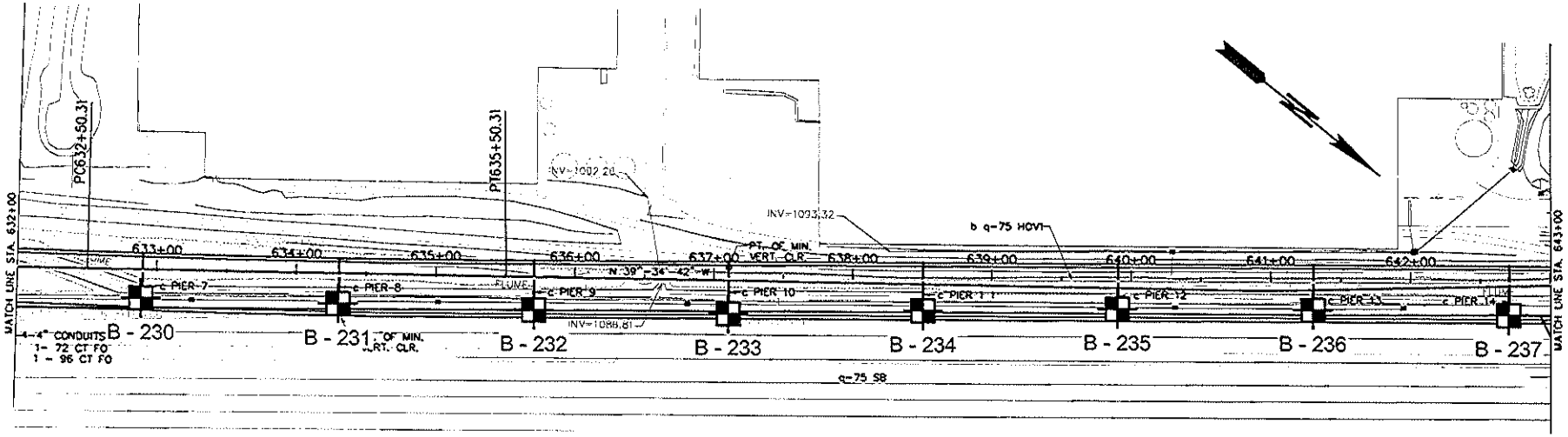
ATLANTA, GA 30340-4270

FIGURE 2 (SHEET 1 OF 5)
BORING LOCATION PLAN
BRIDGE 25: I-75 REV. OVER CANTON RD.
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BFI3



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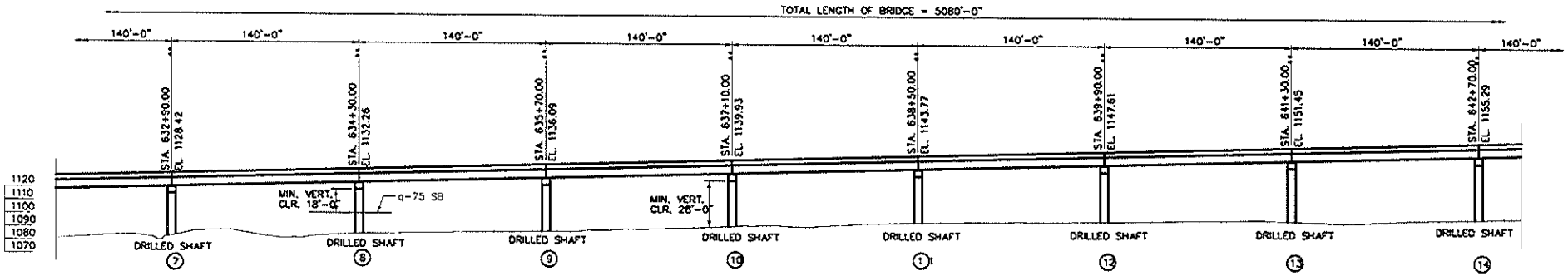

ELEVATION

LEGEND:

B - 230 BORING LOCATION

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

GDOT PROJECT NUMBER	
NH000-0073-03(242)	
PI No. 714130	

SCALE: 1" = 120'	
DATE: 10/27/2009	
DRAWN BY: JK	
REVIEWED BY: MK	

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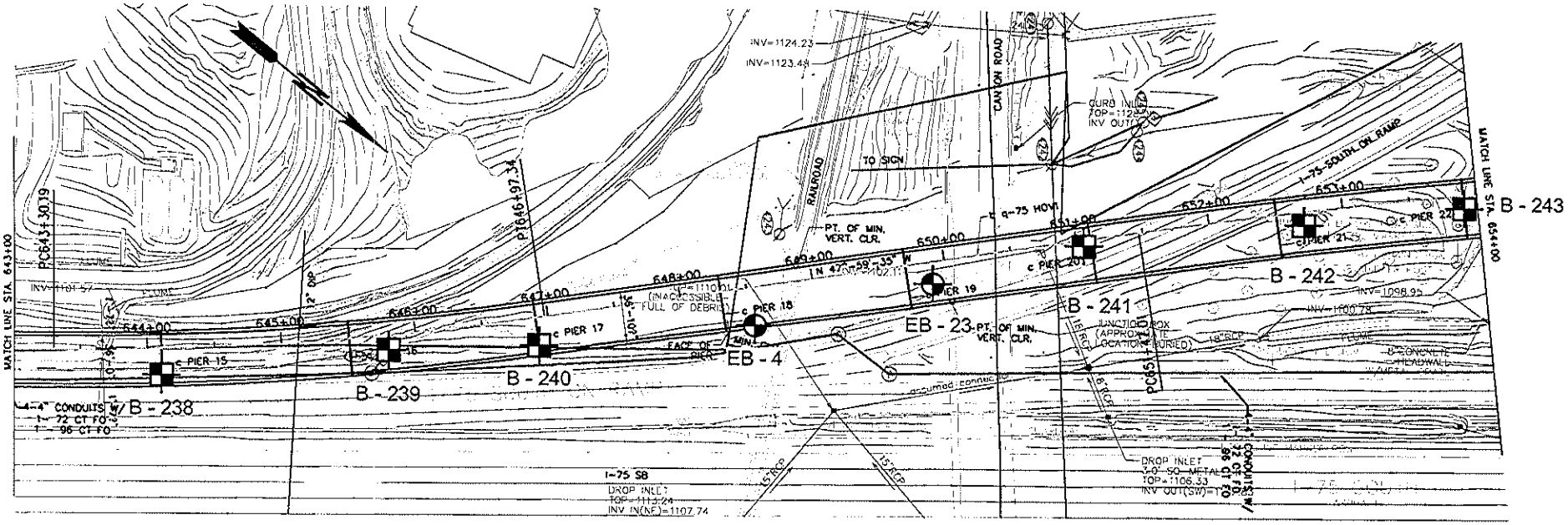
ATLANTA, GA 30340-4270

FIGURE 2 (SHEET 2 OF 5)
BORING LOCATION PLAN
BRIDGE 25: I-75 REV. OVER CANTON RD.
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BFI3



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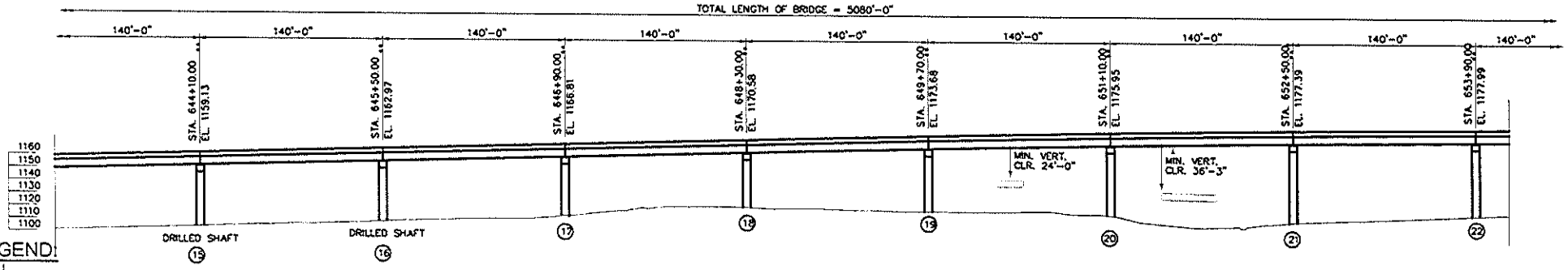

ELEVATION

LEGEND:

B - 238 BORING LOCATION (WILLMER, 2009)

EB - 4 BORING LOCATION (PREVIOUS)

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

GDOT PROJECT NUMBER
NH000-0073-03(242)
PI No. 714130

SCALE: 1" = 120'	
DATE: 10/27/2009	
DRAWN BY: JK	
REVIEWED BY: MK	

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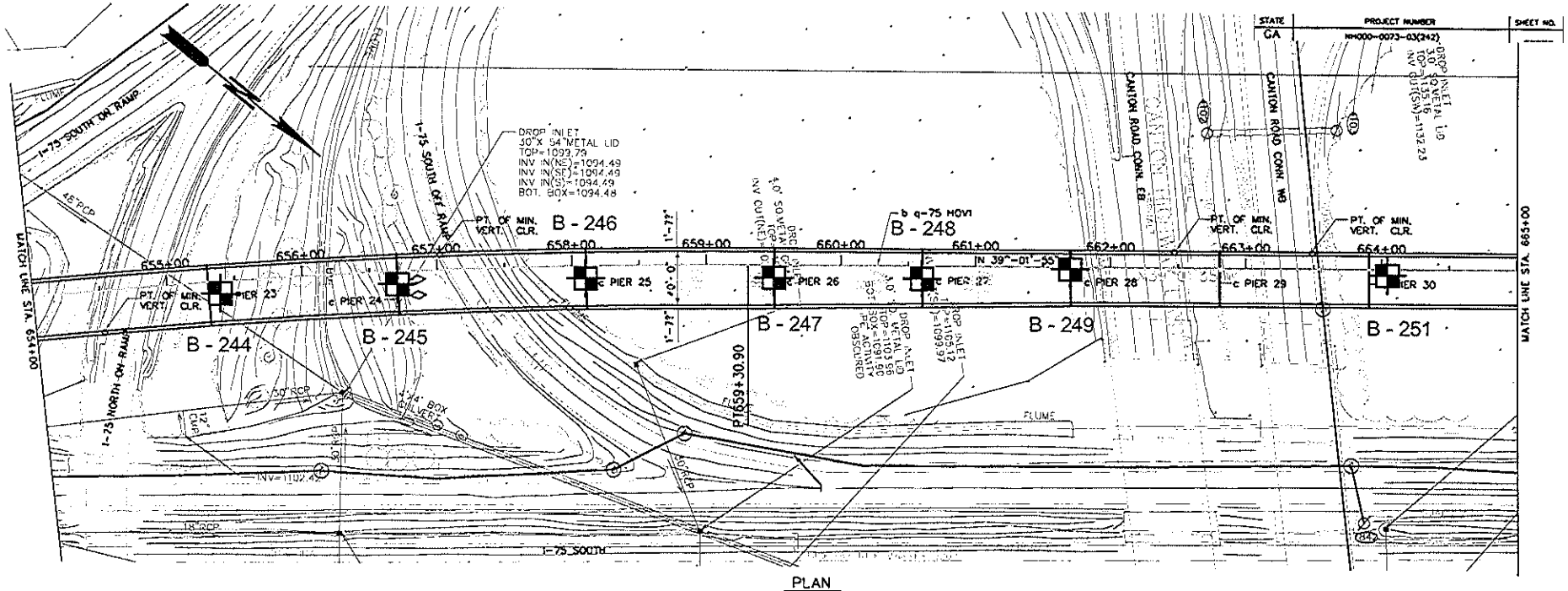
ATLANTA, GA 30340-4270

FIGURE 2 (SHEET 3 OF 5)
BORING LOCATION PLAN
BRIDGE 25: I-75 REV. OVER CANTON RD.
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BFI3



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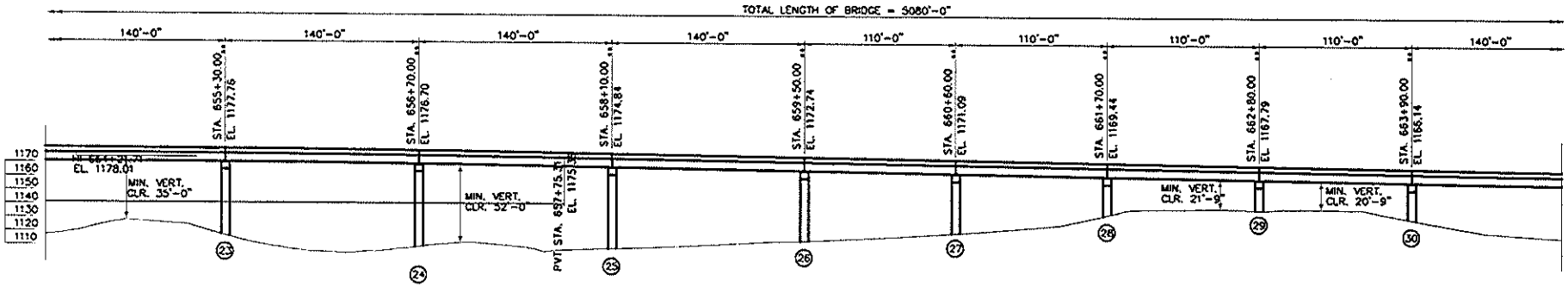

ELEVATION

LEGEND:

BORING LOCATION

B - 244

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

GDOT PROJECT NUMBER
NH000-0073-03(242)
PI No. 714130

SCALE: 1" = 120'	
DATE: 10/27/2009	
DRAWN BY: JK	
REVIEWED BY: MK	

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ENVIRONMENTAL SERVICES AND ENGINEERING
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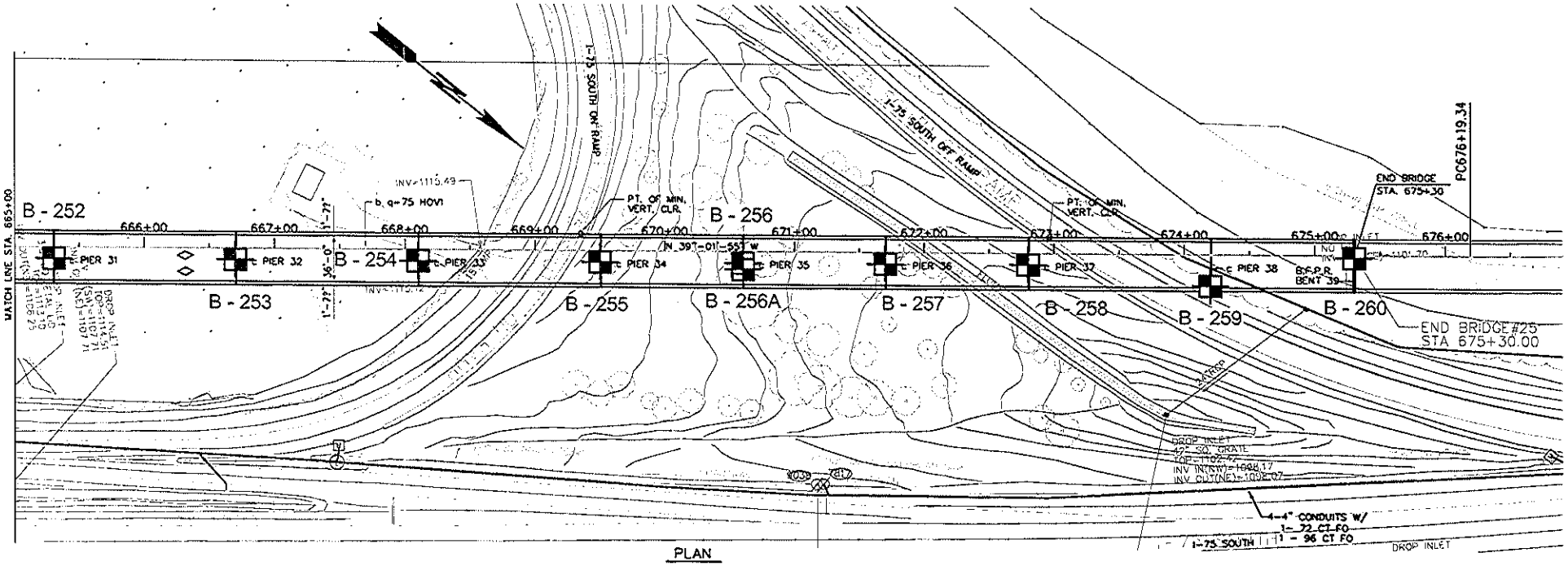
ATLANTA, GA 30340-4270

FIGURE 2 (SHEET 4 OF 5)
BORING LOCATION PLAN
BRIDGE 25: I-75 REV. OVER CANTON RD.
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BFI3



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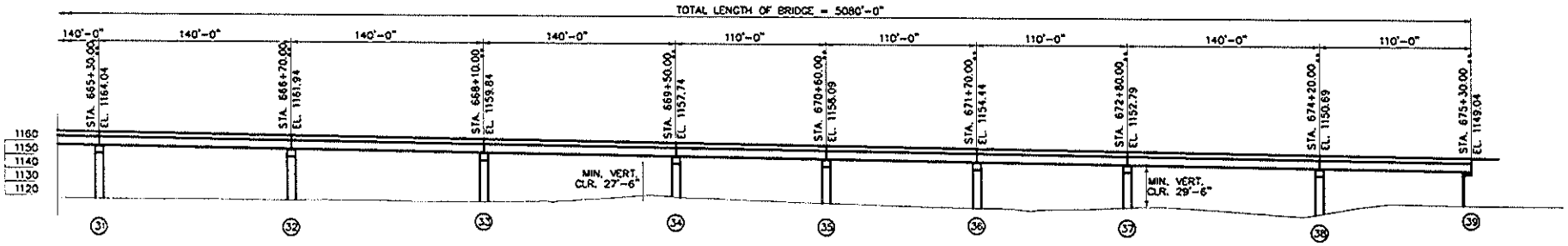

ELEVATION

LEGEND:

BORING LOCATION

A - 3

NOTE: BRIDGE PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION PARTNERS

GDOT PROJECT NUMBER	
NH000-0073-03(242)	
PI No. 714130	

SCALE: 1" = 120'	
DATE: 10/27/2009	
DRAWN BY: JK	
REVIEWED BY: MK	

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ATLANTA, GA 30340-4270

FIGURE 2 (SHEET 5 OF 5)
BORING LOCATION PLAN
BRIDGE 25: I-75 REV. OVER CANTON RD.
NORTHWEST CORRIDOR PROJECT
COBB COUNTY, GEORGIA
WILLMER PROJECT No. ATL-171-3463BFI3

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. A-3**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 1**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1078.69** Station: **ST 624+50, 42' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **11** Overburden (ft): **38.5** Rock (ft): **NA** Total Depth (ft): **38.5**

Logged By: **CO** Date Drilled: **9/29/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					ASPHALT - 4 inches	GAB	1078.7		
		SS			GRADED AGGREGATE BASE - 1.66 feet	FILL			18
5		SS, ST			FILL: Medium dense to loose brown and reddish brown silty medium to fine **SAND** with asphalt fragments (micaceous)		1075		6
10		SS			Stiff brown and reddish brown medium to fine sandy **CLAY** (micaceous)	FILL	1070		10
15		SS					1065		15
20		SS, ST			RESIDUUM: Very loose to medium dense reddish brown and black silty medium to fine **SAND** (micaceous)	SM	1060		3
25		SS					1055		7
30		SS					1050		8
35		SS					1045		11
		SS							50/1.5"

Auger refusal was encountered at 38.5 feet below the existing ground surface.

Ground water was encountered at 15.3 feet below the existing ground surface at the time of boring and 20 feet below the existing ground surface 24 hours after boring completion.

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	A-3
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

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Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. A-4**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 2**

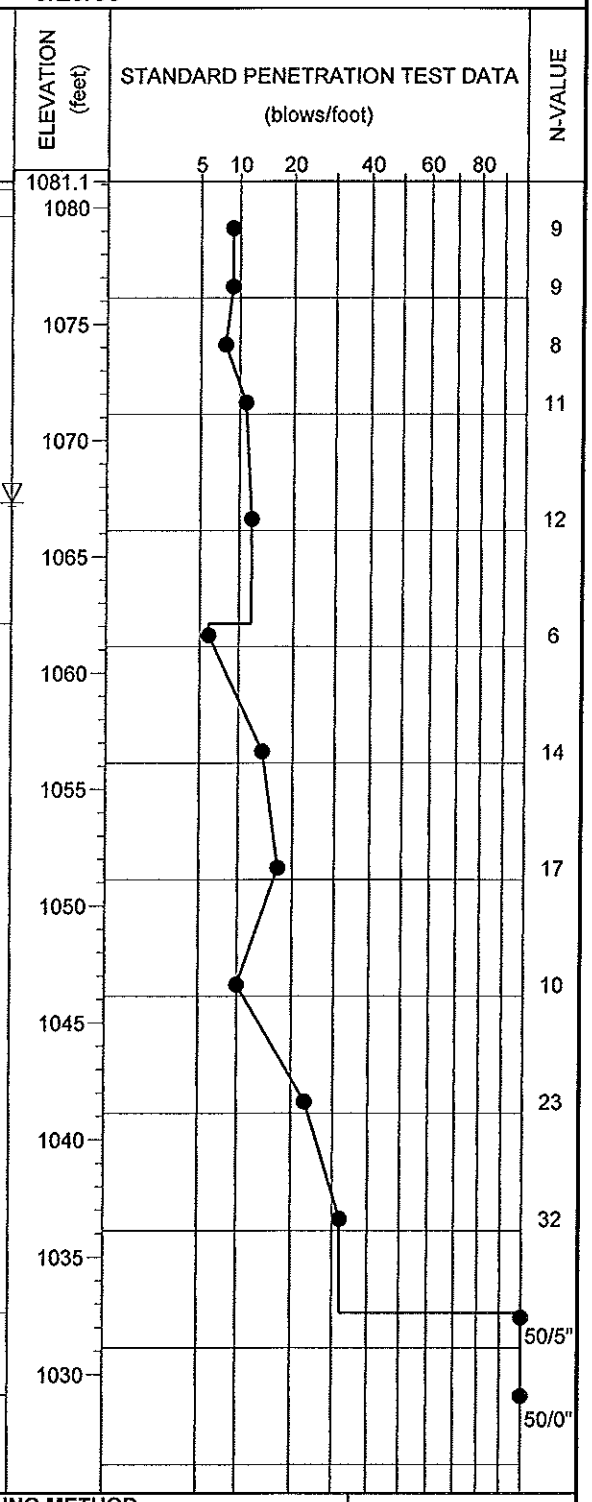
Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1081.13** Station: **ST 625+90, 42' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **13** Overburden (ft): **52** Rock (ft): **NA** Total Depth (ft): **52.0**

Logged By: **CO** Date Drilled: **9/29/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					ASPHALT - 4 inches	GAB	1081.1	
		SS			GRADED AGGREGATE BASE - 1.16 feet	FILL	1080	9
		SS			FILL: Firm and stiff reddish brown and brown medium to fine sandy **SILT**			9
5		SS					1075	8
		SS						11
10		SS					1070	
		SS						12
15							1065	
		SS			RESIDUUM: Loose, medium dense and dense brown, dark brown and black silty medium to fine **SAND** (micaceous)	SM		6
20							1060	
		SS						14
25							1055	
		SS						17
30							1050	
		SS						10
35							1045	
		SS						23
40							1040	
		SS						32
45							1035	
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown silty medium to fine **SAND** with quartz fragments	PWR		50/5"
50		SS					1030	50/0"
					Auger refusal was encountered at 52 feet			



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SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **A-4**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. A-4
Sheet 2 of 2
Location: **BENT - 2**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					below the existing ground surface.			
					Ground water was encountered at 13.8 feet below the existing ground surface at the time of boring completion.			

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **A-4**

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Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. A-5**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 3**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1083.80** Station: **ST 627+32, 38' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **12** Overburden (ft): **54** Rock (ft): **NA** Total Depth (ft): **54.0**

Logged By: **PT** Date Drilled: **9/29/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					ASPHALT - 8 inches		1083.8		
					GRADED AGGREGATE BASE - 2.25 feet	GAB			
5		SS			FILL: Firm brown medium to fine sandy **CLAY** with rock fragments	FILL	1080		5
		SS			Firm to stiff brown medium to fine sandy **CLAY** with wood and rock fragments	FILL			6
10		SS					1075		11
15		SS			RESIDUUM: Very stiff brown and gray medium to fine sandy **CLAY** with rock fragments	CL	1070		18
20		SS			Very soft brown and tan medium to fine sandy **SILT** with quartz fragments	ML	1065		1
25		SS			Very loose to medium dense brown and gray silty medium to fine **SAND** (slightly micaceous)	SM	1060		2
30		SS					1055		4
35		SS					1050		9
40		SS					1045		14
45		SS					1040		29
50		SS					1035		17
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown	PWR	1030		50/0"

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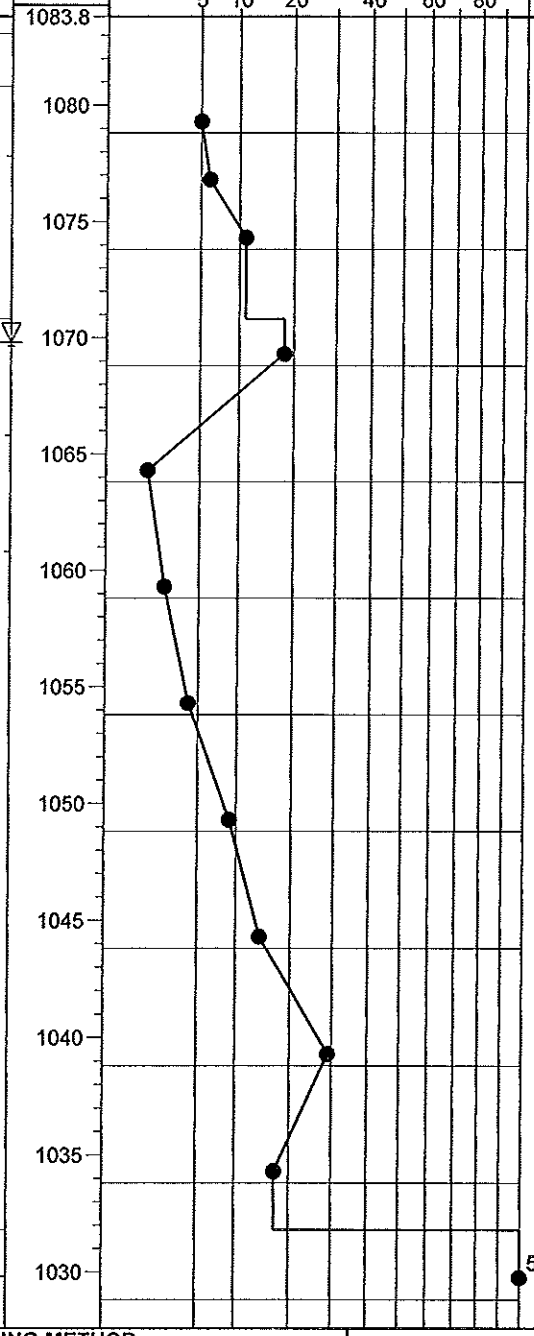


SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **A-5**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. A-5
Sheet 2 of 2
Location: **BENT - 3**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					silty medium to fine **SAND** with rock fragments			
					Auger refusal was encountered at 54 feet below the existing ground surface.			
					Ground water was encountered at 14 feet below the existing ground surface at the time of boring completion.			

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. A-5

SPTN 171-3463BFI.GPJ 10/23/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. A-6**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 4**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1086.57** Station: **ST 628+70, 38' Rt. of BL**

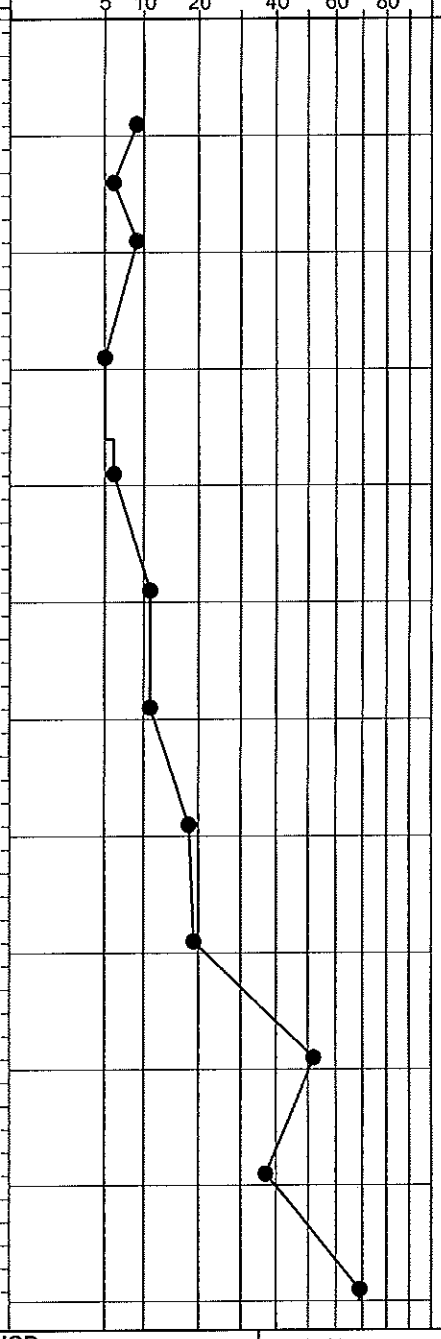
Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **15** Overburden (ft): **66** Rock (ft): **NA** Total Depth (ft): **66.0**

Logged By: **PT** Date Drilled: **9/29/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
				ASPHALT - 8 inches	GAB	1086.6	
				GRADED AGGREGATE BASE - 2.25 feet		1085	
5	SS			FILL: Firm and stiff reddish brown medium to fine sandy **CLAY** with rock fragments	FILL		9
	SS					1080	6
10	SS			Stiff brown medium to fine sandy **SILT** with wood and rock fragments	FILL		9
						1075	
15	SS			Loose brown clayey medium to fine **SAND** with wood and rock fragments	FILL		5
						1070	
20	SS			RESIDUUM: Firm brown medium to fine sandy **SILT** with rock fragments	ML		6
				Medium dense to very dense brown and gray silty medium to fine **SAND** with rock fragments (slightly micaceous)	SM	1065	
25	SS						11
						1060	
30	SS						11
						1055	
35	SS						18
						1050	
40	SS						19
						1045	
45	SS						52
						1040	
50	SS						37
						1035	
55	SS						69

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **A-6**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. A-6

Sheet 2 of 2

Location: **BENT - 4**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
						1030		
60		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown silty medium to fine **SAND** with rock fragments **PWR**	1025		88/11"
		SS						50/2"
65		SS			Auger refusal was encountered at 66 feet below the existing ground surface. Ground water was encountered at 14 feet below the existing ground surface at the time of boring completion.			50/0"

5 10 20 40 60 80

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. A-6

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. A-7**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 5**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1089.55** Station: **ST 630+10, 36' Rt. of BL**

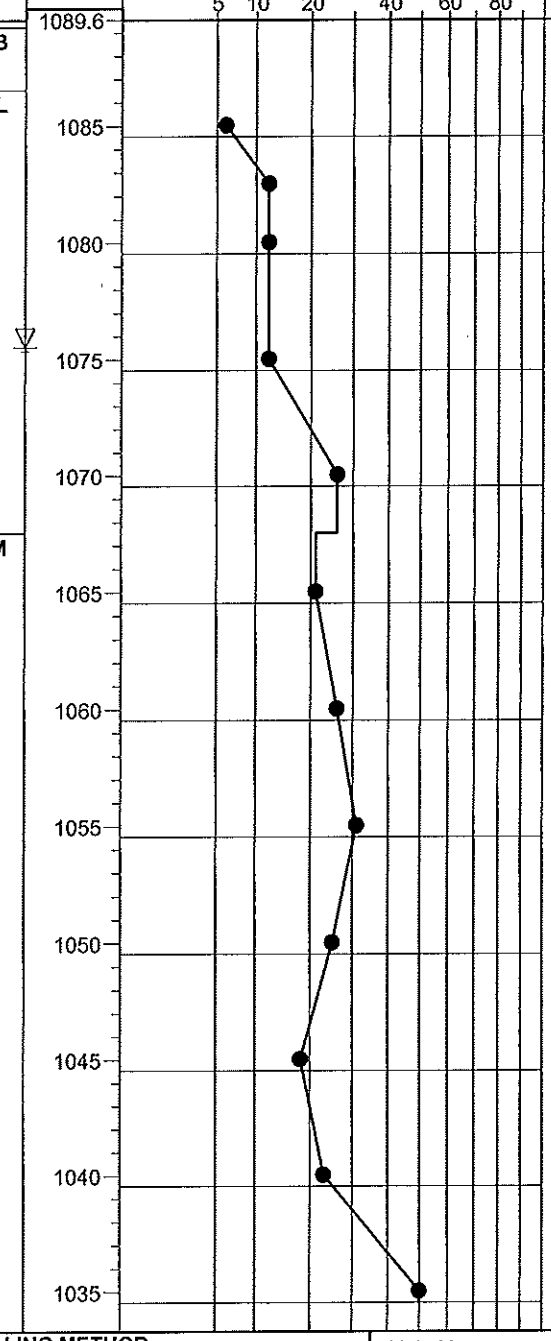
Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **13** Overburden (ft): **59** Rock (ft): **NA** Total Depth (ft): **60.0**

Logged By: **MT** Date Drilled: **9/29/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					ASPHALT - 4 inches	GAB	1089.6	
					GAB - 2.7 feet			
5		SS			FILL: Firm to very stiff brown and gray medium to fine sandy **SILT** with wood, asphalt and rock fragments.	FILL	1085	6
		SS						12
10		SS					1080	12
15		SS					1075	12
20		SS					1070	26
25		SS			RESIDUUM: Medium dense and dense brown and gray silty medium to fine **SAND** (micaceous)	SM	1065	21
30		SS					1060	26
35		SS					1055	31
40		SS					1050	25
45		SS					1045	18
50		SS					1040	23
55		SS					1035	50

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	A-7
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. A-7

Location: **BENT - 5**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
60		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown and white silty medium to fine **SAND** PWR	1030		50/5"

Auger refusal was encountered at 60 feet below the existing ground surface.

Ground water was encountered at 14 feet below the existing ground surface at the time of boring completion.

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. A-7

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. A-8
Sheet 1 of 2
Location: **BENT - 6**

Azimuth: -- | Angle from Horizontal: **90** | Surface Elevation (ft): **1091.66** | Station: **ST 631+50, 28' Rt. of BL**
Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** | Drilling Method: **HSA Auto Hammer**
Core Boxes: **NA** | Samples: **13** | Overburden (ft): **56** | Rock (ft): **NA** | Total Depth (ft): **56.0**
Logged By: **MT** | Date Drilled: **9/29/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					ASPHALT - 4 inches	GAB	1091.7		
					GAB - 7.7 feet		1090		
5							1085		
10		SS			FILL: Medium dense to very dense brown and gray clayey medium to fine **SAND** with rock fragments	FILL	1080	Approx. ground surface at pier location	26
15		SS					1075		59
20		SS			Stiff gray medium to fine sandy **CLAY**	FILL	1070		13
25		SS			RESIDUUM: Soft reddish brown medium to fine sandy **SILT**	ML	1065		4
30		SS			Loose, medium dense and dense brown and gray silty medium to fine **SAND**	SM	1060		9
35		SS					1055		11
40		SS					1050		13
45		SS					1045		38
50		SS					1040		28
55		SS				PWR			88/7"

Continued Next Page

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **A-8**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. A-8

Sheet 2 of 2

Location: **BENT - 6**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine **SAND**	1035		
					Auger refusal was encountered at 56 feet below the existing ground surface.			
					Ground water was encountered at 20 feet below the existing ground surface at the time of boring.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **A-8**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-230**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 7**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **1094.30** Station: **ST 632+89, 20' Rt. of BL**

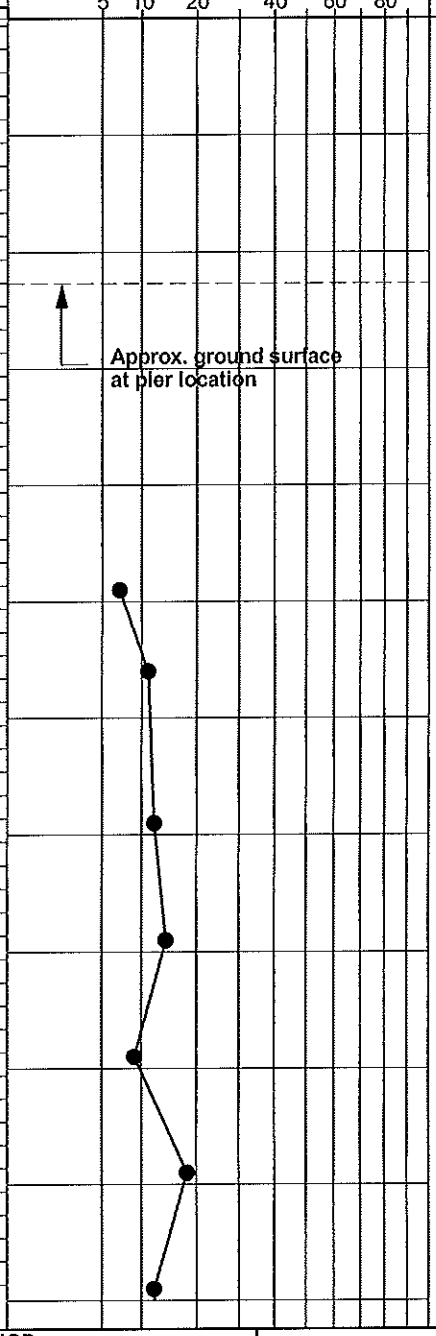
Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **13** Overburden (ft): **81** Rock (ft): **NA** Total Depth (ft): **81.0**

Logged By: **MT** Date Drilled: **9/2/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					ASPHALT - 4 inches	GAB	1094.3	
					GRADED AGGREGATE BASE - 22.66 feet			
5							1090	
10							1085	
15							1080	
20							1075	
25		SS, ST			RESIDUUM: Loose dark brown and tan silty medium to fine **SAND** (slightly micaceous)	SM	1070	7
30		SS			Medium dense reddish brown, black and tan silty medium to fine **SAND**	SM	1065	11
35		SS					1060	12
40		SS					1055	14
45		SS			Loose and medium dense reddish brown, black and tan silty medium to fine **SAND** (micaceous)	SM	1050	9
50		SS					1045	18
55		SS					1040	12

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-230**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-230

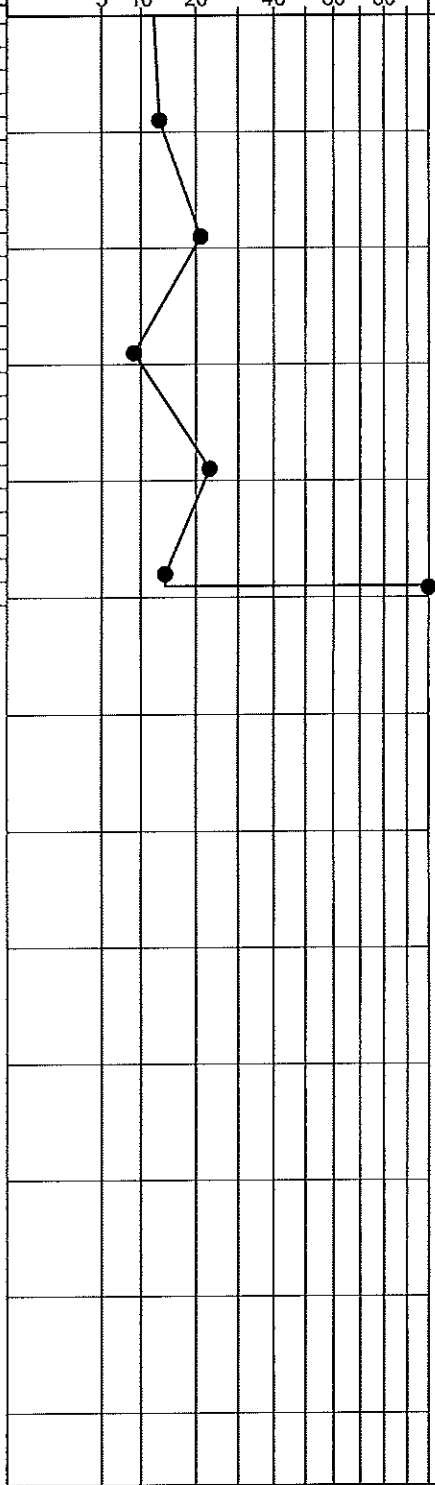
Sheet 2 of 2

Location: **BENT - 7**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
60		SS			Loose and medium dense reddish brown, black and tan silty medium to fine **SAND** (micaceous)	1035		13
65		SS				1030		21
70		SS				1025		9
75		SS				1020		23
		SS				1015		14
80		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown and tan silty medium to fine **SAND** with rock fragments (micaceous) **PWR**			50/2"

Auger refusal was encountered at 81 feet below the existing ground surface.

Groundwater was encountered at 33 feet below the existing ground surface at the time of boring completion.



SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-230**

SPTN 171-3463BFI.GPJ 10/27/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-231**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 8**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1097.10** Station: **ST 634+30, 20' Rt. of CL**

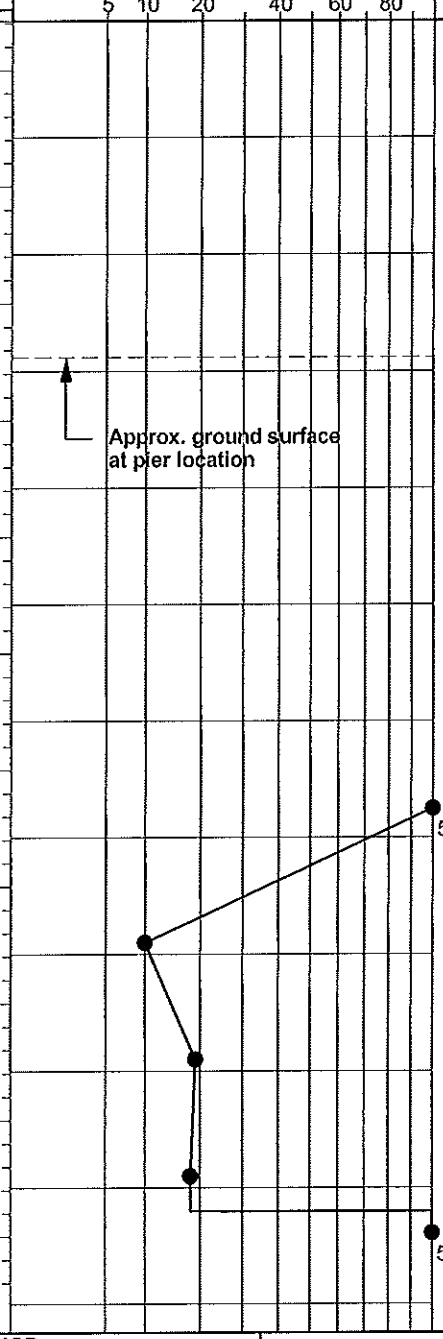
Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

Core Boxes: **2** Samples: **7** Overburden (ft): **52** Rock (ft): **11** Total Depth (ft): **63.0**

Logged By: **CO** Date Drilled: **7/15/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)
					ASPHALT - 4 inches GAB	1097.1
					GRADED AGGREGATE BASE - 30.7 feet	1095
5						
					Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 12 feet right from the pier location.	1090
10						1085
15						1080
20						1075
25						1070
30						
					RESIDUUM: Loose to medium dense brown, gray and tan silty medium to fine **SAND** SM	1065
35		SS			Blow count possibly magnified by GAB dropped from the layer above	1060
40		SS				1055
45		SS				1050
50		SS				
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, black and tan silty medium to fine **SAND** PWR	1045
55						

STANDARD PENETRATION TEST DATA (blows/foot)



N-VALUE

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SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-231**

SPTN 171-3463BFI.GPJ 7/24/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-231

Sheet 2 of 2

Location: **BENT - 8**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		RC	27	22	with rock fragments			
					ROCK CORE: Gray, black and white **GNEISS**	1040		
60		RC	76	76	52'-58' : Hard with probable soft zones 58'-63' : Very hard	1035		
					Auger refusal encountered at 52 feet below the existing ground surface.			
					Coring terminated at 63 feet below the existing ground surface.			
					Groundwater was encountered at 31 feet below the existing ground surface at the time of boring and after completion of the boring.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-231**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-232**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 9**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1100.36** Station: **ST 635+70, 23' Rt. of BL**

Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

Core Boxes: **2** Samples: **10** Overburden (ft): **42.5** Rock (ft): **40** Total Depth (ft): **82.5**

Logged By: **CO** Date Drilled: **7/15/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					ASPHALT - 4 inches (GAB)	1100.4		
					GRADED AGGREGATE BASE - 30.7 feet			
					Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 15 feet right from the pier location.			
30					RESIDUUM: Medium dense brown, gray and tan silty medium to fine **SAND** (SM)			
35		SS						23
40		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray, white and tan silty medium to fine **SAND** with rock fragments (PWR)			50/5"
		SS						50/5"
45		RC	45	15	ROCK CORE: Gray, black, white and tan **GNEISS** 42.5'-52.5' : Hard with probable soft zones 52.5'-57.5' : Medium hard to hard with probable soft zones 57.5'-62.5' : Hard 62.5'-77.5' : Hard with probable soft zones 77.5'-82.5' : Very hard			
50								
55								

Elevation scale: 1100, 1095, 1090, 1085, 1080, 1075, 1070, 1065, 1060, 1055, 1050

Approx. ground surface at pier location

Continued Next Page

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-232**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-232

Sheet 2 of 2

Location: **BENT - 9**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		RC	15	0	ROCK CORE: Gray, black, white and tan **GNEISS**	1045		
60		RC	64	27	52.5'-57.5' : Medium hard to hard with probable soft zones 57.5'-62.5' : Hard 62.5'-77.5' : Hard with probable soft zones 77.5'-82.5' : Very hard	1040		
65		RC	15	0		1035		
70		RC	40	8		1030		
75		RC	46	16		1025		
80		RC	78	78		1020		

Auger refusal encountered at 42.5 feet below existing ground surface.

Coring terminated at 82.5 feet below existing ground surface.

Groundwater was encountered at 23.7 feet below existing ground surface at completion of boring.

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-232**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-233**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 10**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1103.27** Station: **ST 637+10, 25' Rt. of BL**

Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

Core Boxes: **3** Samples: **10** Overburden (ft): **38** Rock (ft): **30** Total Depth (ft): **68.0**

Logged By: **PT** Date Drilled: **7/15/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	N-VALUE
				ASPHALT - 4.125 inches (GAB)	1103.3	
				GRADED AGGREGATE BASE - 22.66 feet	1100	
5				Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 17 feet right from the pier location.	1095	
10					1090	
15					1085	
20						
25	SS			RESIDUUM: Dense gray, brown and tan silty medium to fine **SAND** (SM)	1080	35
30	SS				1075	33
35	SS				1070	38
	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark gray to black silty medium to fine **SAND** with rock fragments (PWR)	1065	50/0"
40	RC	40	13	RCK CORE: Gray, black and white **GNEISS**	1060	
45	RC	28	15	38'-58' : Medium hard to hard with probable soft zones 58'-63' : Hard with probable soft zones 63'-68' : Very hard	1055	
50	RC	68	48		1050	
55						

STANDARD PENETRATION TEST DATA (blows/foot): 5, 10, 20, 40, 60, 80

Approx. ground surface at pier location

Continued Next Page

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-233**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-233

Sheet 2 of 2

Location: **BENT - 10**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		RC	20	20	RCK CORE: Gray, black and white **GNEISS**			
					38'-58' : Medium hard to hard with probable soft zones	1045		
60		RC	17	0	58'-63' : Hard with probable soft zones			
					63'-68' : Very hard	1040		
65		RC	88	74				
					Auger refusal encountered at 38 feet below the existing ground surface.			
					Coring terminated ay 68 feet below the existing ground surface.			
					Groundwater was encountered at 25 feet below the existing ground surface at the time of boring and at 20 feet below the existing ground surface 24 hours after completion of the boring.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-233**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-234**
Location: **Cobb County, Georgia**	Sheet 1 of 3
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 11**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1105.80** Station: **ST 638+50, 22' Rt. of BL**

Drilling Equipment: **CME 550** Drilling Method: **HSA Auto Hammer**

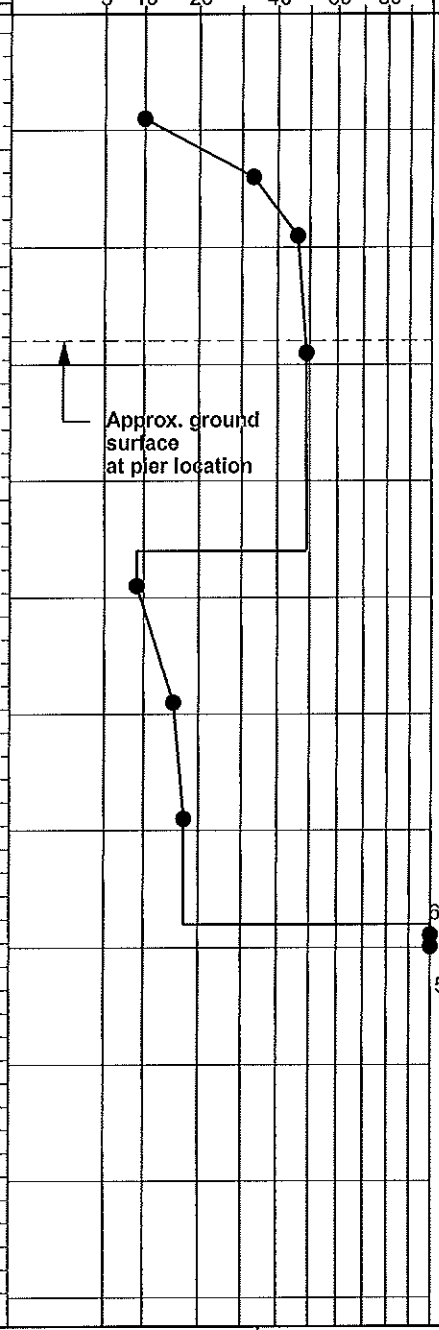
Core Boxes: **2** Samples: **26** Overburden (ft): **40** Rock (ft): **NA** Total Depth (ft): **121.0**

Logged By: **PT** Date Drilled: **7/13/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
				ASPHALT - 3 inches	GAB	1105.8	
				GRADED AGGREGATE BASE - 22.75 feet		1105	
5	SS						10
	SS			Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 14 feet right from the pier location.		1100	33
10	SS						46
						1095	
15	SS						49
						1090	
20						1085	
				RESIDUUM: Loose to medium dense reddish brown to brown and tan silty medium to fine **SAND** (micaceous)	SM		
25	SS					1080	9
30	SS					1075	15
35	SS					1070	17
40	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black, gray and brown silty medium to fine **SAND** with rock fragments	PWR		69/11"
	SS					1065	
	RC	58	40				50/0"
45	RC	0	0	ROCK CORE: Hard gray, black, white and tan **GNEISS**	PWR	1060	
				No recovery: Possibly PWR			
50	RC	82	60	Hard, gray, black, white and tan **GNEISS**		1055	
55				No recovery: Possibly PWR	PWR		

Continued Next Page

STANDARD PENETRATION TEST DATA (blows/foot)



SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-234**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-234

Sheet 2 of 3

Location: **BENT - 11**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		RC	0	0	No recovery: Possibly PWR	1050		
60		RC	0	0		1045		
65		RC	0	0		1040		
70		RC	0	0		1035		
75		RC	0	0		1030		
80		RC	0	0		1025		
85		RC	0	0		1020		
90		RC	0	0		1015		
95		RC	0	0		1010		
100		RC	0	0		1005		
105		RC	0	0		1000		
110		RC	0	0		995		
115		RC	0	0		990		

Continued Next Page

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-234**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-234
Sheet 3 of 3
Location: **BENT - 11**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
120		RC	0	0	No recovery: Possibly PWR	985		
					Auger refusal encountered at 40 feet below existing ground surface. Coring terminated at 121 feet below existing ground surface. Groundwater was encountered at 22 feet below existing ground surface at time of boring and at 20 feet below existing ground surface 24 hours after completion of boring.			

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-234**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-235

Sheet 1 of 2

Location: **BENT - 12**

Azimuth: -- | Angle from Horizontal: **90** | Surface Elevation (ft): **1108.35** | Station: **ST 639+90, 20' Rt. of BL**

Drilling Equipment: **CME 550** | Drilling Method: **HSA Auto Hammer**

Core Boxes: **1** | Samples: **11** | Overburden (ft): **52** | Rock (ft): **10** | Total Depth (ft): **62.0**

Logged By: **CO** | Date Drilled: **7/14/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	N-VALUE
					ASPHALT - 3 inches (GAB)	1108.4	
		SS			GRADED AGGREGATE BASE - 26.75 feet		27
5		SS				1105	42
		SS			Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 12 feet right from the pier location.		43
10						1100	
15						1095	
20						1090	
25						1085	
					RESIDUUM: Medium dense gray, brown and tan silty medium to fine **SAND** (SM)	1080	
30		SS					28
						1075	79/10"
35		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, black and tan silty medium to fine **SAND** with rock fragments (PWR) (SM)		
40		SS			RESIDUUM: Dense and medium dense gray, brown, tan and white silty medium to fine **SAND**	1070	44
45		SS				1065	30
50		SS				1060	34
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, black and tan silty medium to fine **SAND** (PWR)	1055	86/11.5"
55		RC	90	78			

STANDARD PENETRATION TEST DATA (blows/foot): 5, 10, 20, 40, 60, 80

Approx. ground surface at pier location

Continued Next Page

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-235**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-235

Location: **BENT - 12**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					with rock fragments			
60		RC	94	69	ROCK CORE: Very hard gray, black and white **GNEISS**	1050		
					Auger refusal encountered at 52 feet below existing ground surface.			
					Coring terminated at 62 feet below existing ground surface.			
					Groundwater was encountered at 30 feet below exisisting ground surface at time of boring and after completion of boring.			

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-235**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road** Location: **Cobb County, Georgia** Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	**HOLE No. B-236** Sheet 1 of 2 Location: **BENT - 13**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **1110.08** Station: **ST 641+30, 20' Rt. of CL**

Drilling Equipment: **CME 750** Drilling Method: **HSA Auto Hammer**

Core Boxes: **2** Samples: **12** Overburden (ft): **53** Rock (ft): **15** Total Depth (ft): **68.0**

Logged By: **PL** Date Drilled: **7/17/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					ASPHALT - 3 inches	GAB	1110.1	
					GRADED AGGREGATE BASE - 26.75 feet			
5		SS					1105	51
					Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 12 feet right from the pier location.			
10							1100	
15							1095	
20		SS					1090	27
25							1085	
					RESIDUUM: Loose brown and tan silty medium to fine **SAND** (micaceous)	SM		
30		SS					1080	7
35		SS					1075	7
					Medium dense brown, gray, white and tan silty medium to fine **SAND** (micaceous)	SM		
40		SS					1070	13
45		SS					1065	23
50		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, brown and tan silty medium to fine **SAND** with rock fragments	PWR	1060	50/5"
		SS						50/0"
55		RC	100	46	ROCK CORE: Black, gray and white			

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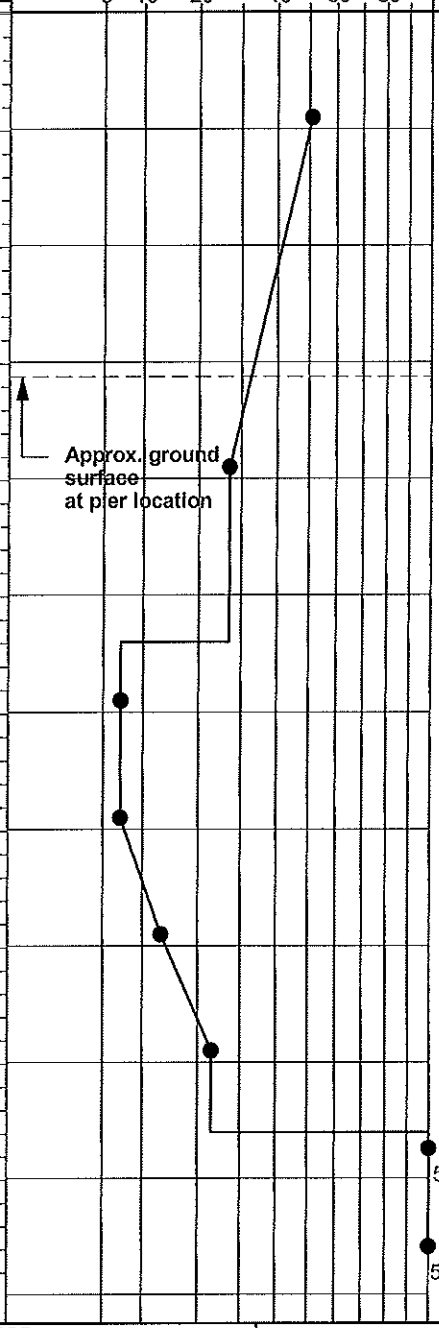


SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-236
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

SPTN 171-3463BFI.GPJ 7/24/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-236

Sheet 2 of 2

Location: **BENT - 13**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		RC	100	100	**GNEISS** 53'-58' : Hard to very hard 58'-63' : Hard with probable soft zones 63'-68' : Very hard			
60		RC	60	38		1050		
65		RC	100	100		1045		

Auger refusal encountered at 53 feet below existing ground surface.

Coring terminated at 68 feet below existing ground surface.

Groundwater was encountered at 27 feet below exisisting ground surface at time of boring and at 20 feet below existing ground surface 24 hours after completion of boring.

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-236**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-237**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 14**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1112.22** Station: **ST 642+70, 23' Rt. of BL**

Drilling Equipment: **CME 750** Drilling Method: **HSA Auto Hammer**

Core Boxes: **2** Samples: **13** Overburden (ft): **59** Rock (ft): **24.5** Total Depth (ft): **83.5**

Logged By: **PL** Date Drilled: **7/15/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					ASPHALT - 3 inches	GAB	1112.2		
					GRADED AGGREGATE BASE - 27.25 feet		1110		
5					Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 15 feet right from the pier location.		1105		
10							1100		
15							1095	Approx. ground surface at pier location	
20							1090		
25							1085		
30		SS			RESIDUUM: Dense and medium dense brown, gray, black and tan silty medium to fine **SAND**	SM	1080		41
35		SS					1075		21
40		SS					1070		34
45		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown gray, white and tan silty medium to fine **SAND** with rock fragments	PWR	1065		50/2"
50		SS					1060		50/1"
55		SS							50/5"

Continued Next Page

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-237**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-237

Sheet 2 of 2

Location: **BENT - 14**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		SS				1055		50/4"
60		RC	100	17	ROCK CORE: Gray, black and white **GNEISS** 59'-78.5' : Medium hard to hard with probable soft zones 78.5'-83.5' : Very hard	1050		
65		RC	50	20		1045		
		RC	83	63				
70		RC	28	18		1040		
75		RC	56	23		1035		
80		RC	100	100		1030		

Auger refusal encountered at 59 feet below existing ground surface.

Coring terminated at 83.5 feet below existing ground surface.

Groundwater was encountered at 27 feet below existing ground surface at the time of boring and at time of completion of the boring.

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-237**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-238**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 15**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1113.17** Station: **ST 644+10, 20' Rt. of BL**

Drilling Equipment: **CME 750** Drilling Method: **HSA Auto Hammer**

Core Boxes: **2** Samples: **14** Overburden (ft): **79** Rock (ft): **15** Total Depth (ft): **94.0**

Logged By: **PL** Date Drilled: **7/16/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					ASPHALT - 3 inches	GAB	1113.2		
					GRADED AGGREGATE BASE - 24.75 feet		1110		
5									
					Note: The proposed pier location was not accessible for drilling. The boring was drilled on Canton Road ramp behind an existing MSE wall at an offset distance of 12 feet right from the pier location.		1105		
10									
							1100	Approx. ground surface at pier location	
15									
							1095		
20									
							1090		
25					RESIDUUM: Medium dense to dense brown, gray and tan silty medium to fine **SAND**	SM			
							1085		
30		SS							27
							1080		
35		SS							41
							1075		
40		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray and tan silty medium to fine **SAND**	PWR			95/10"
							1070		
45		SS							93/9"
					RESIDUUM: Very dense brown, gray and tan silty medium to fine **SAND**	SM	1065		
50		SS							51
							1060		
55		SS				PWR			95/10"

Continued Next Page

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-238**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-238

Sheet 2 of 2

Location: **BENT - 15**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
60		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray, white and tan silty medium to fine sand with rock fragments	1055	50/5"	
65		SS			RESIDUUM: Very dense brown, gray, white and tan silty medium to fine **SAND** SM	1050	78	
70		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray, white and tan silty medium to fine **SAND** PWR	1045	50/3"	
75		SS				1040	50/3"	
		SS				1035	50/0"	
80		RC	31	7	ROCK CORE: Gray, black and white **SCHISTOSE GNEISS** 79'-83.5' : Hard with probable soft zones 83.5'-94' : Hard to very hard	1030		
85		RC	83	64		1025		
90		RC	90	74		1020		

Auger refusal encountered at 79 feet below existing ground surface.

Coring terminated at 94 feet below existing ground surface.

Groundwater was encountered at 27 feet below existing ground surface at the time of boring and after completion of the boring.

STANDARD PENETRATION TEST DATA (blows/foot): 5 10 20 40 60 80

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-238**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-239
Sheet 1 of 2
Location: **BENT - 16**

Azimuth: -- | Angle from Horizontal: **90** | Surface Elevation (ft): **1113.00** | Station: **ST 645+79, 11.3' Rt. of BL**

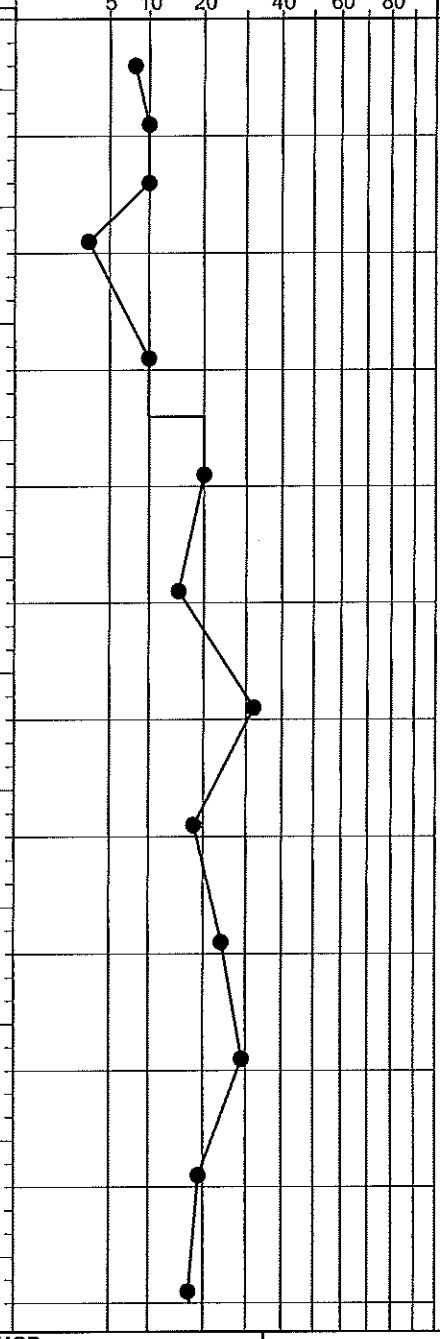
Drilling Equipment: **CME 750** | Drilling Method: **HSA Auto Hammer**

Core Boxes: **3** | Samples: **23** | Overburden (ft): **66** | Rock (ft): **32** | Total Depth (ft): **98.0**

Logged By: **PL** | Date Drilled: **7/18/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	N-VALUE
					TOPSOIL - 2 inches — FILL	1113.0	
		SS			FILL: Firm, stiff and soft reddish brown medium to fine sandy **SILT** with clay	1110	8
5		SS					10
		SS				1105	10
10		SS					3
					Stiff brown and tan medium to fine sandy **CLAY** — FILL	1100	
15		SS					10
					Medium dense and dense brown, gray and tan silty medium to fine **SAND** — SM	1095	
20		SS					20
						1090	
25		SS					15
						1085	
30		SS					32
						1080	
35		SS					18
						1075	
40		SS					24
						1070	
45		SS					29
						1065	
50		SS					19
						1060	
55		SS					17

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-239**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-239

Sheet 2 of 2

Location: **BENT - 16**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	N-VALUE
60	SS			Medium dense and dense brown, gray and tan silty medium to fine **SAND**	1055	20
65	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray and tan silty medium to fine **SAND** with rock fragments — PWR	1050	50/4"
	SS					50/0"
	RC	100	80		1045	
70	RC	50	33	ROCK CORE: Gray and black **SCHISTOSE GNEISS** 66'-73' : Hard 73'-78' : Hard with probable soft zones 78'-98' : Hard to very hard with probable soft zones	1040	
75	RC	36	0		1035	
80	RC	46	20		1030	
85	RC	95	36		1025	
90	RC	60	46		1020	
95	RC	56	40		1015	

Auger refusal encountered at 66 feet below existing ground surface.

Coring terminated at 98 feet below existing ground surface.

Groundwater was encountered at 12 feet below existing ground surface at the time of boring.

STANDARD PENETRATION TEST DATA (blows/foot): 5, 10, 20, 40, 60, 80

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-239**

SPTN 171-3463BFI.GPJ 7/24/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-240**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 17**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1109.71** Station: **ST 646+90, 21' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **12** Overburden (ft): **49** Rock (ft): **NA** Total Depth (ft): **49.0**

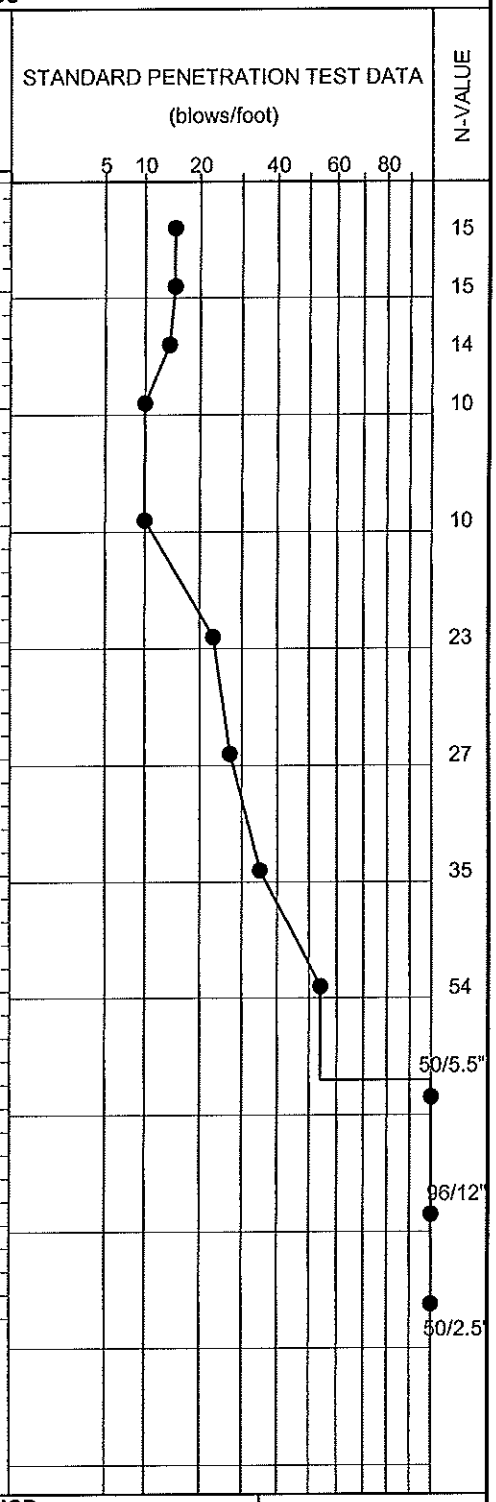
Logged By: **CO** Date Drilled: **8/14/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)
		SS			RESIDUUM: Medium dense to loose reddish brown and gray silty medium to fine **SAND** **SM**	1109.7
5		SS				1105
		SS				
10		SS				1100
15		SS				1095
20		SS			Medium dense to very dense reddish brown and gray silty medium to fine **SAND** **SM**	1090
25		SS				1085
30		SS				1080
35		SS				1075
40		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, white and brown silty medium to fine **SAND** with quartz fragments. **PWR**	1070
45		SS				1065
		SS				

Boring was terminated at 49 feet below the existing ground surface.

Groundwater was encountered at 4 feet below the existing ground surface at

Continued Next Page



SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-240
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-240

Location: **BENT - 17**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					the time of boring completion and at 2 feet below the existing ground surface 24 hours after boring completion.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-240**

H.D.490

STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF MATERIALS AND TEST, ATLANTA, GEORGIA

BRIDGE SUBSURFACE INVESTIGATION

GDOT Proj. No. NH000-0073-03(242)

PROJECT PI No. 714130 COUNTY COBB DATE 2-15-71

LOCATION Bridge 25: I-75 Reversible Lanes over Canton Road BORING NO. EB-4

BENT NO. 18 FOOTING GROUND ELEV. 1135.40

PROPOSED FOOTING ELEV: PARTY CHIEF PULLIAM

ELEV.	BORING LOG	SAMPLE	BLOW	REMARKS	W	γ	Gs	C.	Ø	BC	LL	PI	% 200	% CLAY	e
	GROUND ELEV.														
1130															
1120															
	LOOSE - DENSE MLTC. MICAS. SANDY SILT														
1110										Present Ground Surface Elevation (approximate)					
	RED. DENSE (SAND)	15	11												
1100	LOOSE MLTC. MICAS. SANDY SILT	25	6												
	VERY LOOSE (SAND)	35	3												
1090	LOOSE MLTC. MICAS. SANDY SILT.	45	10												
		55	34												
1080	DENSE MLTC. MICAS. SANDY SILT	65	50												
		75	45												
1070		85	37												

CONT.

The State Highway Department in making this foundation report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

H.D.490

STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF MATERIALS AND TEST, ATLANTA, GEORGIA

BRIDGE SUBSURFACE INVESTIGATION

GDOT Proj. No. NH000-0073-03(242)

PROJECT PI No. 714130 COUNTY COBB DATE 2-15-71

LOCATION Bridge 25: I-75 Reversible Lanes over Canton Road BORING NO. EB-4

BENT NO. 18 FOOTING GROUND ELEV. 1155.40

PROPOSED FOOTING ELEV: PARTY CHIEF POLLIAM

ELEV.	BORING LOG	SAMPLE	BLOW	REMARKS	W	γ	Gs	C.	ϕ	BC	LL	PI	% 200	% CLAY	e
	CONT.														
	VERY DSG. (WR)	DS	60:.7'												
	END DRILLING														
1060															

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H.D.490

STATE HIGHWAY DEPARTMENT OF GEORGIA

DIVISION OF MATERIALS AND TEST, ATLANTA, GEORGIA

BRIDGE SUBSURFACE INVESTIGATION

GDOT Proj. No. NH000-0073-03(242)

PROJECT PI No. 714130 COUNTY COBB DATE 1-28-71

LOCATION Bridge 25: I-75 Reversible Lanes over Canton Road BORING NO. EB-23

BENT NO. 19 FOOTING GROUND ELEV. 1136.9

PROPOSED FOOTING ELEV. PARTY CHIEF PULLIAM

ELEV.	BORING LOG	SAMPLE	BLOW	REMARKS	W	γ	Gs	C.	Ø	BC	LL	PI	% 200	% CLAY
	GROUND ELEV.													
	MED. STIFF - STIFF BROWN SILTY SANDY CLAY													
1130														
1120														
	MED. DENSE - DENSE MLTC MICAS SANDY SILT													
1110				Present Ground Surface Elevation (approximate)										
1100														
		15	60=.9'											
		25	60=1'											
		35	53											
1090		45	60=1'											
		55	60c.9'											
	WEATHERED ROCK	65	60=1'											
1080														
		75	60=.5'											
		85	60=.5'											
1070	END DRILLING													

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This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-241**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 20**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1107.34** Station: **ST 651+05, 4' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **9** Overburden (ft): **30.5** Rock (ft): **NA** Total Depth (ft): **30.5**

Logged By: **CO** Date Drilled: **8/14/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					TOPSOIL - 2 inches **FILL**	1107.3		
		SS			FILL: Loose reddish brown, orange, black and tan silty medium to fine **SAND** with roots (micaceous) **SM**	1105		7
5		SS						7
		SS			RESIDUUM: Loose to medium dense reddish brown, gray and white silty medium to fine **SAND**	1100		9
10		SS						12
						1095		
15		SS						16
						1090		
20		SS						22
						1085		50/2"
25		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black, white and brown silty medium to fine **SAND** **PWR**	1080		
30		SS						50/5"
		SS			Auger refusal was encountered at 30.5 feet below the existing ground surface.			50/1"

Groundwater was encountered at 8 feet below the existing ground surface at the time of boring completion and 24 hours after boring completion.

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	**B-241**
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-242**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 21**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1112.51** Station: **ST 652+70, 9' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **18** Overburden (ft): **80** Rock (ft): **NA** Total Depth (ft): **80.0**

Logged By: **CO** Date Drilled: **8/10/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
		TOPSOIL - 2 Inches	FILL	1112.5	
	SS	FILL: Medium dense reddish brown and gray silty medium to fine **SAND** with rock fragments and roots	SM	1110	14
5	SS				9
	SS	RESIDUUM: Very loose, loose and medium dense reddish brown, black and tan silty medium to fine **SAND**		1105	7
10	SS				8
				1100	
15	SS				4
				1095	
20	SS				7
				1090	
25	SS				15
				1085	
30	SS				16
		Medium dense reddish brown, black and tan silty medium to fine **SAND** with occasional quartz fragments	SM	1080	
35	SS				13
				1075	
40	SS				18
				1070	
		Very dense to medium dense black, gray and white silty medium to fine **SAND** with quartz fragments (slightly micaceous)	SM		
45	SS				78
				1065	
50	SS				17
		Medium dense to dense brown, gray, white and tan silty medium to fine	SM	1060	
55	SS				30

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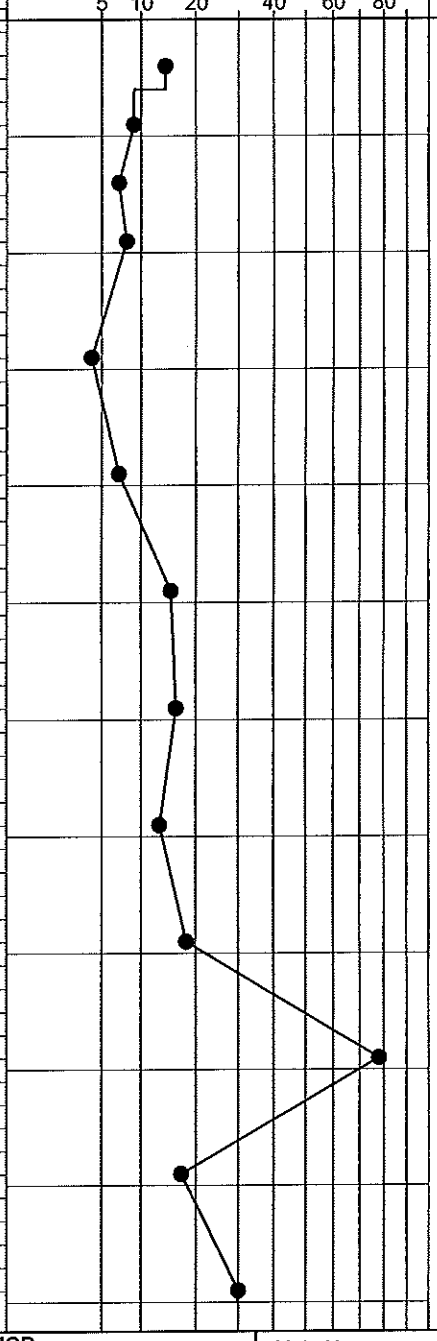
STANDARD PENETRATION TEST DATA (blows/foot)



SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-242**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-242

Sheet 2 of 2

Location: **BENT - 21**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					SAND with quartz fragments (micaceous)			
60		SS				1055		27
65		SS				1050		41
70		SS				1045		49
		SS				1040		50/3"
75					PARTIALLY WEATHERED ROCK: Sampled as very dense black, gray and white silty medium to fine **SAND** — PWR			
						1035		
80		SS			RESIDUUM: Very dense black, gray and tan silty medium to fine **SAND** (micaceous) — SM			61

Boring was terminated at 80 feet below the existing ground surface.

Groundwater was encountered at 16 feet below the existing ground surface at the time of boring and at 12.5 feet below the existing ground surface 24 hours after boring completion.

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-242**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-243**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 22**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1115.74** Station: **ST 653+90, 9' Rt. of BL**

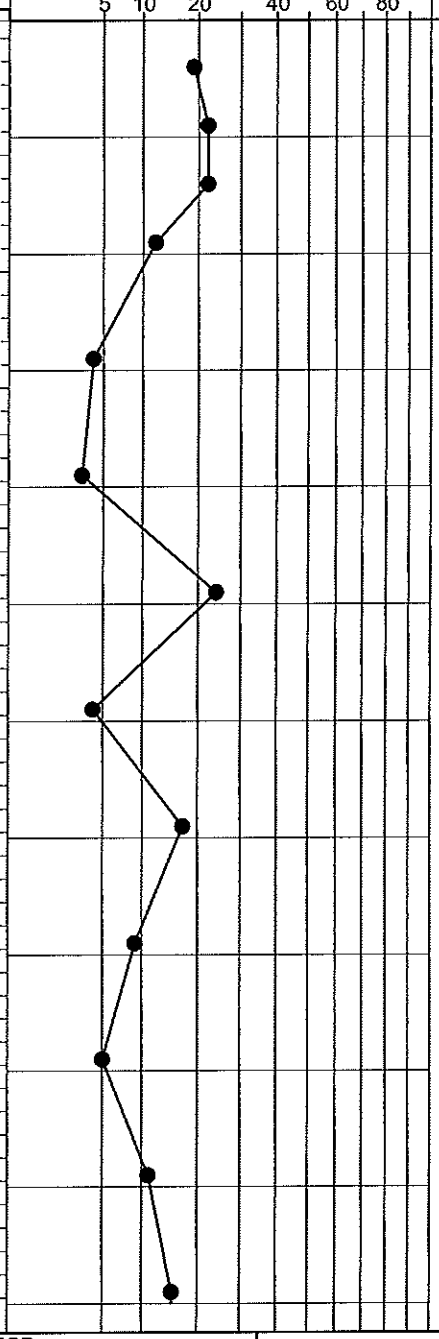
Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **RW Auto Hammer**

Core Boxes: **NA** Samples: **21** Overburden (ft): **88** Rock (ft): **NA** Total Depth (ft): **88.0**

Logged By: **MK** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)
					TOPSOIL - 2 inches	FILL	1115.7
		SS			FILL: Medium dense reddish brown and tan silty medium to fine **SAND** with rock fragments		1115
		SS					
5					RESIDUUM: Medium dense reddish brown silty medium to fine **SAND**	SM	1110
		SS					
		SS					
10							1105
					Very loose reddish brown and tan silty medium to fine **SAND** (slightly micaceous)	SM	
15		SS					1100
20		SS					1095
					Medium dense reddish brown and tan silty medium to fine **SAND** (slightly micaceous)	SM	
25		SS					1090
					Very loose, loose and medium dense brown, black and white silty medium to fine **SAND** with quartz fragments	SM	
30		SS					1085
35		SS					1080
40		SS					1075
45		SS					1070
					Medium dense to dense brown and tan to black and gray silty medium to fine **SAND**	SM	
50		SS					1065
55		SS					

STANDARD PENETRATION TEST DATA (blows/foot)



N-VALUE: 19, 22, 22, 12, 4, 3, 24, 4, 17, 9, 5, 11, 15

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SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-243
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-243

Sheet 2 of 2

Location: **BENT - 22**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
60		SS					1060		
		SS					1055		14
65		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black and gray silty medium to fine **SAND**	PWR	1050		38
						SM			50/4"
70		SS			RESIDUUM: Very dense brown, tan and gray silty medium to fine **SAND**		1045		65
75		SS					1040		84
80		SS			Loose brown and tan silty medium to fine **SAND**	SM	1035		10
85		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, black and gray silty medium to fine **SAND**	PWR	1030		50/1"
		SS			Auger refusal was encountered at 88 feet below the existing ground surface.				50/0"

Groundwater was encountered at 12 feet below the existing ground surface 24 hours after boring completion.

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-243**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-244
Sheet 1 of 2
Location: **BENT - 23**

Azimuth: -- | Angle from Horizontal: **90** | Surface Elevation (ft): **1112.77** | Station: **ST 655+39, 9' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** | Drilling Method: **RW Auto Hammer**

Core Boxes: **NA** | Samples: **14** | Overburden (ft): **55** | Rock (ft): **NA** | Total Depth (ft): **55.0**

Logged By: **CO** | Date Drilled: **8/12/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					TOPSOIL - 1 inch	FILL	1112.8	
		SS			FILL: Medium dense brown and tan silty medium to fine **SAND**		1110	14
5		SS						15
		SS			Firm brown and gray sandy **CLAY**	FILL	1105	6
10		SS			Loose brown silty medium to fine **SAND** (slightly micaceous)	FILL		10
					RESIDUUM: Very loose to medium dense reddish brown, brown and tan silty medium to fine **SAND**	SM	1100	4
15		SS						
							1095	
20		SS						9
							1090	
25		SS						7
							1085	
30		SS						14
							1080	
35		SS						11
							1075	
40		SS						15
					Medium dense to very dense dark gray, white and tan silty medium to fine **SAND**	SM	1070	
45		SS						27
							1065	
50		SS						54
							1060	
55		SS						79/9"

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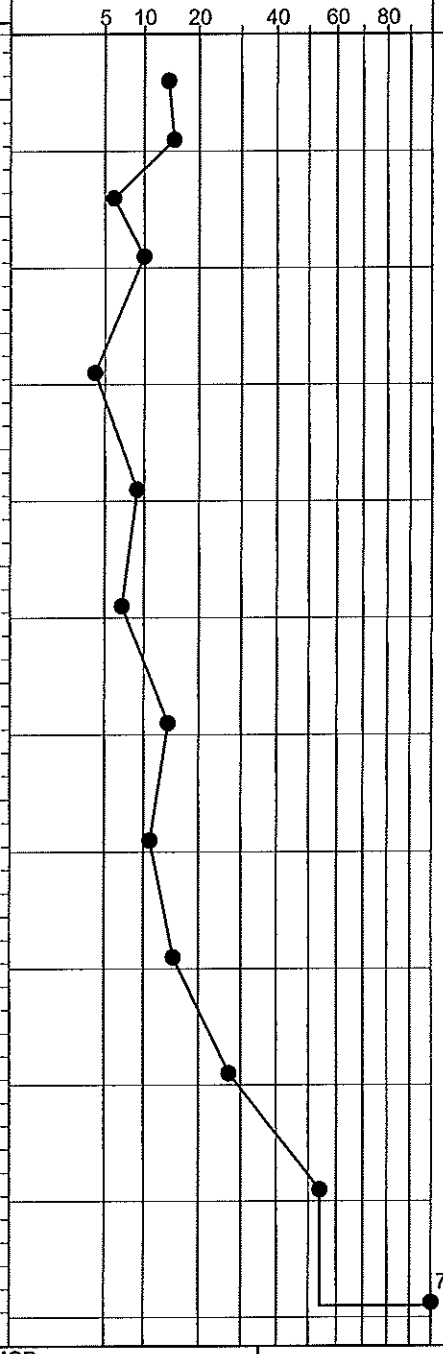
STANDARD PENETRATION TEST DATA (blows/foot)



SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-244**

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-244

Sheet 2 of 2

Location: **BENT - 23**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark gray, white and tan silty medium to fine **SAND** with rock fragments PWR			50/0"
					Auger refusal was encountered at 55 feet below the existing ground surface.			
					Ground water was encountered at 16 feet 24 hours after boring completion.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-244**

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-245**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 24**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1108.47** Station: **ST 656+70, 9' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **RW Auto Hammer**

Core Boxes: **NA** Samples: **9** Overburden (ft): **33** Rock (ft): **NA** Total Depth (ft): **33.0**

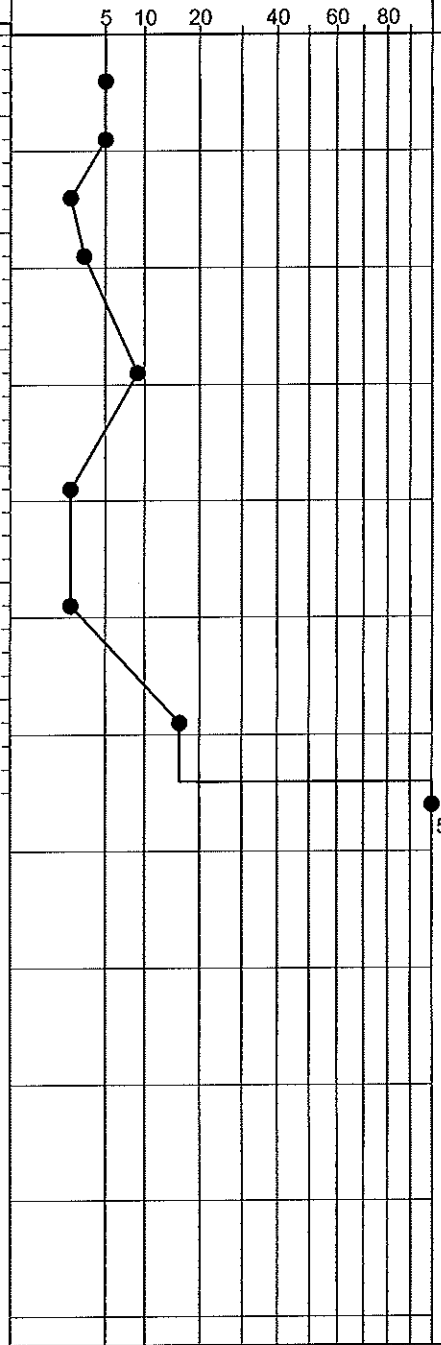
Logged By: **MK** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)
				TOPSOIL - 2 inches	SM	1108.5
	SS			RESIDUUM: Loose to very loose reddish brown and tan silty medium to fine **SAND**		
5	SS					1105
	SS					
10	SS					1100
						1095
15	SS			Loose to very loose brown, gray and tan silty medium to fine **SAND**	SM	
20	SS					1090
						1085
25	SS					
				Medium dense black, brown and gray silty medium to fine **SAND** with quartz fragments	SM	1080
30	SS					
	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black, brown and gray silty medium to fine **SAND** with rock fragments	PWR	

Auger refusal was encountered at 33 feet below the existing ground surface.

Groundwater was encountered at 9 feet below the existing ground surface 24 hours after boring completion.

STANDARD PENETRATION TEST DATA (blows/foot)



N-VALUE: 5, 5, 2, 3, 9, 2, 2, 16, 50/0"

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-245
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-246**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 25**

Azimuth: | Angle from Horizontal: **90** | Surface Elevation (ft): **1107.77** | Station: **ST 658+10, 9' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** | Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** | Samples: **9** | Overburden (ft): **35** | Rock (ft): **NA** | Total Depth (ft): **35.0**

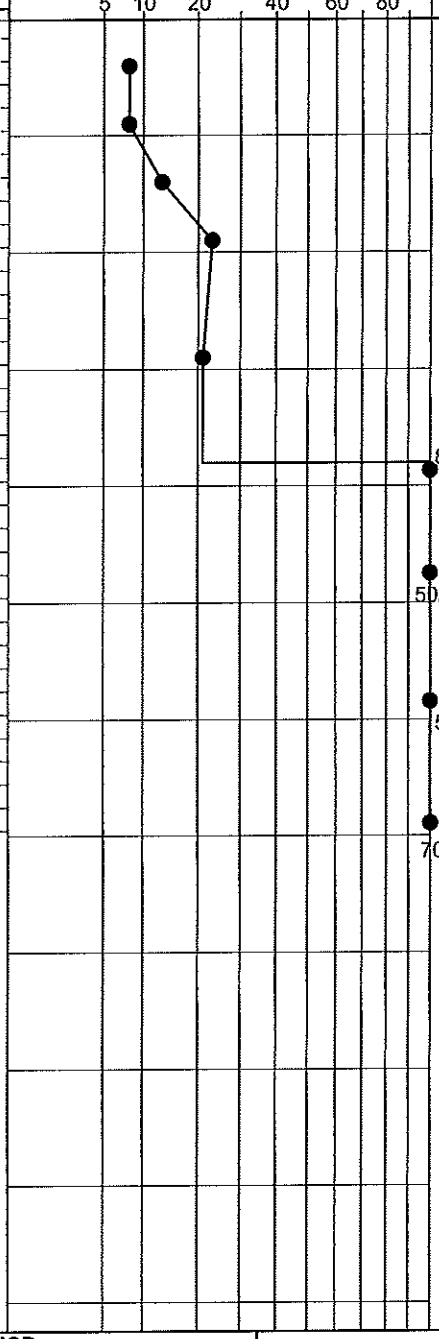
Logged By: **CO** | Date Drilled: **8/24/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)
					RESIDUUM: Loose to medium dense reddish brown, black and white silty medium to fine **SAND** with quartz fragments (micaceous) **SM**	1107.8
5		SS, SS, SS				1105
10		SS				1100
15		SS				1095
20		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray and white silty medium to fine **SAND** with rock fragments **PWR**	1090
25		SS				1085
30		SS				1080
35		SS				1075

Boring was terminated at 35 feet below the existing ground surface.

Groundwater was encountered at 10 feet below the existing ground surface at the time of boring and at 19 feet below the existing ground surface 24 hours after boring completion.

STANDARD PENETRATION TEST DATA (blows/foot)



N-VALUE

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-246
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-247**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 26**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1113.62** Station: **ST 659+50, 9' Rt. of BL**

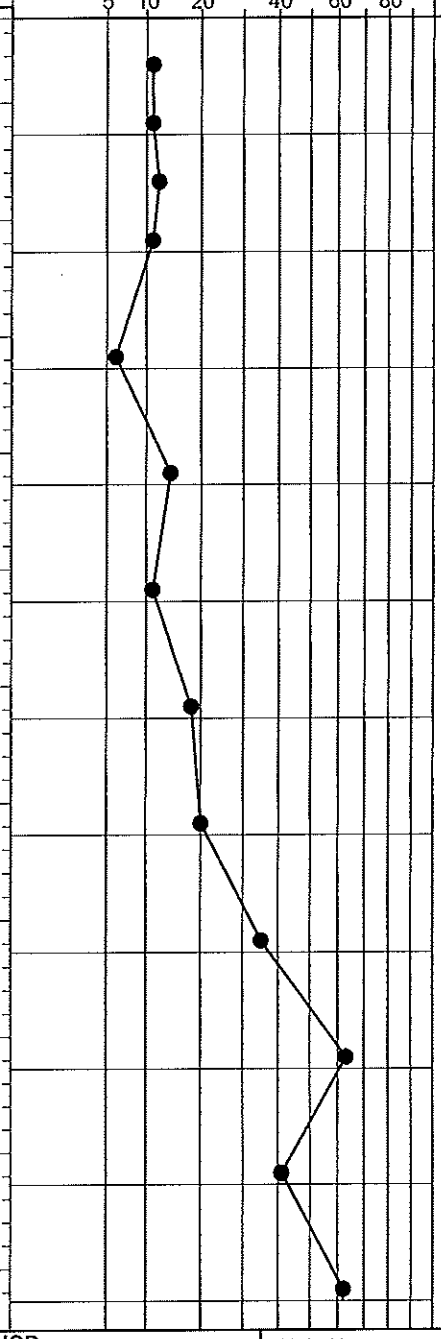
Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **14** Overburden (ft): **69** Rock (ft): **NA** Total Depth (ft): **69.0**

Logged By: **CO** Date Drilled: **8/13/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
		SS			RESIDUUM: Medium dense reddish brown, black, white and tan silty medium to fine **SAND** (slightly micaceous)	SM	1113.6	11
5		SS					1110	11
		SS						12
10		SS					1105	11
15		SS			Loose reddish brown, black, white and tan silty medium to fine **SAND** (slightly micaceous)	SM	1100	6
20		SS			Medium dense reddish brown, black, white and tan silty medium to fine **SAND** (slightly micaceous)	SM	1095	14
25		SS					1090	11
30		SS					1085	18
35		SS					1080	20
40		SS			Dense and very dense reddish brown, black, white and tan silty medium to fine **SAND** (slightly micaceous)	SM	1075	35
45		SS					1070	63
50		SS					1065	41
55		SS					1060	62

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-247**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-247

Location: **BENT - 26**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					PARTIALLY WEATHERED ROCK: **PWR** Sampled as very dense gray, white and black silty medium to fine **SAND**	1055		
60		SS						91/5.5"
						1050		
65		SS						50/5"
		SS				1045		50/3.5"
					Boring was terminated at 69 feet below the existing ground surface.			
					Groundwater was encountered at 23.5 feet below the existing ground surface at the time of boring and at 28 feet below the existing ground surface 24 hours after boring completion.			

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-247**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-248**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 27**

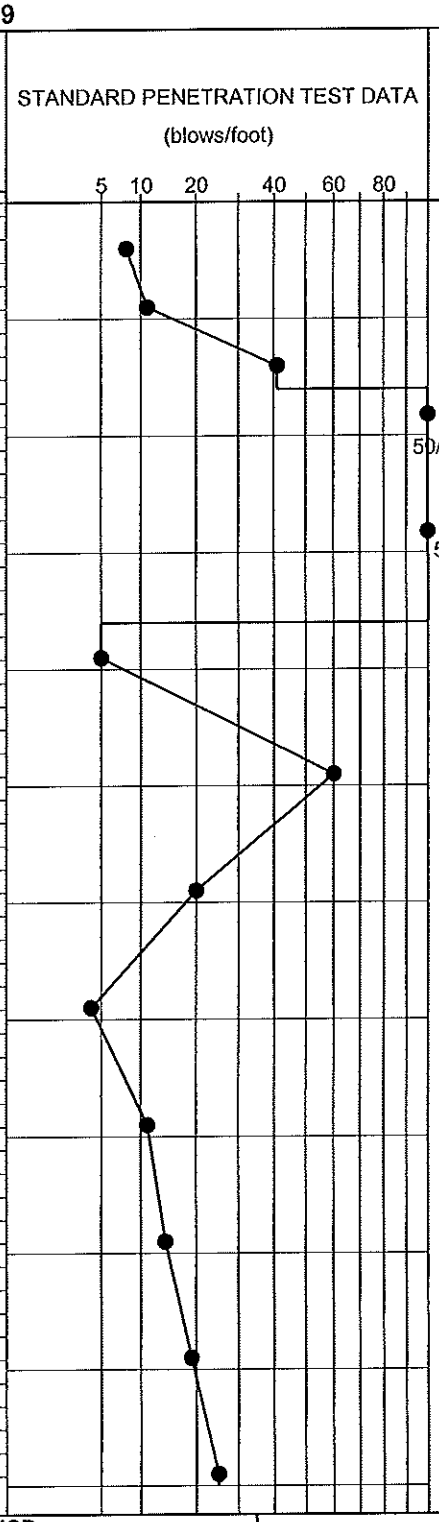
Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1119.57** Station: **ST 660+60, 9' Rt.of BL**

Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **17** Overburden (ft): **75** Rock (ft): **NA** Total Depth (ft): **75.0**

Logged By: **CO** Date Drilled: **8/12/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
	SS			RESIDUUM: Loose to dense reddish brown, black, gray and white silty medium to fine **SAND** (micaceous)	SM	1119.6	
5	SS					1115	8, 11, 41
	SS						
	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown and gray silty medium to fine **SAND** (micaceous)	PWR	1110	50/2.5"
10	SS						
15	SS					1105	50/2
20	SS			RESIDUUM: Loose black, white and brown silty medium to fine **SAND** (micaceous)	SM	1100	5
25	SS			Very dense black, white and brown silty medium to fine **SAND** (micaceous)	SM	1095	60
30	SS			Very loose and medium dense black, white and brown silty medium to fine **SAND** (micaceous)	SM	1090	20
35	SS					1085	4
40	SS					1080	11
45	SS					1075	14
50	SS					1070	19
55	SS					1065	25



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SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-248**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-248

Location: **BENT - 27**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
60		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark gray and white silty medium to fine **SAND**	PWR	1060		50/4"
65		SS			RESIDUUM: Very dense white and brown silty medium to fine **SAND** (micaceous)	SM	1055		68
70		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark gray and white silty medium to fine **SAND**	PWR	1050		50/3"
75		SS			Boring was terminated at 75 feet below the existing ground surface.		1045		50/3"

Groundwater was encountered at 26 feet below the existing ground surface 24 hours after boring completion.

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-248**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-249**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 28**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1130.71** Station: **ST 661+70, 1' Rt. of BL**

Drilling Equipment: **CME 550 / MACTEC** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **17** Overburden (ft): **70** Rock (ft): **NA** Total Depth (ft): **70.0**

Logged By: **CO** Date Drilled: **8/13/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
	SS			RESIDUUM: Medium dense reddish brown and white silty medium to fine **SAND** (micaceous)	SM	1130.7	15
5	SS						15
	SS			Loose reddish brown and white silty medium to fine **SAND** (micaceous)	SM		10
10	SS						8
	SS			Loose and medium dense reddish brown and white silty medium to fine **SAND** (micaceous)	SM		12
15	SS						10
20	SS						12
25	SS						14
30	SS						11
35	SS						17
40	SS						44
45	SS			Dense reddish brown and white silty medium to fine **SAND** (micaceous)	SM		31
50	SS						18
55	SS			Medium dense reddish brown and white	SM		

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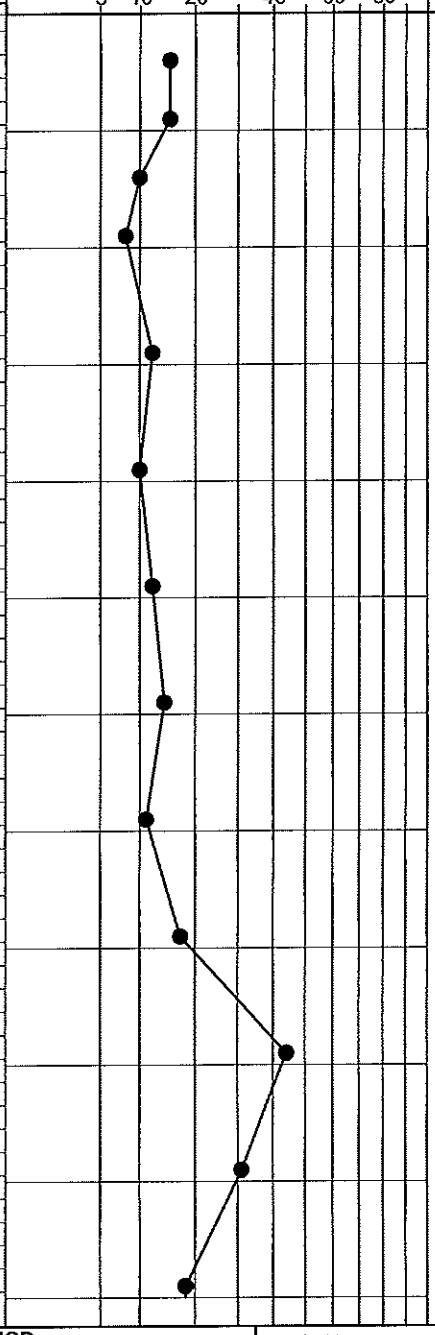


SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-249
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-249

Location: **BENT - 28**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					silty medium to fine **SAND** (micaceous)	1075		
60		SS				1070		18
		SS			PARTIALLY WEATHERED ROCK: **PWR** Sampled as very dense black and white silty medium to fine **SAND** with quartz fragments (micaceous)			50/2.5"
65		SS				1065		50/5"
		SS						50/5.5"
70					Boring was terminated at 70 feet below the existing ground surface.			

Groundwater was encountered at 36 feet below the existing ground surface at the time of boring and at 35 feet below the existing ground surface 24 hours after boring completion.

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-249**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-251**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 30**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1127.82** Station: **ST 664+04, 4' Rt. of BL**

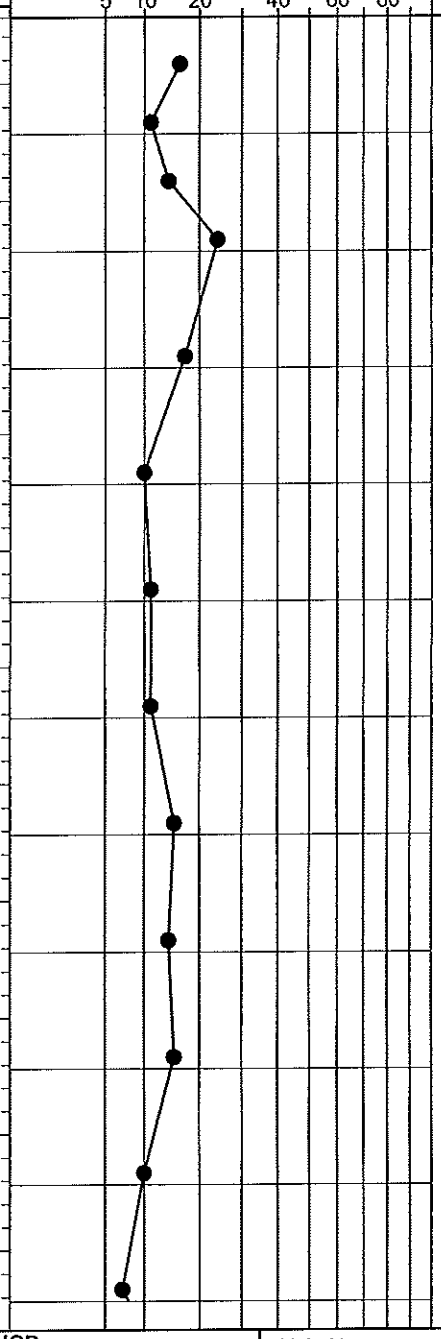
Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **19** Overburden (ft): **77** Rock (ft): **NA** Total Depth (ft): **80.0**

Logged By: **PL** Date Drilled: **8/12/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	N-VALUE
					TOPSOIL - 3 inches (SM)	1127.8	
		SS			RESIDUUM: Loose and medium dense brown, gray, black and tan silty medium to fine **SAND**	1125	16
5		SS					11
		SS				1120	14
10		SS					24
						1115	
15		SS					17
						1110	
20		SS					10
						1105	
25		SS					11
						1100	
30		SS					11
						1095	
35		SS					15
						1090	
40		SS			Medium dense brown, gray, white and tan silty medium to fine **SAND** (micaceous) (SM)		14
						1085	
45		SS					15
						1080	
50		SS			Firm and stiff white and brown medium to fine sandy **SILT** (ML)		10
						1075	
55		SS					7

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-251**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

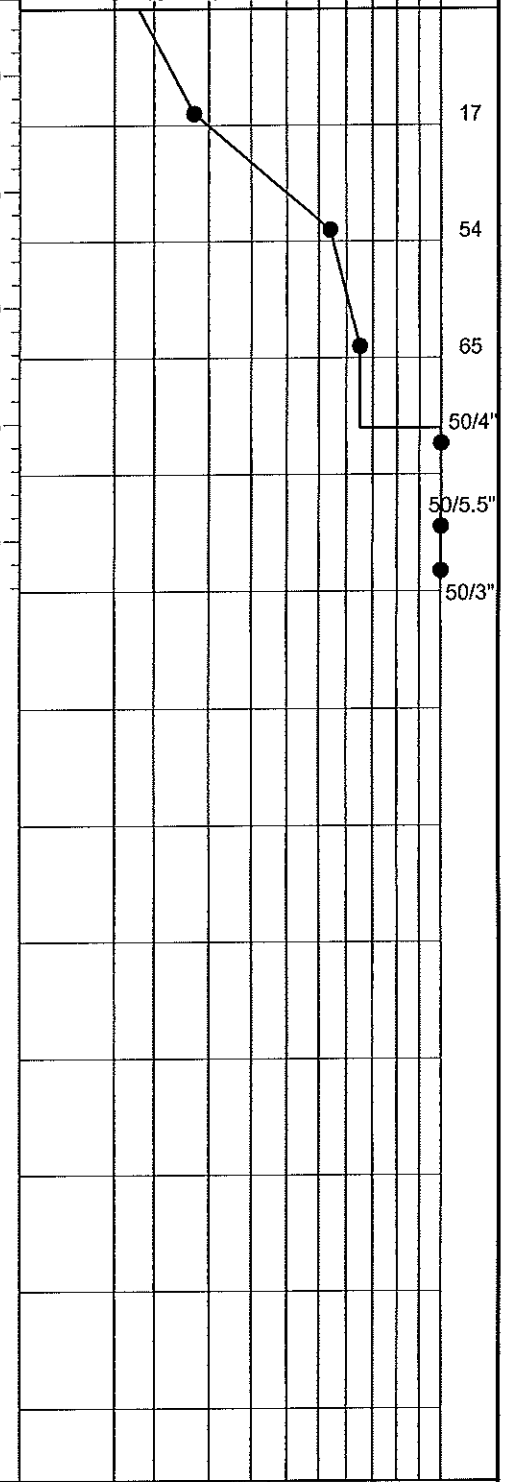
HOLE No. B-251

Sheet 2 of 2

Location: **BENT - 30**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
60		SS			Medium dense brown and gray silty medium to fine **SAND**	SM	1070		17
65		SS			Very dense gray, brown and white silty medium to fine **SAND**	SM	1065		54
70		SS					1060		65
75		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, brown and tan silty medium to fine **SAND** with rock fragments	PWR	1055		50/4"
		SS					1050		50/5.5"
		SS							50/3"
80					Boring was terminated at 80 feet below the existing ground surface.				

Groundwater was encountered at 33 feet below the existing ground surface at the time of boring and at 32 feet below the existing ground surface 24 hours after boring completion.



SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-251**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-252**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 31**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1116.95** Station: **ST 665+30, 9' Rt. of BL**

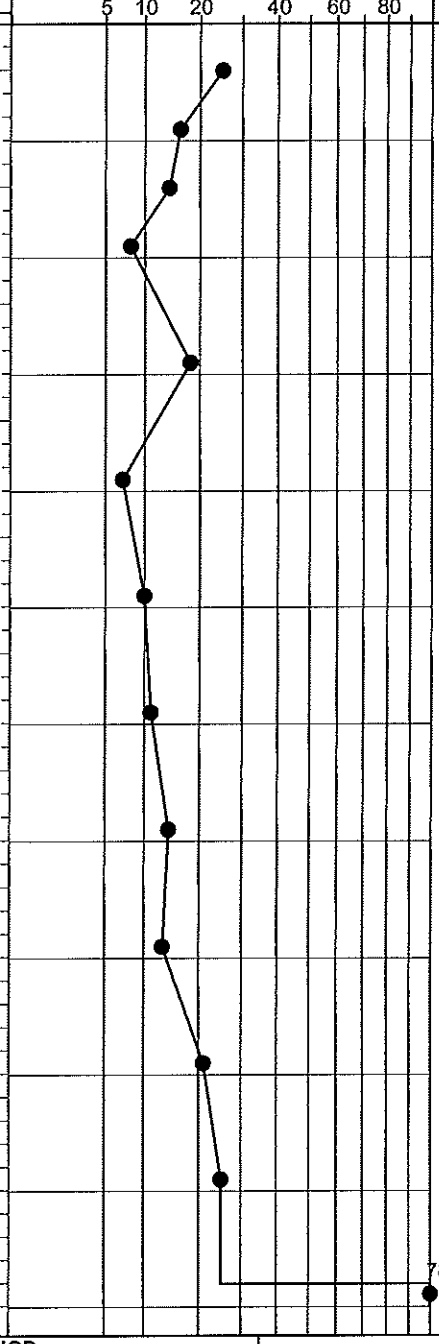
Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **15** Overburden (ft): **63.5** Rock (ft): **NA** Total Depth (ft): **63.5**

Logged By: **PL** Date Drilled: **8/12/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)
					TOPSOIL - 2 Inches (SM)	1117.0
		SS			RESIDUUM: Loose and medium dense reddish brown, black and gray silty medium to fine **SAND** (micaceous)	1115
5		SS				
		SS				1110
10		SS				
						1105
15		SS				
						1100
20		SS				
						1095
25		SS				
						1090
30		SS				
						1085
35		SS				
						1080
40		SS				
						1075
45		SS				
						1070
50		SS				
						1065
55		SS			PWR	

STANDARD PENETRATION TEST DATA (blows/foot)



N-VALUE

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SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-252
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-252

Location: **BENT - 31**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					PARTIALLY WEATHERED ROCK: Sampled as very dense dark gray, gray and white silty medium to fine **SAND** with quartz fragments.	1060		
60		SS						50/4.5"
						1055		
		SS			Auger refusal was encountered at 63.5 feet below existing ground surface.			50/.5"
					Groundwater was encountered at 22.5 feet below the existing ground surface at the time of boring and 24 hours after boring completion.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-252**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-253**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 32**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1117.06** Station: **ST 666+70, 9' Rt. of BL**

Drilling Equipment: **CME 550 / Gable** Drilling Method: **HSA Auto Hammer**

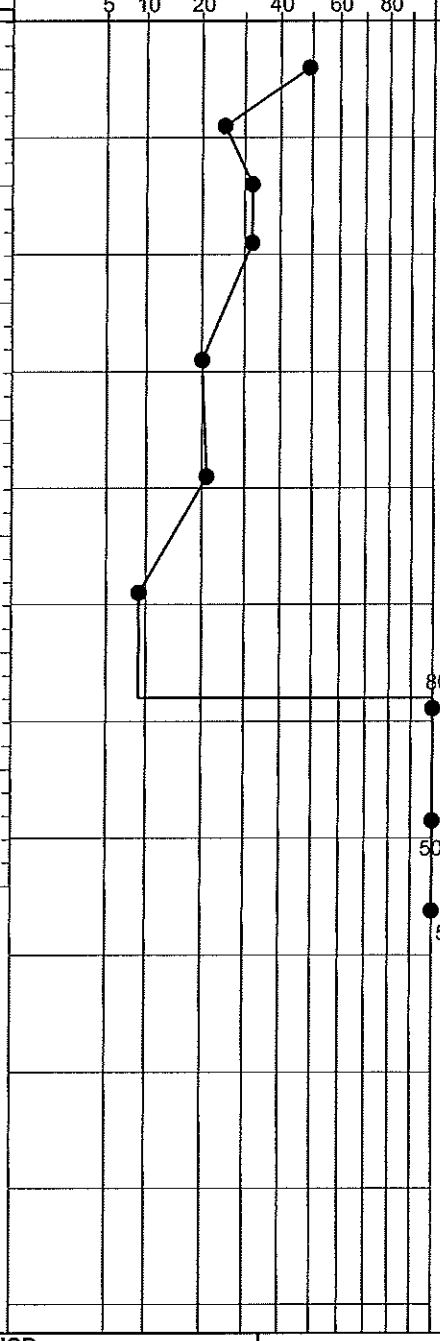
Core Boxes: **NA** Samples: **10** Overburden (ft): **38** Rock (ft): **NA** Total Depth (ft): **38.0**

Logged By: **PL** Date Drilled: **8/13/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
				TOPSOIL - 3 inches	SM	1117.1	
	SS			RESIDUUM: Dense to medium dense reddish brown and black silty medium to fine **SAND**		1115	49
5	SS						25
	SS					1110	32
10	SS						32
						1105	
15	SS						20
						1100	
20	SS						21
						1095	
				Loose reddish brown and black silty medium to fine **SAND**	SM		
25	SS						9
						1090	
							80/11"
30	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine **SAND**	PWR		
						1085	
35	SS						50/5.5"
						1080	
	SS			Auger refusal was encountered at 38 feet below the existing ground surface.			50/3"

Ground water was encountered at 22 feet below the existing ground surface at the time of boring and 24 hours after boring completion.

STANDARD PENETRATION TEST DATA (blows/foot)



SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-253
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-254**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 33**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1117.00** Station: **ST 668+10, 9' Rt. of BL**

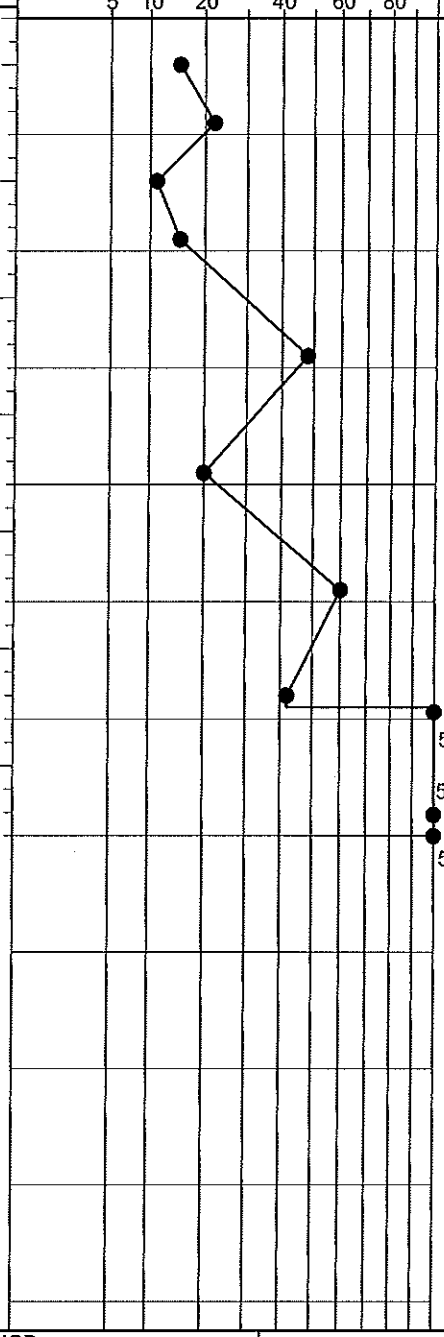
Drilling Equipment: **CME 550 / Gable** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **10** Overburden (ft): **35** Rock (ft): **NA** Total Depth (ft): **35.0**

Logged By: **PL** Date Drilled: **8/13/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					TOPSOIL - 2 inches	SM	1117.0	
		SS			RESIDUUM: Medium dense reddish brown, gray and black silty medium to fine **SAND** (micaceous)		1115	15
5		SS						22
		SS			Stiff white and brown medium to fine sandy **SILT** with quartz fragments	ML	1110	11
						SM		
10		SS			Medium dense and dense reddish brown, dark gray and black silty medium to fine **SAND**			15
							1105	
15		SS						48
							1100	
20		SS						20
					Very dense reddish brown, dark gray and black silty medium to fine **SAND**	SM	1095	
25		SS						60
							1090	
		SS						42
30		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine **SAND** with rock fragments	PWR		50/5"
							1085	
		SS						50/2"
35		SS						50/0"
					Auger refusal was encountered at 35 feet below the existing ground surface.			
					Groundwater was encountered at 22 feet below the existing ground surface at the time of boring and 24 hours after boring completion.			

STANDARD PENETRATION TEST DATA (blows/foot)



SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-254**

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-255

Sheet 1 of 1

Location: **BENT - 34**

Azimuth: **--** Angle from Horizontal: **90** Surface Elevation (ft): **1120.10** Station: **ST 669+50, 9' Rt. of BL**

Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **6** Overburden (ft): **18.5** Rock (ft): **NA** Total Depth (ft): **18.5**

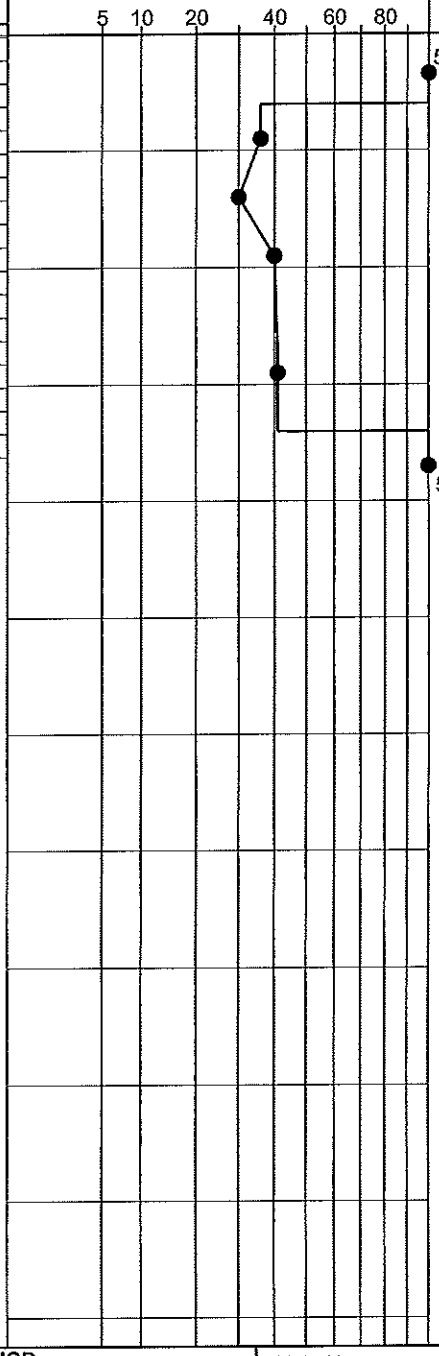
Logged By: **CO** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
		SS			TOPSOIL - 2 inches	PWR	1120.1	50/5"
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown and tan silty medium to fine **SAND** with rock fragments	SM		36
5		SS			RESIDUUM: Medium dense and dense reddish brown, gray, white and tan silty medium to fine **SAND**		1115	30
10		SS					1110	40
15		SS					1105	41
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown and tan silty medium to fine **SAND** with rock fragments	PWR		50/0"

Auger refusal was encountered at 18.5 feet below the existing ground surface.

No groundwater was encountered below the existing ground surface at the time of boring completion.

STANDARD PENETRATION TEST DATA (blows/foot)



SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-255**

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-256**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 35**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1116.49** Station: **ST 670+60, 9' Rt. of BL**

Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

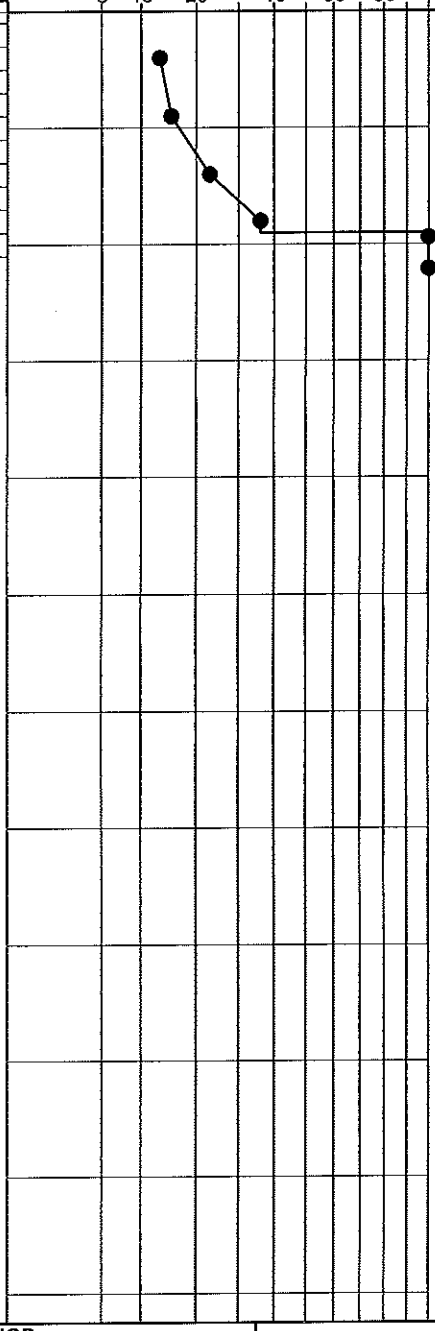
Core Boxes: **NA** Samples: **5** Overburden (ft): **11** Rock (ft): **NA** Total Depth (ft): **11.0**

Logged By: **CO** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					RESIDUUM: Medium dense to dense brown, white and tan silty medium to fine **SAND** (micaceous)	SM	1116.5		
		SS					1115		13
5		SS							15
		SS					1110		23
		SS							36
10		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense reddish brown, white and tan silty medium to fine **SAND** with rock fragments (slightly micaceous)	PWR			50/5"
		SS							50/1"

Auger refusal was encountered at 11 feet below the existing ground surface.

No groundwater was encountered below the existing ground surface at the time of boring completion.



SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-256
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-256A**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 35**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1116.49** Station: **ST 670+60, 14' Rt. of BL**

Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **5** Overburden (ft): **21** Rock (ft): **NA** Total Depth (ft): **21.0**

Logged By: **CO** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					Auger boring from 0 to 8.5 feet.	SM	1116.5		
5							1115		
							1110		
10		SS			RESIDUUM: Dense brown, white and tan silty medium to fine **SAND** with quartz fragments	SM			49
		SS				PWR	1105		50/2.5"
15		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, brown, black and tan silty medium to fine **SAND** with rock fragments		1100		50/3"
20		SS							50/3"
		SS			Auger refusal was encountered at 21 feet below the existing ground surface.				50/0"

No groundwater was encountered below the existing ground surface at the time of boring completion.

STANDARD PENETRATION TEST DATA (blows/foot): 5 10 20 40 60 80

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-256A
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-257**
Location: **Cobb County, Georgia**	Sheet 1 of 1
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 36**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1113.14** Station: **ST 671+70, 9' Rt. of BL.**

Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **8** Overburden (ft): **26** Rock (ft): **NA** Total Depth (ft): **26.0**

Logged By: **CO** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					RESIDUUM: Medium dense and dense red, black and tan silty medium to fine **SAND** with occasional rock fragments (micaceous)	SM	1113.1		
		SS							12
		SS					1110		28
5		SS							42
		SS					1105		22
10									
							1100		
		SS							99/11"
15					PARTIALLY WEATHERED ROCK: Sampled as very dense brown and tan silty medium to fine **SAND** with rock fragments	PWR			
						SM	1095		
		SS			RESIDUUM: Medium dense brown and tan silty medium to fine **SAND** (micaceous)				16
20									
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, gray and tan silty medium to fine **SAND** with rock fragments	PWR	1090		50/4"
25		SS							50/1"

Auger refusal was encountered at 26 feet below the existing ground surface.

No groundwater was encountered below the existing ground surface at the time of boring completion.

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	B-257
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

SPTN 171-3463BFI.GPJ 10/20/09

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-258**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 37**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1113.31** Station: **ST 672+80, 9' Rt. of BL**

Drilling Equipment: **CME 550 / Gable Drilling Co., Inc.** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **13** Overburden (ft): **51** Rock (ft): **NA** Total Depth (ft): **51.0**

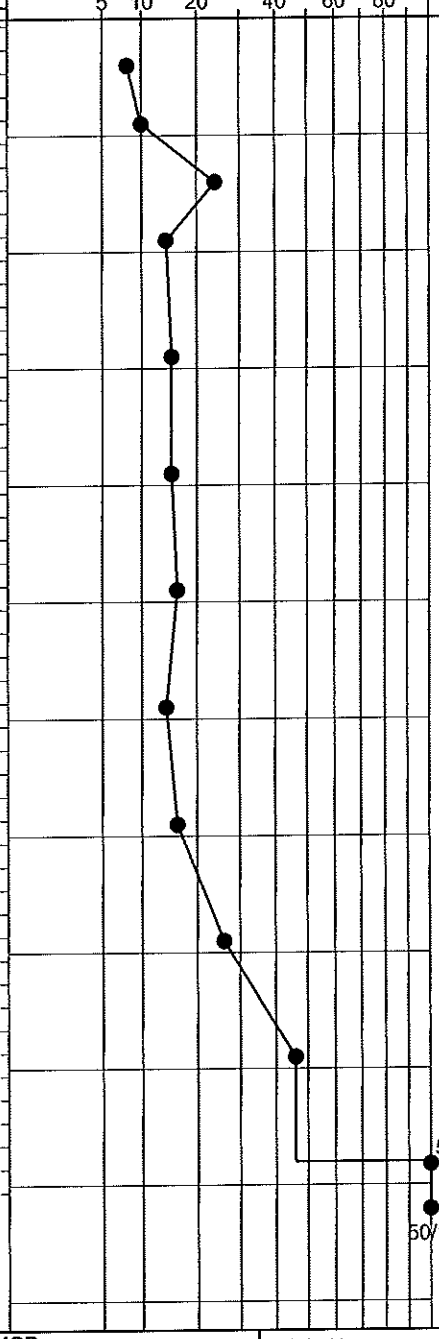
Logged By: **CO** Date Drilled: **8/11/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)
		SS			RESIDUUM: Loose to medium dense reddish brown, black, white and tan silty medium to fine **SAND** (SM)	1113.3
5		SS				1110
		SS				
10		SS				1105
		SS				
15		SS				1100
20		SS			Medium dense white and brown silty medium to fine **SAND** with quartz fragments (SM)	1095
25		SS				1090
30		SS				1085
35		SS				1080
40		SS				1075
45		SS			- becoming dense	1070
50		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black and tan silty medium to fine **SAND** with rock fragments (PWR)	1065
		SS				

Auger refusal was encountered at 51 feet

Continued Next Page

STANDARD PENETRATION TEST DATA (blows/foot)



N-VALUE

SAMPLER TYPE		DRILLING METHOD		Hole No.
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	B-258
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-258
Sheet 2 of 2
Location: **BENT - 37**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					below the existing ground surface.			
					No ground water was encountered at the time of boring completion.			
					Boring was caved in at 36 feet below the existing ground surface 24 hours after boring completion.			

SAMPLER TYPE
SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD
HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-258**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-259**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 38**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1109.93** Station: **ST 674+20, 24.5' Rt. of BL**

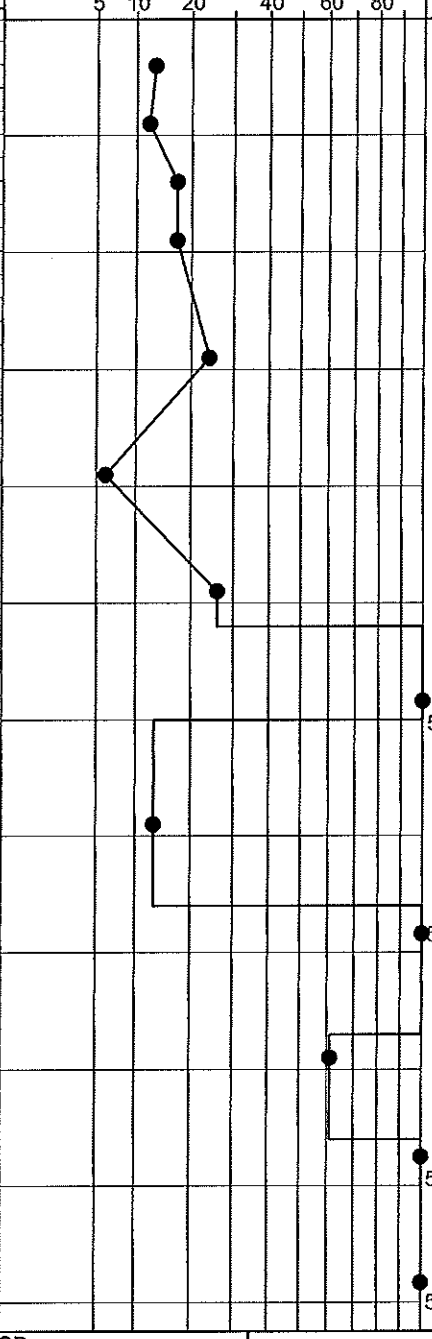
Drilling Equipment: **CME 550 / Gable** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **13** Overburden (ft): **55** Rock (ft): **NA** Total Depth (ft): **55.0**

Logged By: **PL** Date Drilled: **8/14/09**

VERTICAL DEPTH (ft)	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
				TOPSOIL - 2 inches	SM	1109.9	
	SS			RESIDUUM: Medium dense reddish brown, black and white silty medium to fine **SAND**			13
5	SS					1105	12
	SS						17
10	SS					1100	17
15	SS			Sample with quartz fragments		1095	24
				Loose brown, pink and white silty medium to fine **SAND**	SM		
20	SS			Medium dense reddish brown and black silty medium to fine **SAND**	SM	1090	6
25	SS					1085	26
				PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine **SAND** with rock fragments	PWR		
30	SS			RESIDUUM: Medium dense reddish brown, gray and black silty medium to fine **SAND** (micaceous)	SM	1080	50/5"
35	SS					1075	13
40	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and white silty medium to fine **SAND**	PWR	1070	50/5"
45	SS			RESIDUUM: Very dense white, brown and gray silty medium to fine **SAND**	SM	1065	61
50	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine **SAND**	PWR	1060	50/6"
55	SS					1055	50/4"

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-259**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-259

Sheet 2 of 2

Location: **BENT - 38**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
					Boring was terminated at 55 feet below the existing ground surface.			
					No ground water was encountered at the time of boring.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-259**

WILLMER ENGINEERING INC. | WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**	**HOLE No. B-260**
Location: **Cobb County, Georgia**	Sheet 1 of 2
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**	Location: **BENT - 39**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **1115.86** Station: **ST 675+30, 2' Rt. of BL**

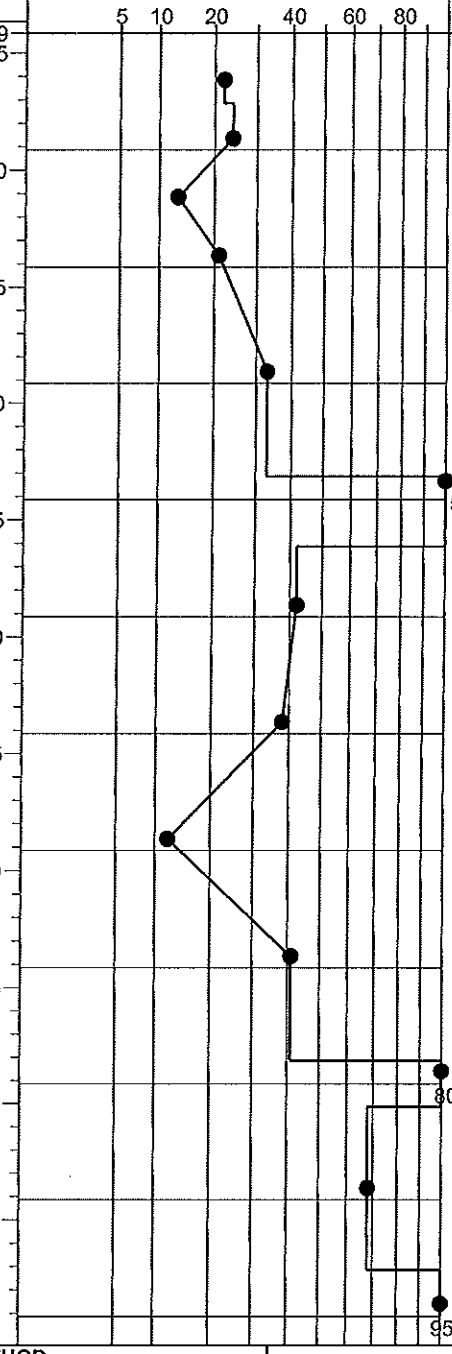
Drilling Equipment: **CME 550 / Gable** Drilling Method: **HSA Auto Hammer**

Core Boxes: **NA** Samples: **14** Overburden (ft): **58.5** Rock (ft): **NA** Total Depth (ft): **58.5**

Logged By: **PL** Date Drilled: **8/13/09**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION		ELEVATION (feet)	N-VALUE
					TOPSOIL - 2 inches	FILL	1115.9	
		SS			FILL: Medium dense red and black silty medium to fine **SAND** with roots	SM	1115	22
5		SS			RESIDUUM: Medium dense to dense reddish brown, white and black silty medium to fine **SAND**			24
		SS					1110	13
10		SS					1105	21
15		SS					1100	33
20		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense reddish brown and black silty medium to fine **SAND**	PWR	1095	50/5"
						SM		
25		SS			RESIDUUM: Medium dense and dense reddish brown, white, gray and black silty medium to fine **SAND**		1090	42
30		SS					1085	38
35		SS					1080	12
40		SS					1075	41
45		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense reddish brown, white and gray silty medium to fine **SAND**	PWR	1070	80/11"
						SM		
50		SS			RESIDUUM: Very dense reddish brown, light gray and black silty medium to fine **SAND**		1065	68
						PWR		
55		SS						95/11"

STANDARD PENETRATION TEST DATA (blows/foot)



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SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-260**

WILLMER ENGINEERING INC. WE

Project: **Bridge 25: I-75 Reversible Lanes over Canton Road**
Location: **Cobb County, Georgia**
Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130**

HOLE No. B-260

Sheet 2 of 2

Location: **BENT - 39**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot) 5 10 20 40 60 80	N-VALUE
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense dark brown, gray and white silty medium to fine **SAND** (SM)	1060		58
					RESIDUUM: Very dense brown, gray and white silty medium to fine **SAND**			
					Boring was terminated at 58.5 feet below the existing ground surface.			
					No ground water was encountered below the existing ground surface at the time of boring completion.			

SAMPLER TYPE

SS - Split Spoon
ST - Shelby Tube
NQ - Rock Core, 1-7/8"
NX - Rock Core, 2-1/8"
CU - Cuttings
CT - Continuous Tube

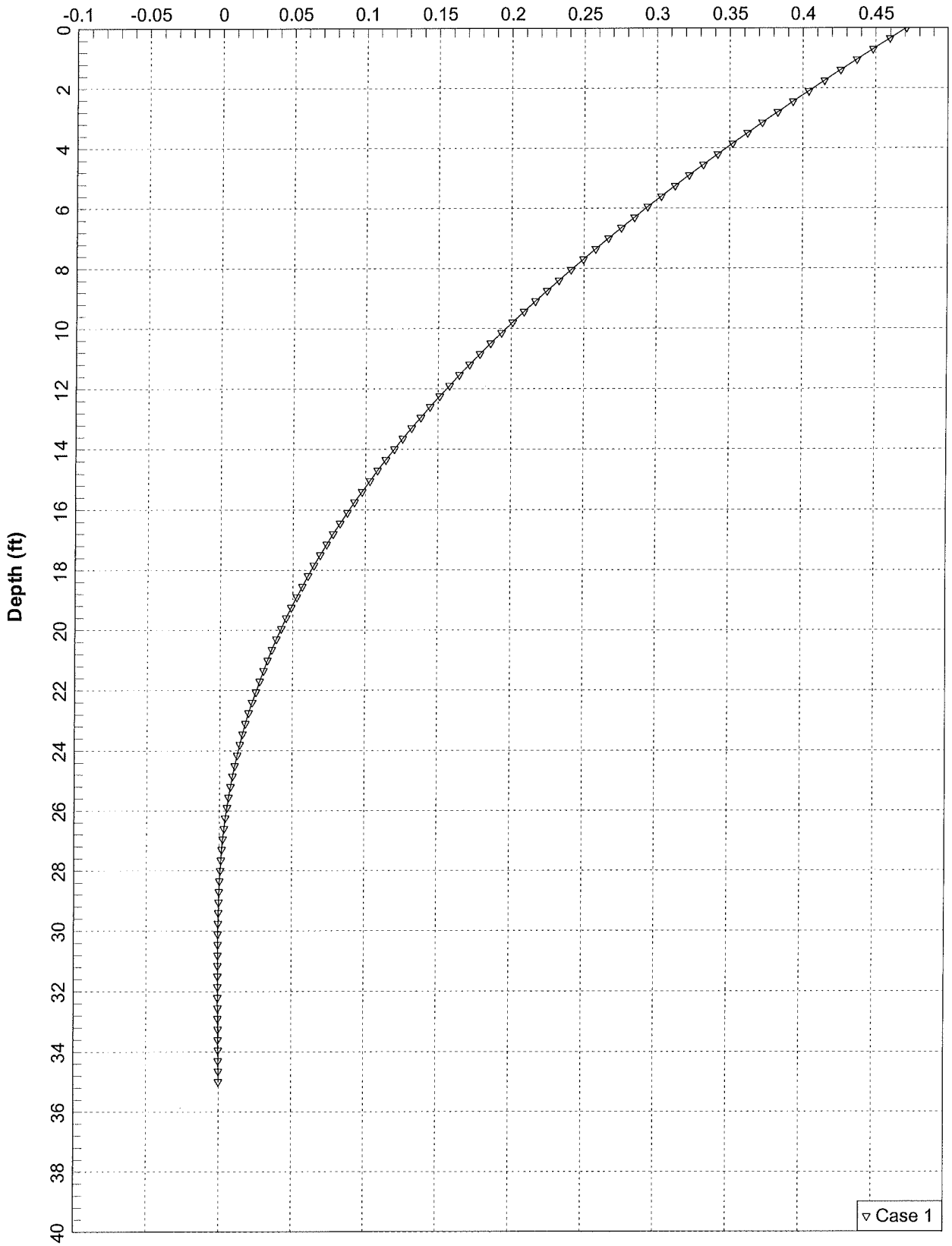
DRILLING METHOD

HSA - Hollow Stem Auger
CFA - Continuous Flight Augers
DC - Driving Casing
RW - Rotary Wash
RC - Rock Core

Hole No. **B-260**

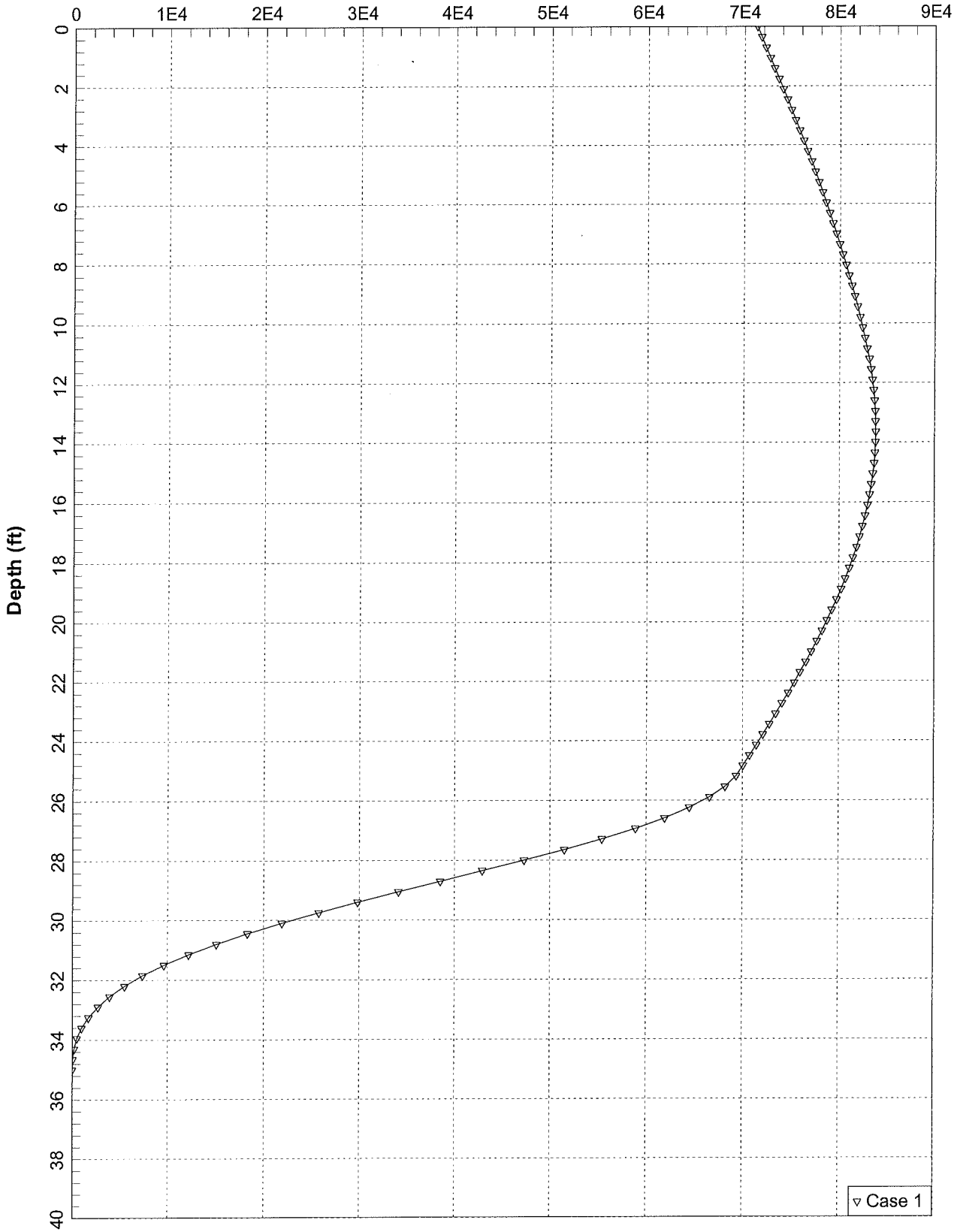
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 10

Lateral Deflection (in)



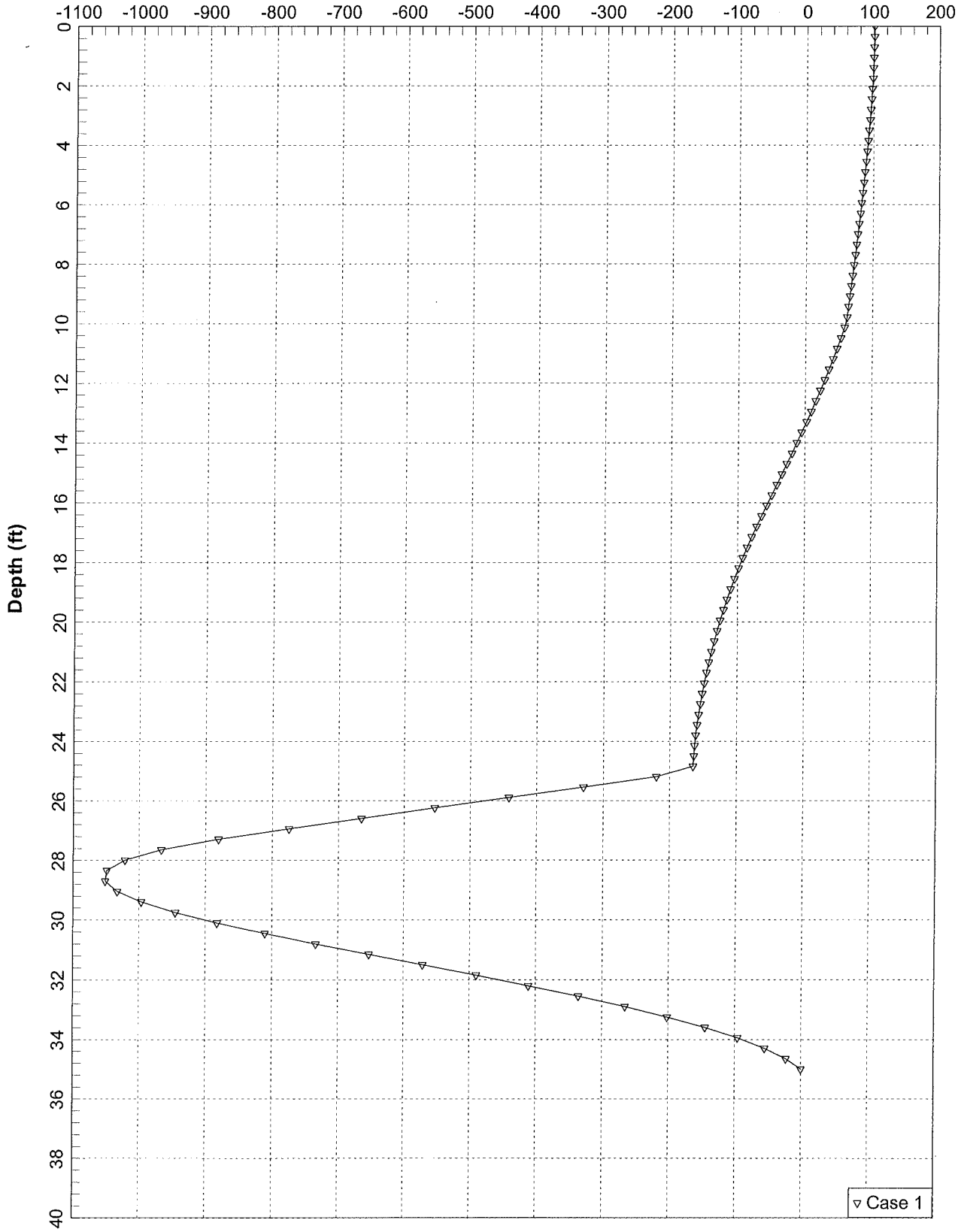
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 10

Unfactored Bending Moment (in-kips)

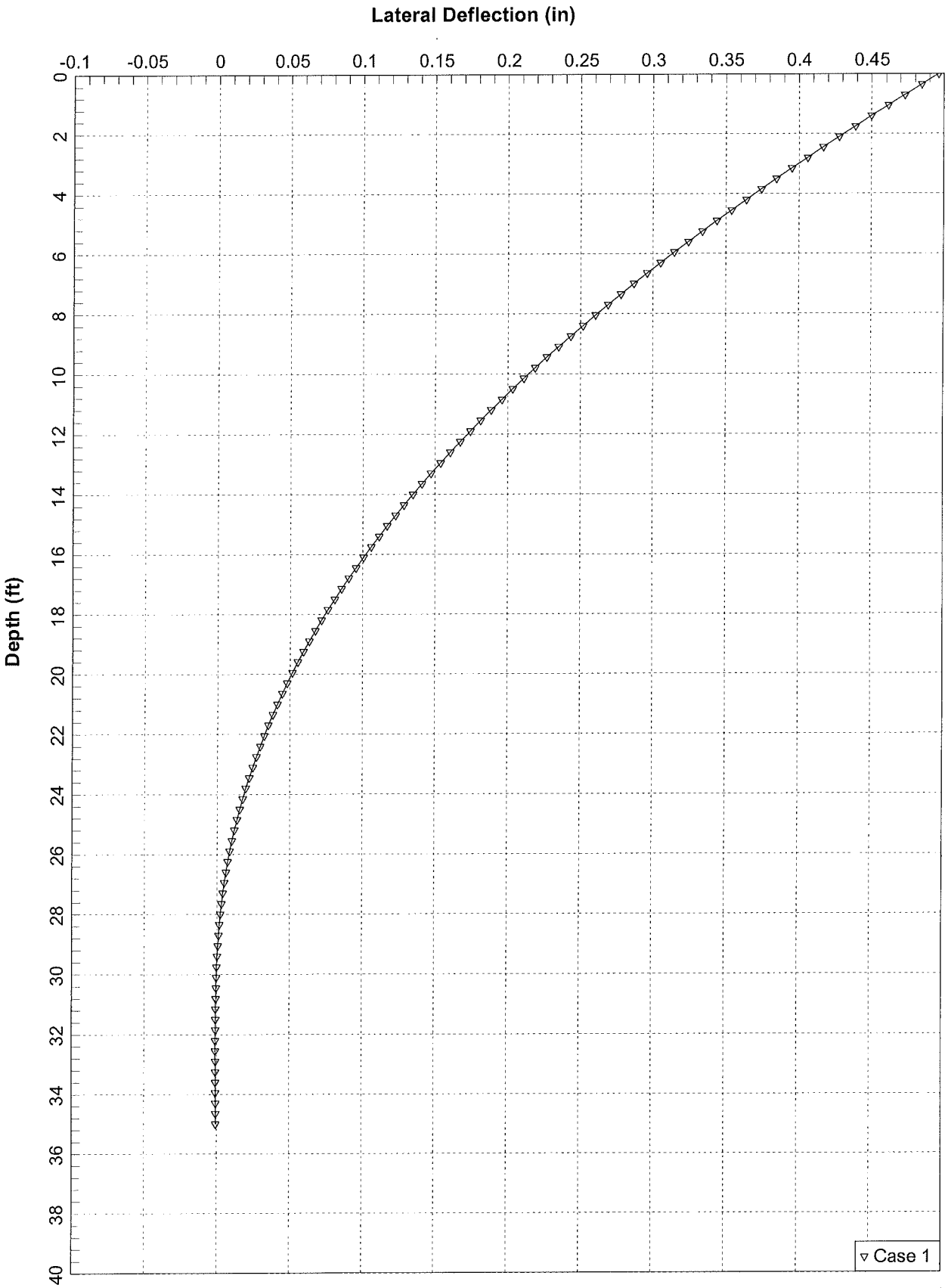


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 10

Shear Force (kips)

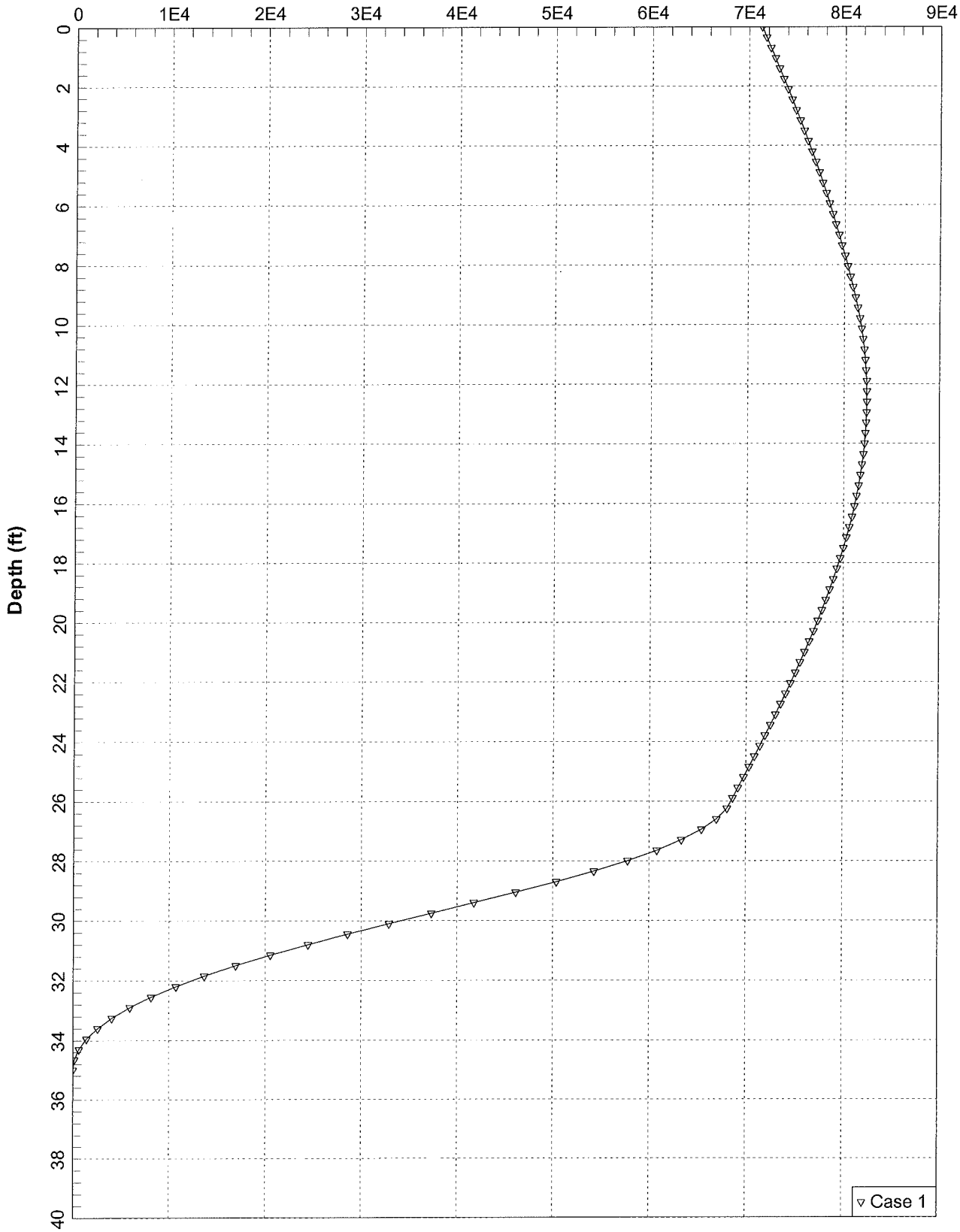


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 11



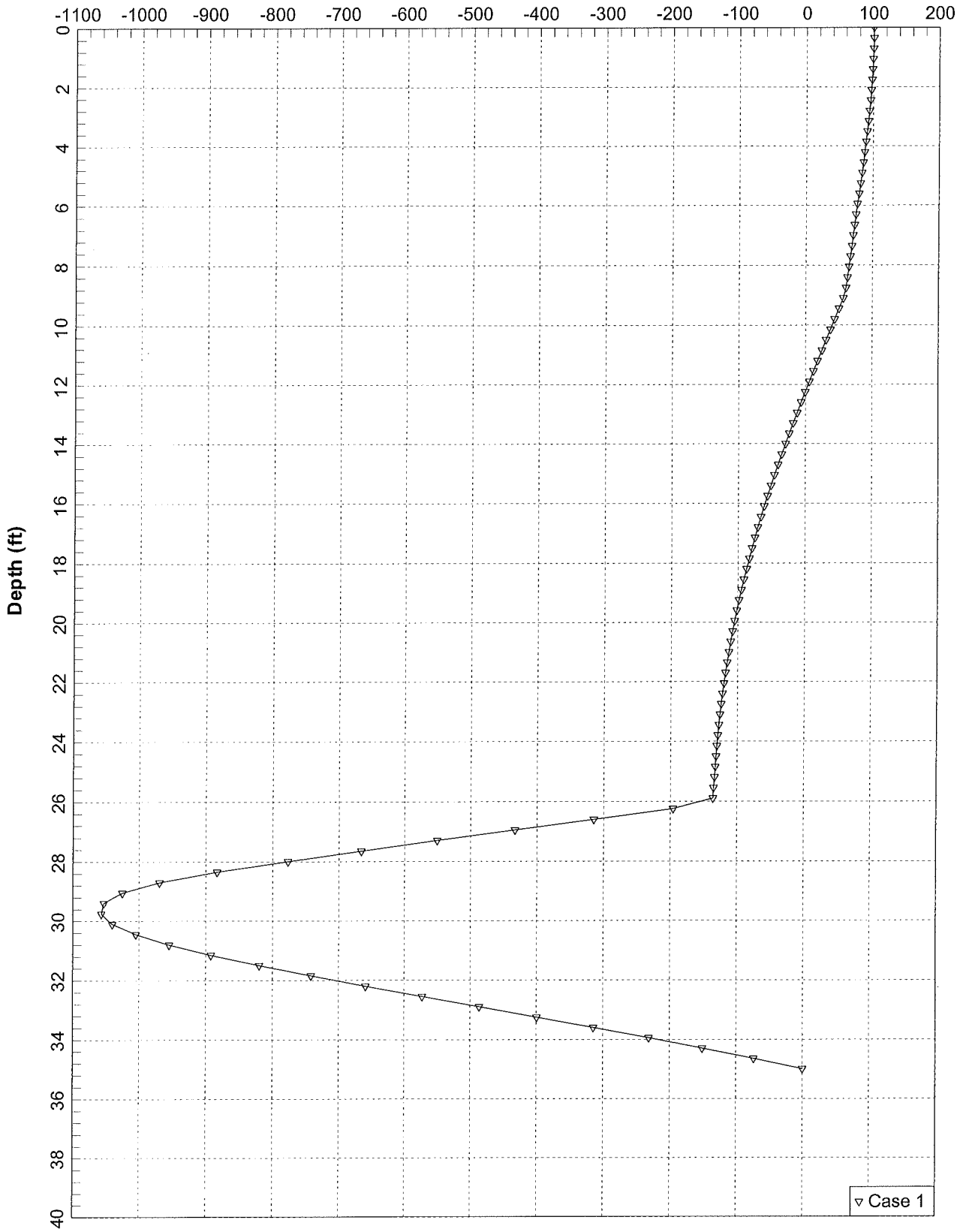
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 11

Unfactored Bending Moment (in-kips)



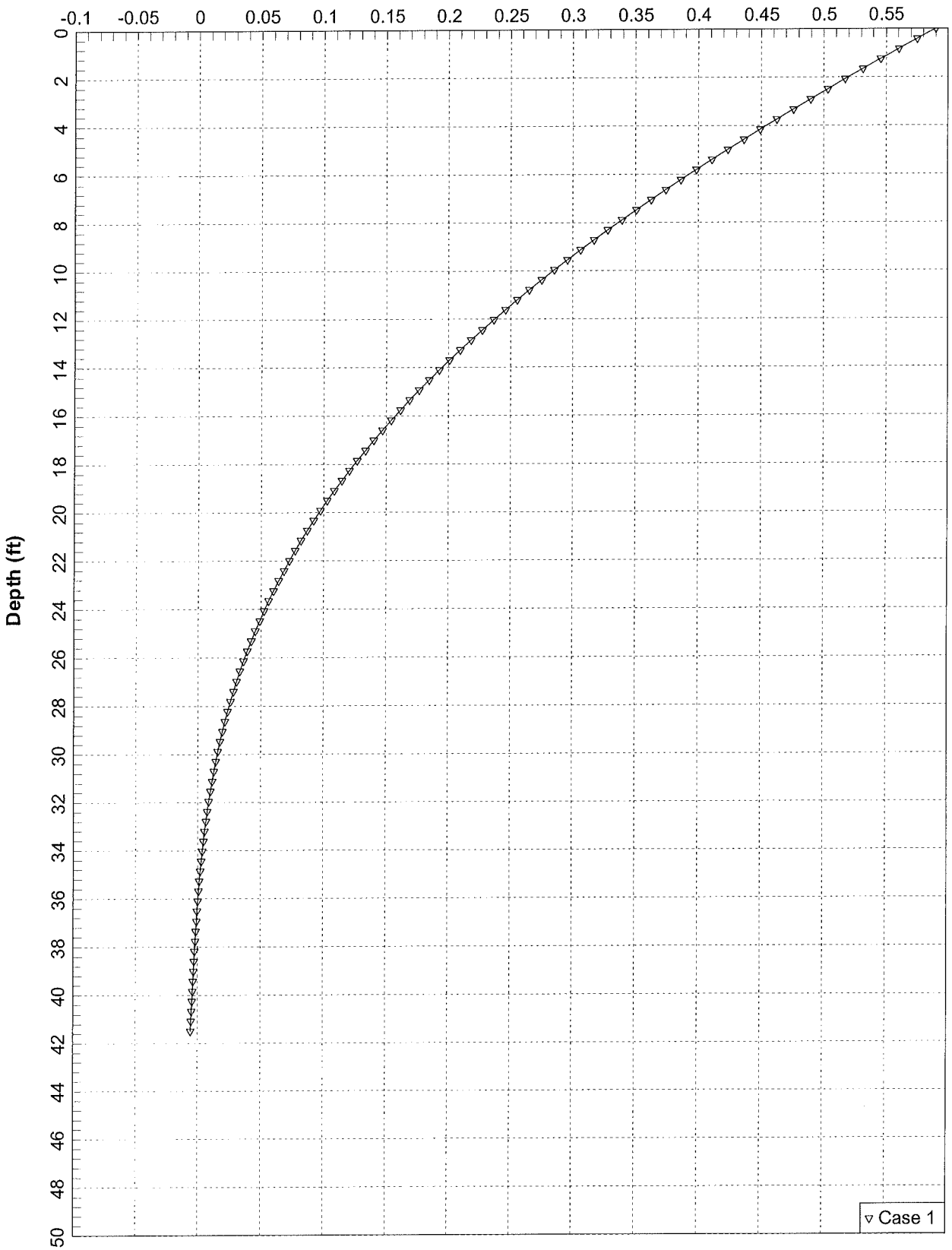
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 11

Shear Force (kips)



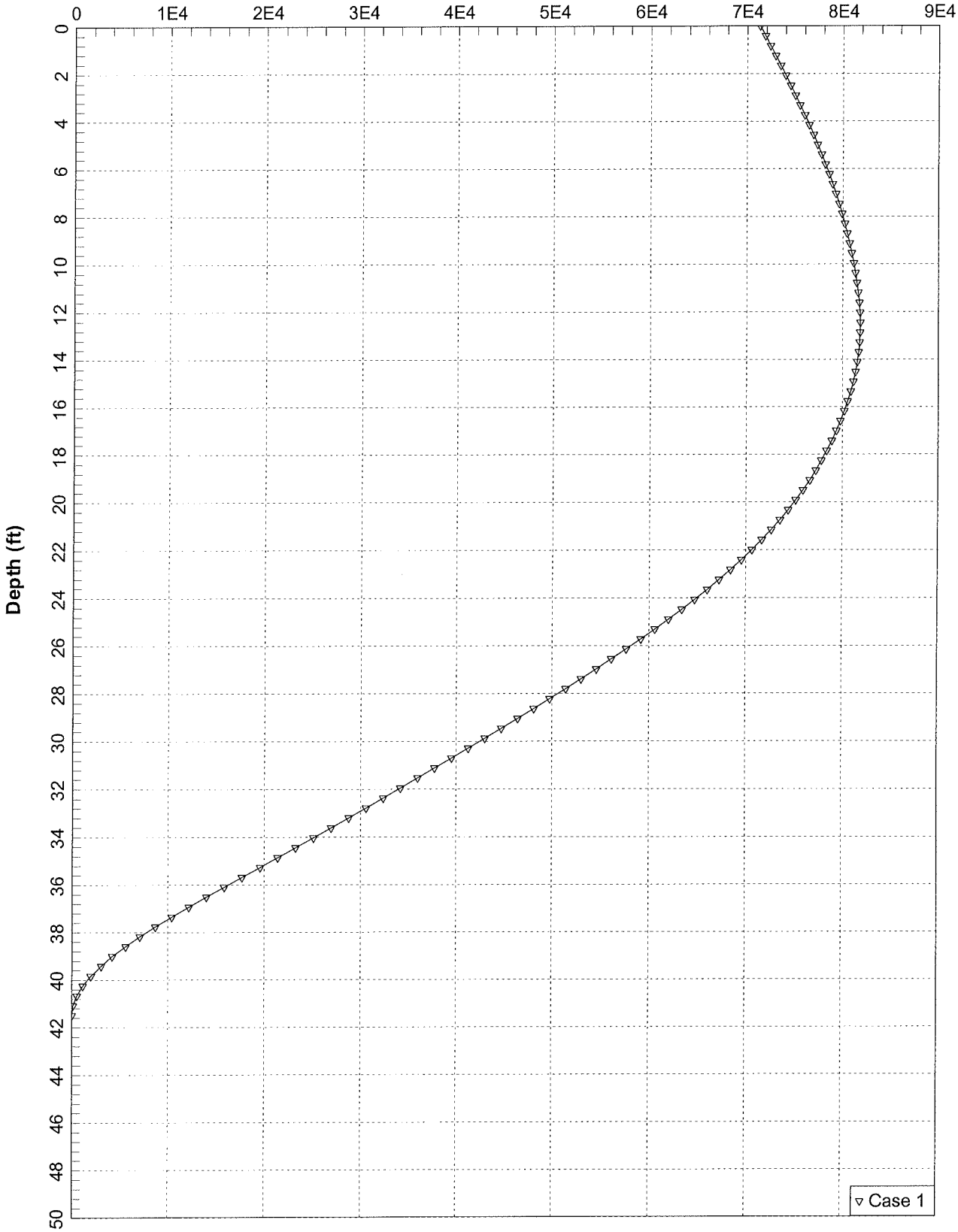
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 12

Lateral Deflection (in)



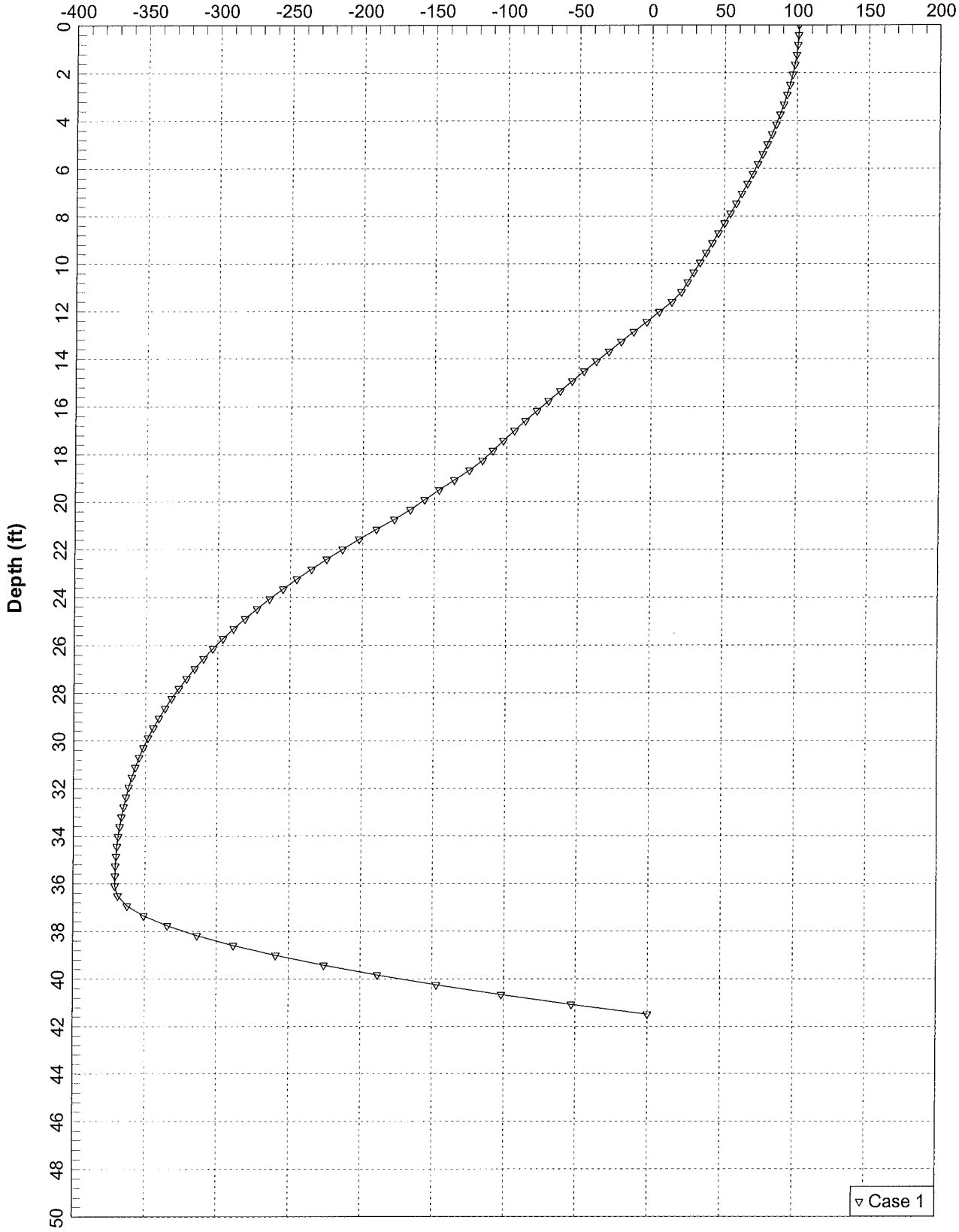
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 12

Unfactored Bending Moment (in-kips)



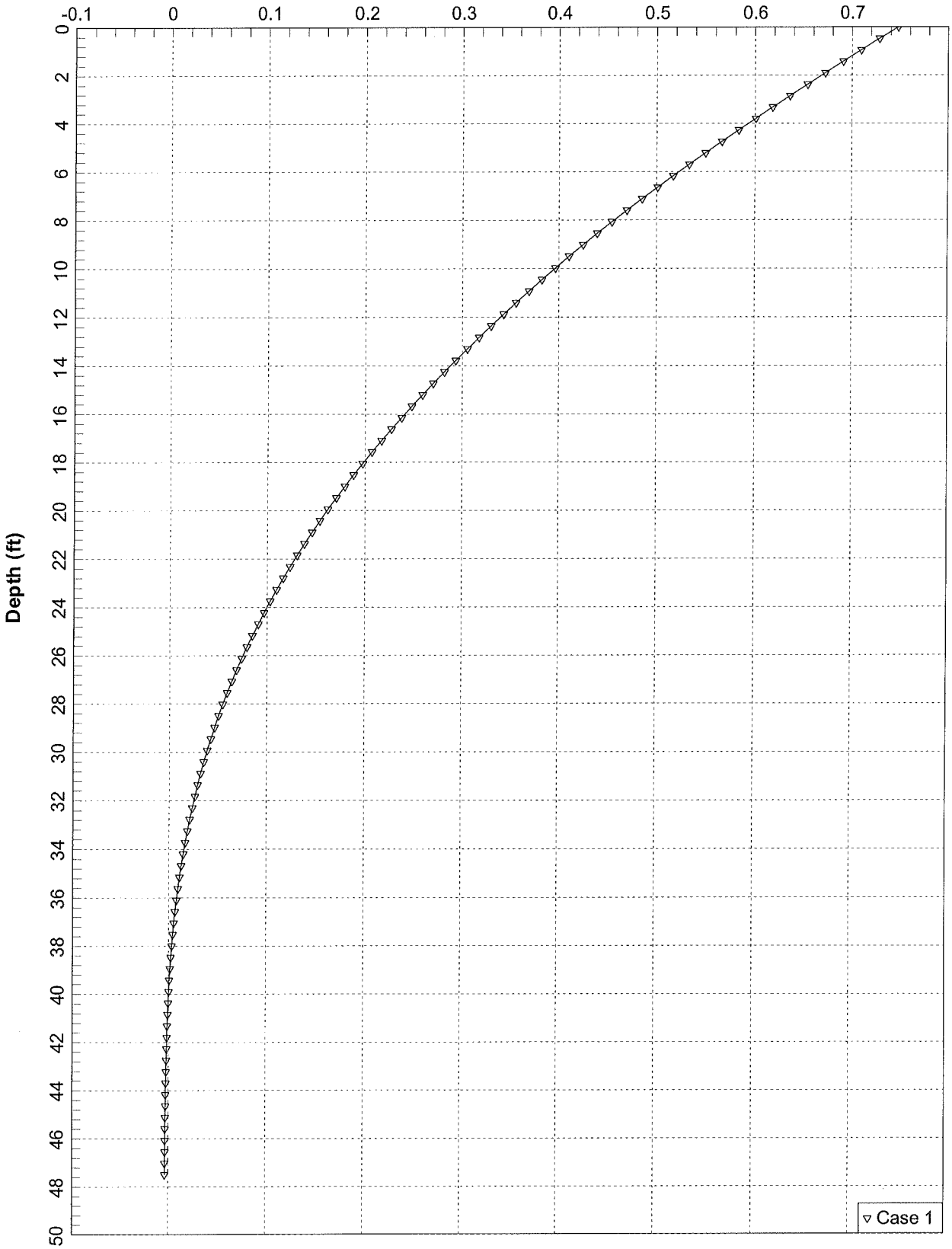
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 12

Shear Force (kips)



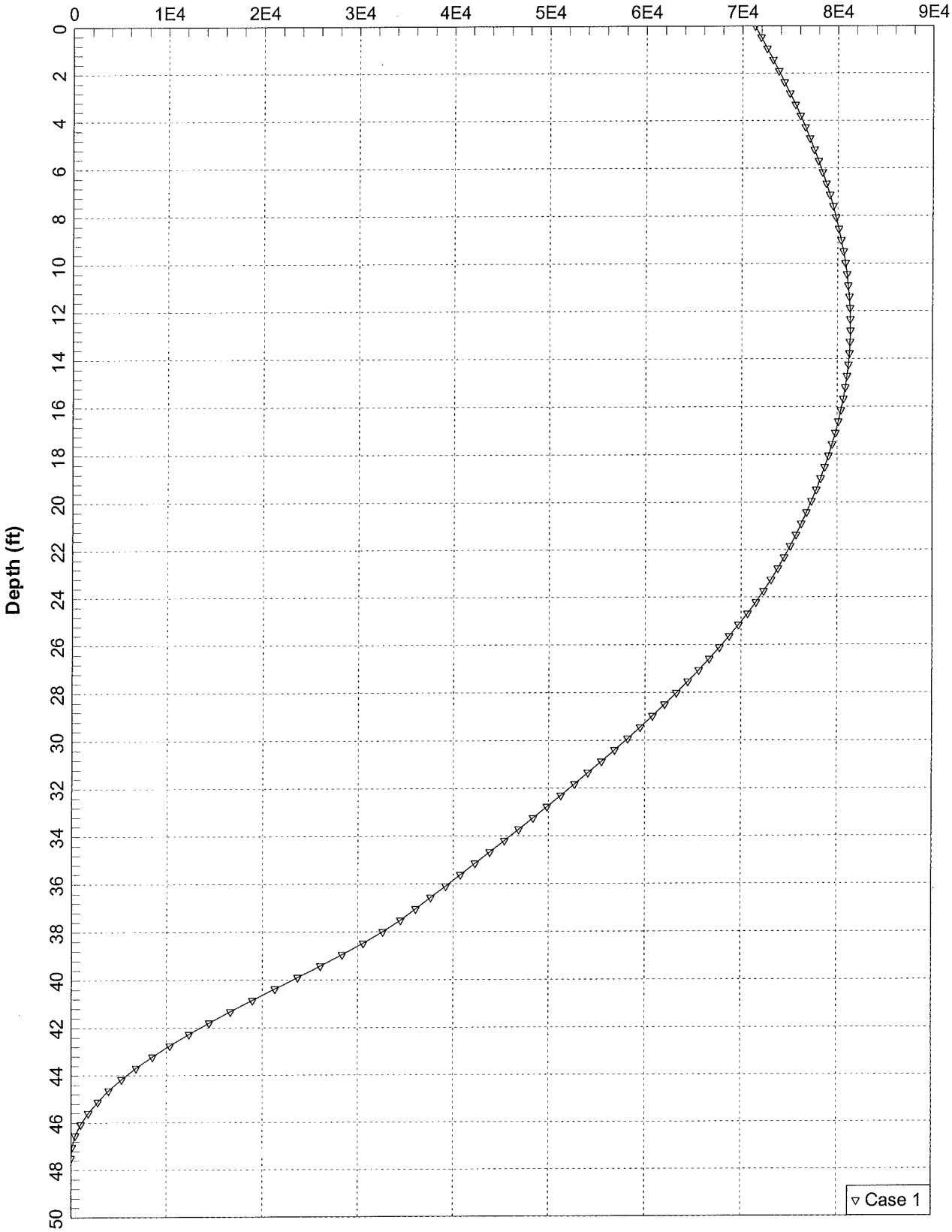
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 13

Lateral Deflection (in)



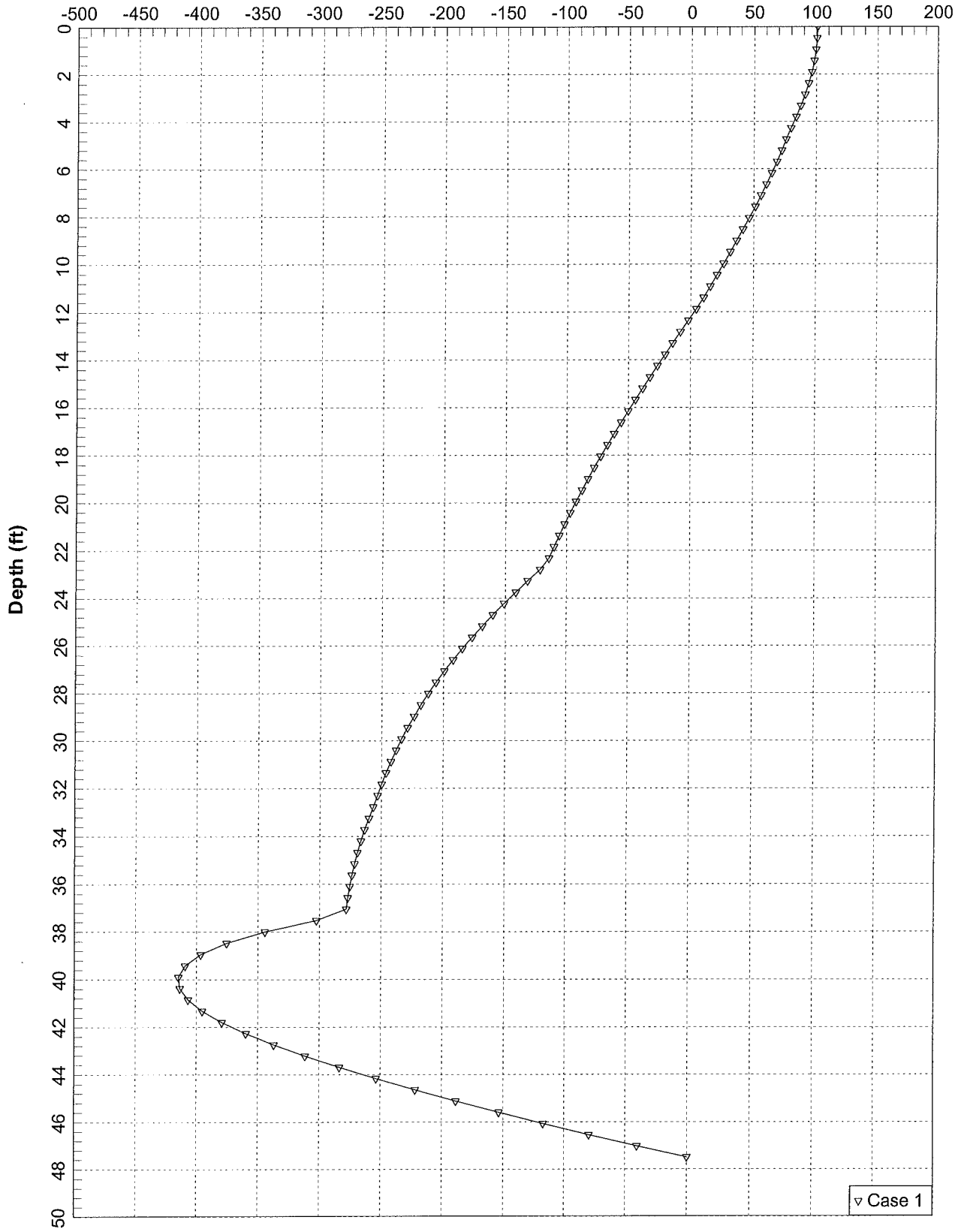
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 13

Unfactored Bending Moment (in-kips)

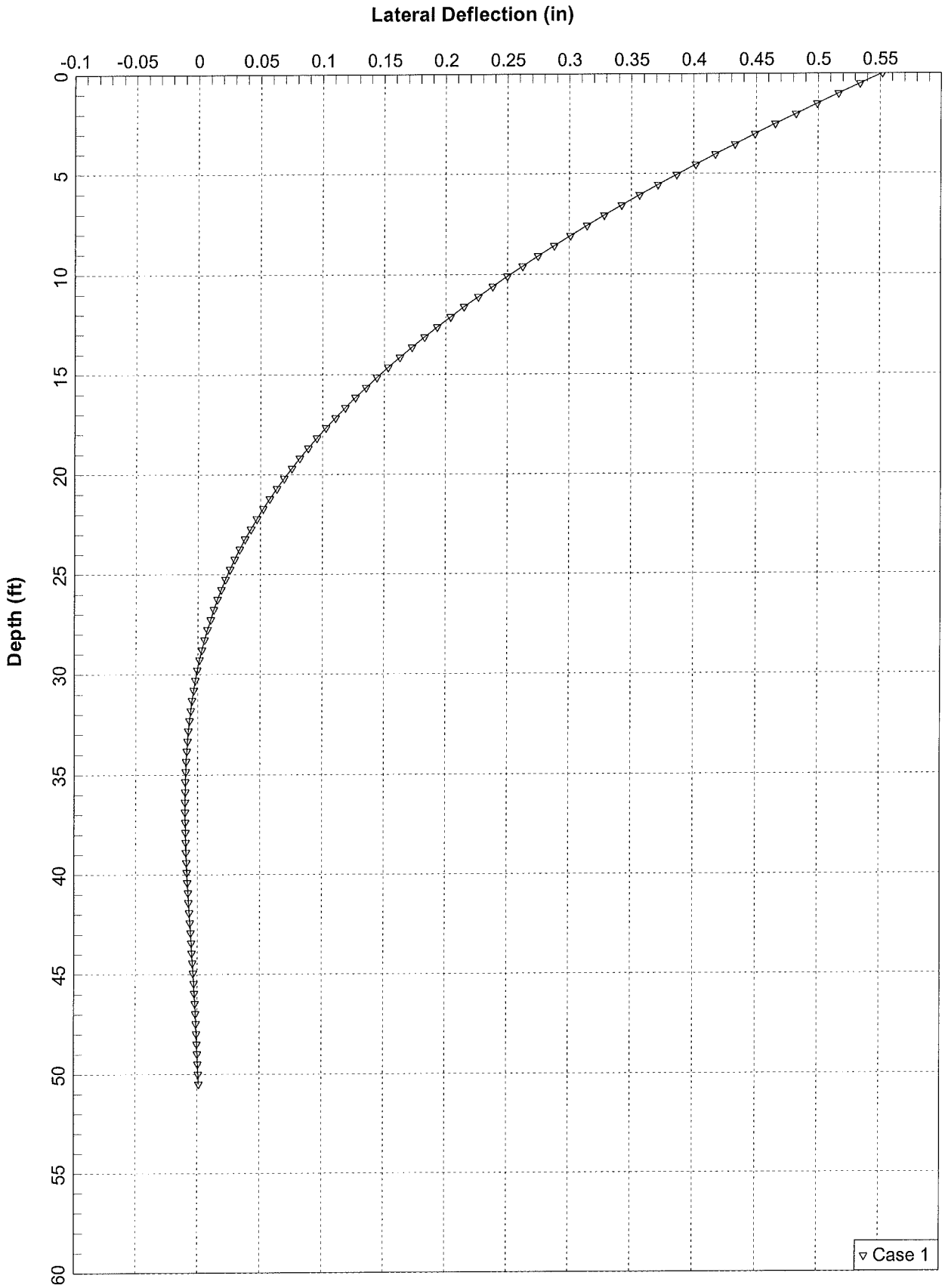


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 13

Shear Force (kips)

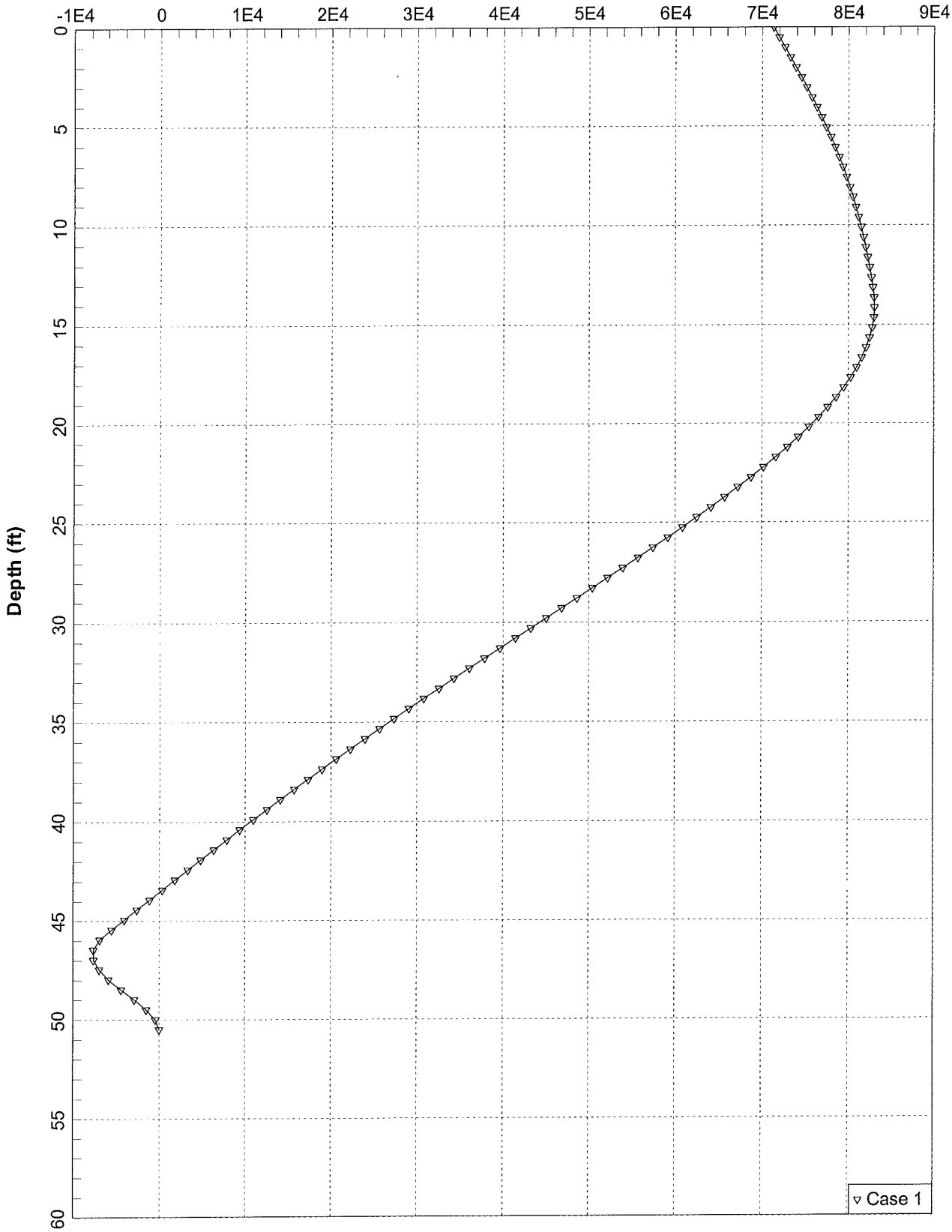


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 14



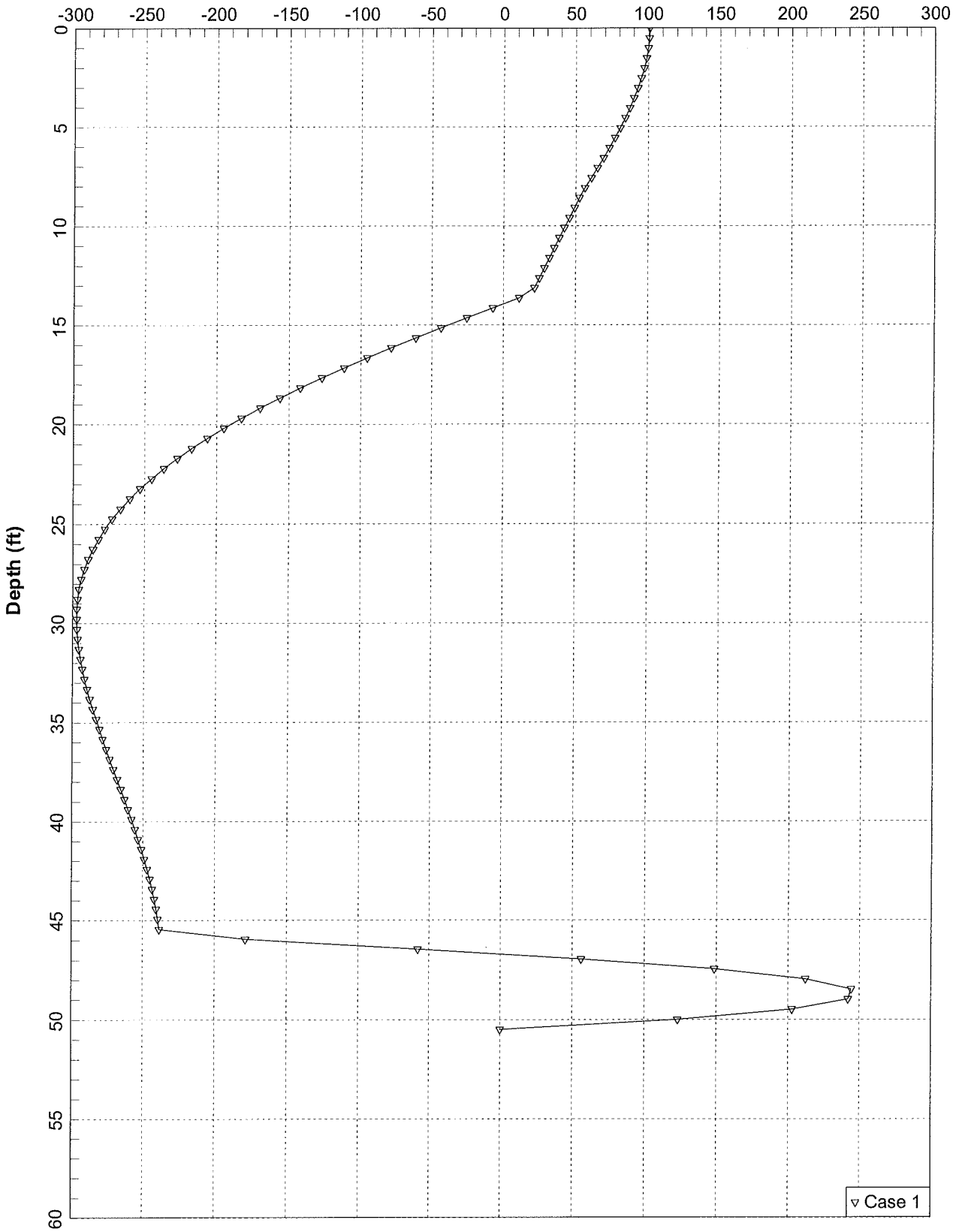
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 14

Unfactored Bending Moment (in-kips)



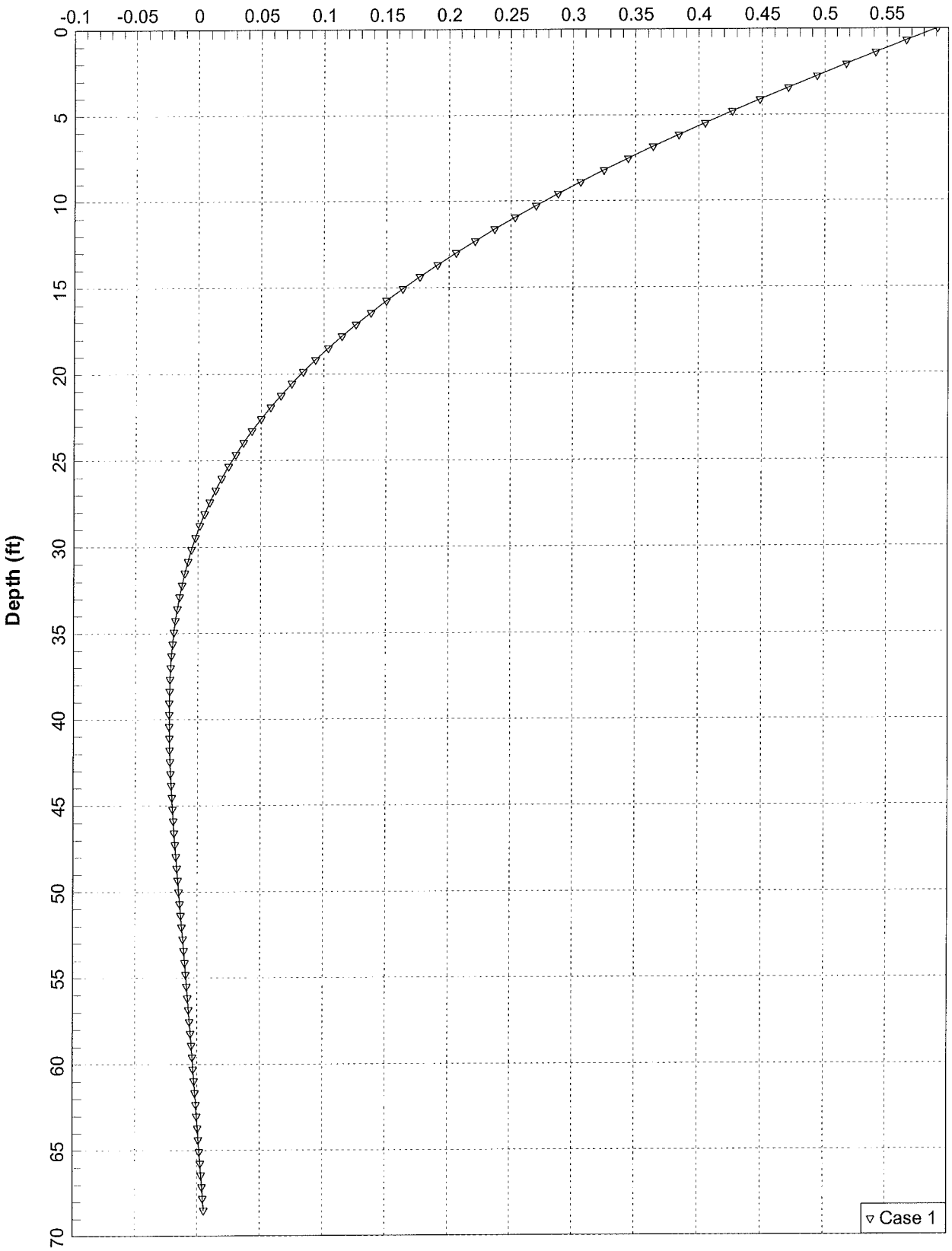
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 14

Shear Force (kips)



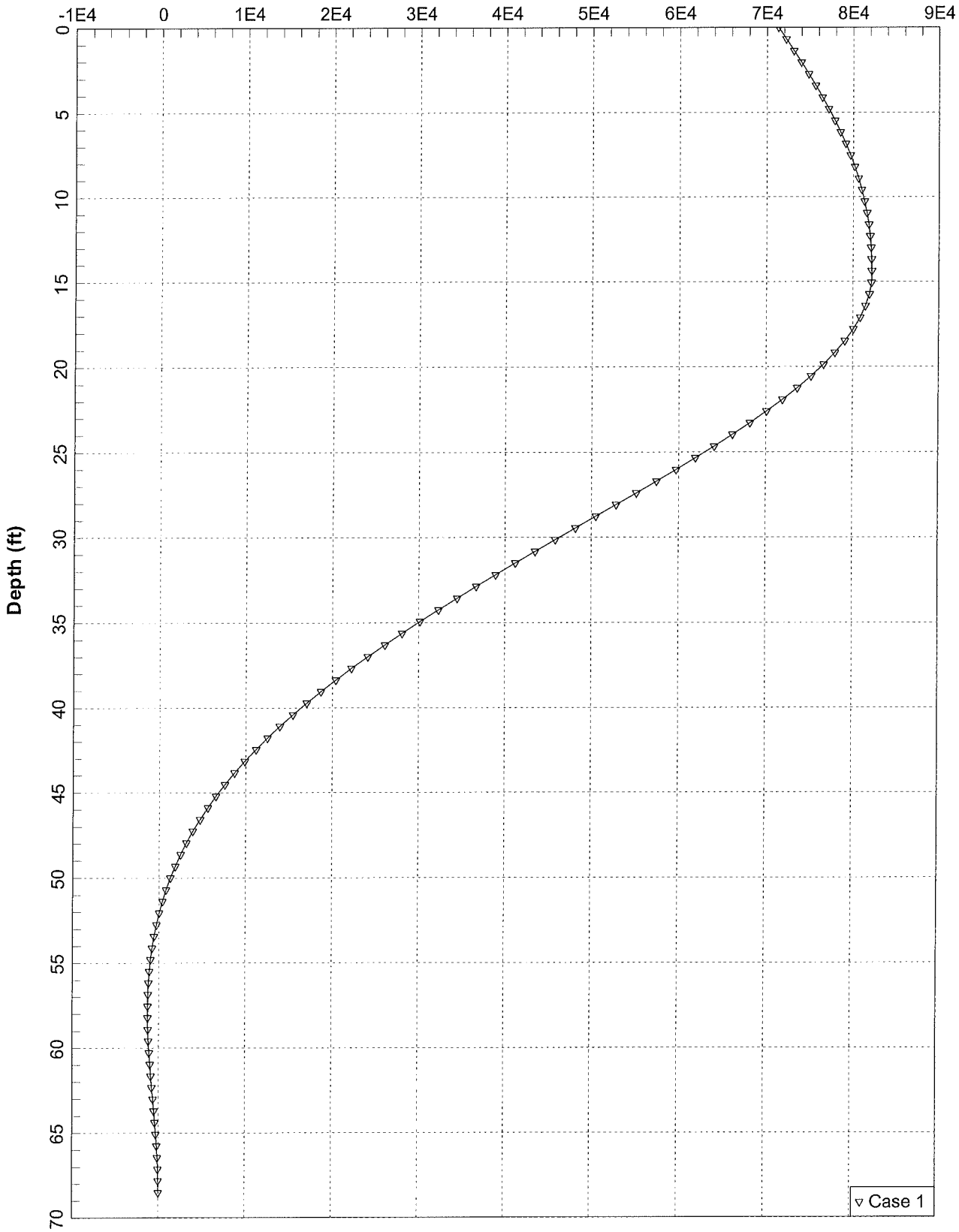
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 15

Lateral Deflection (in)



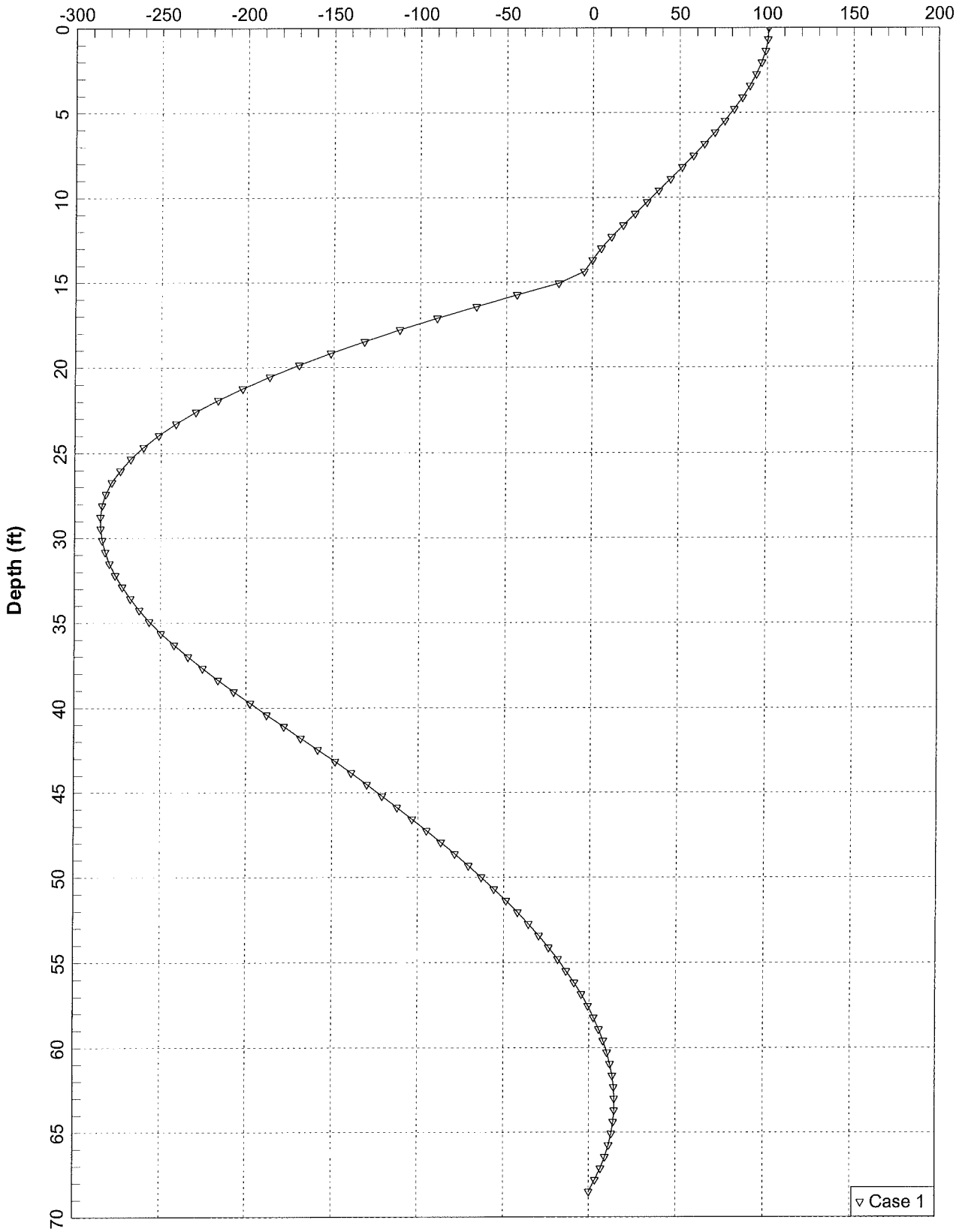
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 15

Unfactored Bending Moment (in-kips)



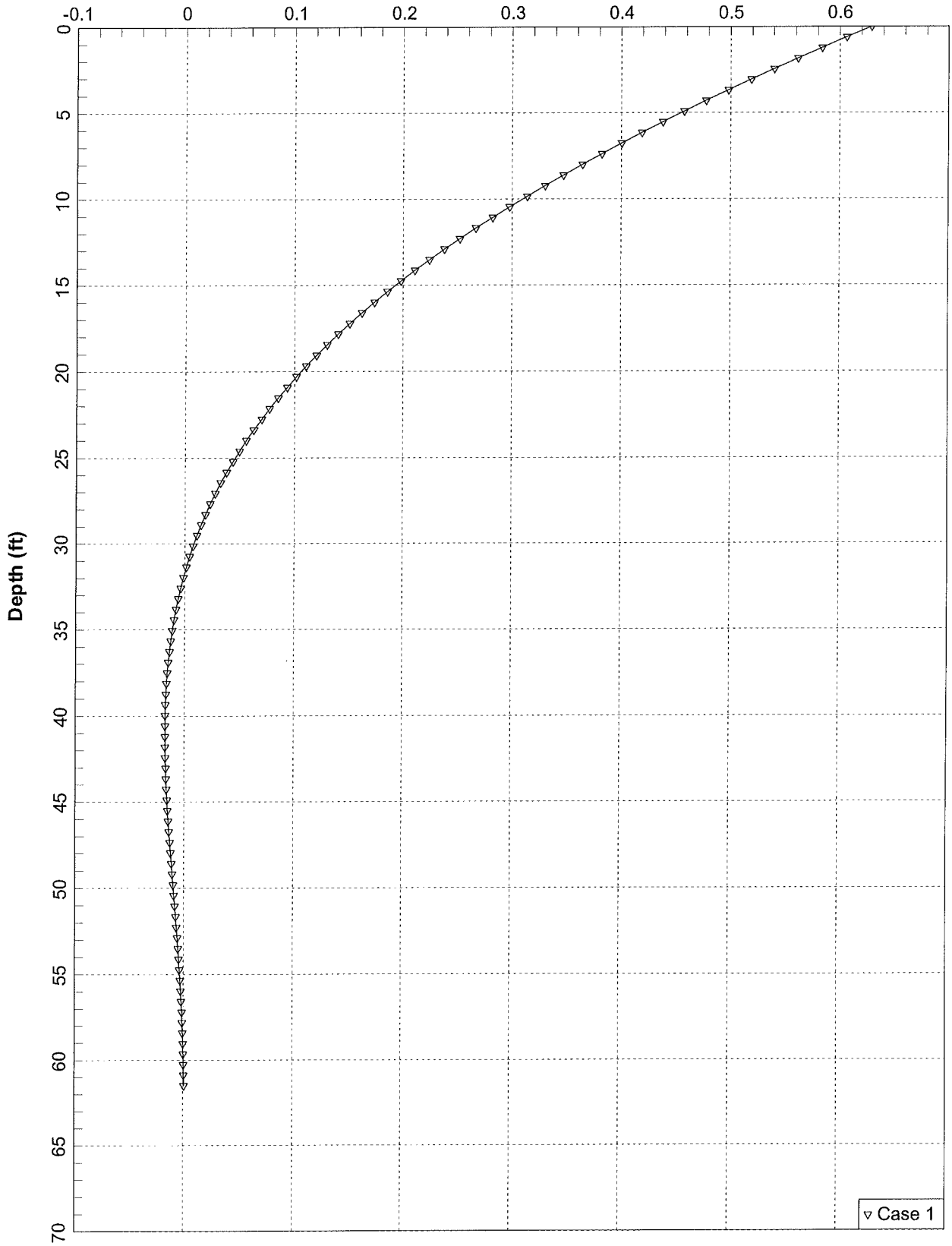
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 15

Shear Force (kips)



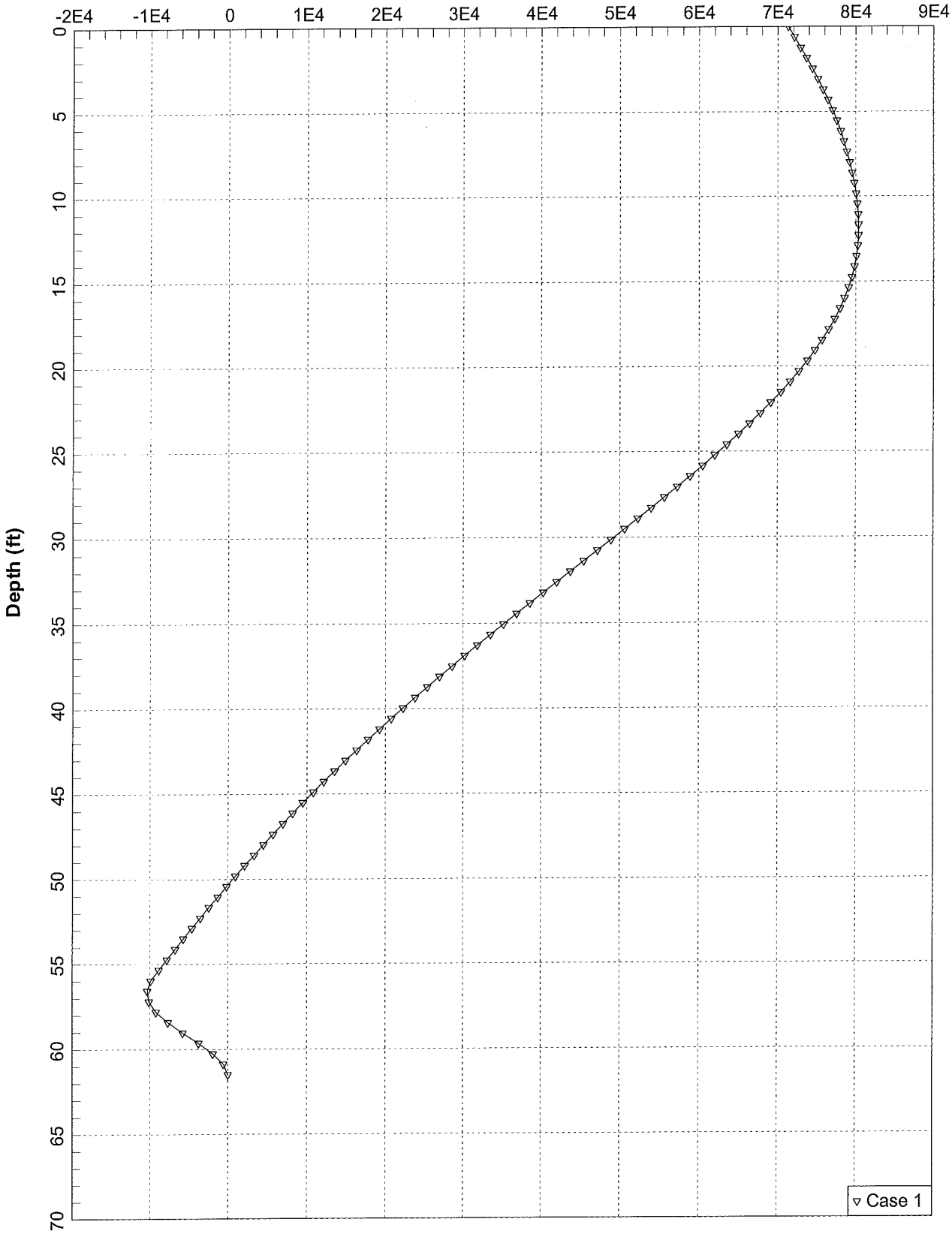
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 16

Lateral Deflection (in)



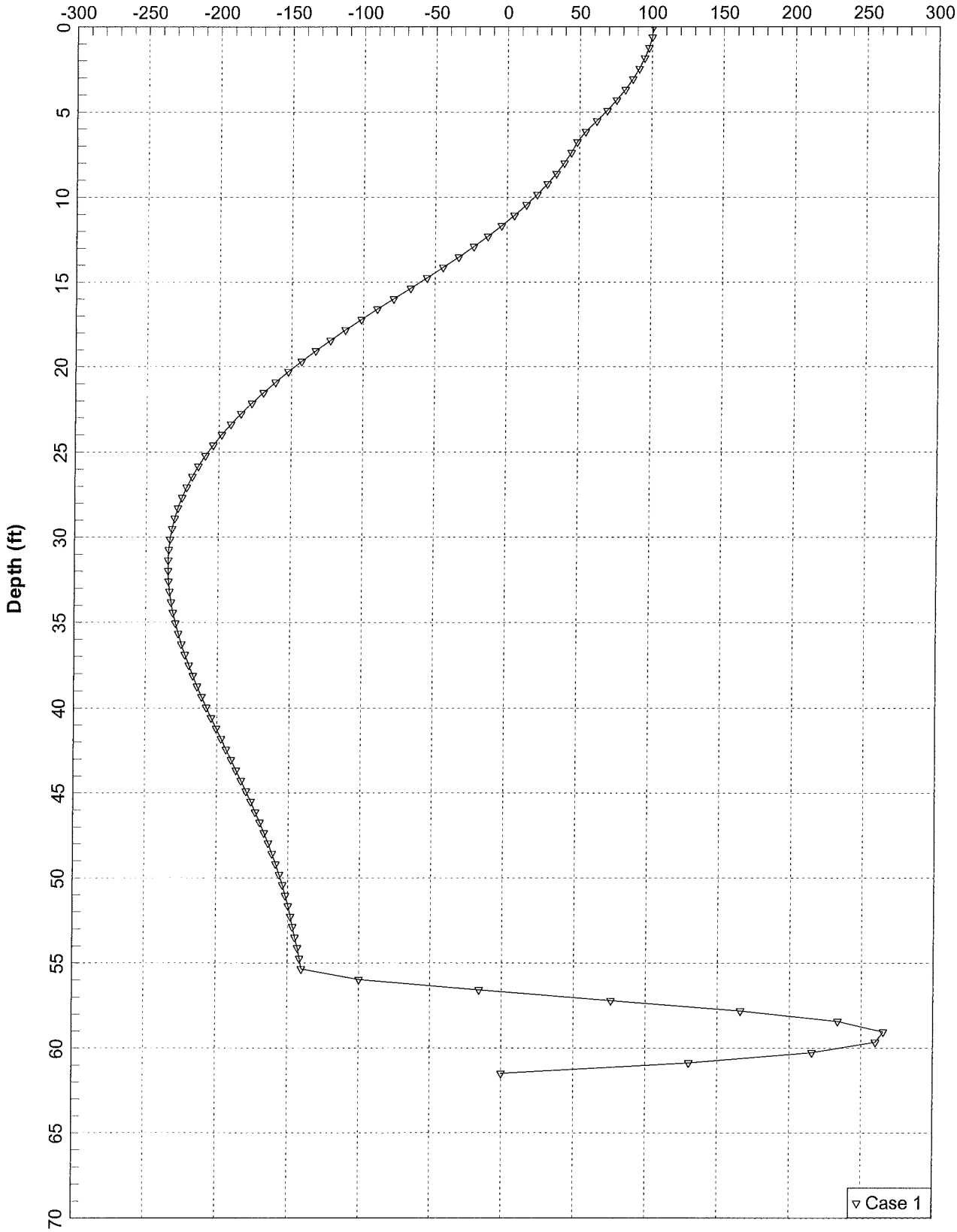
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 16

Unfactored Bending Moment (in-kips)

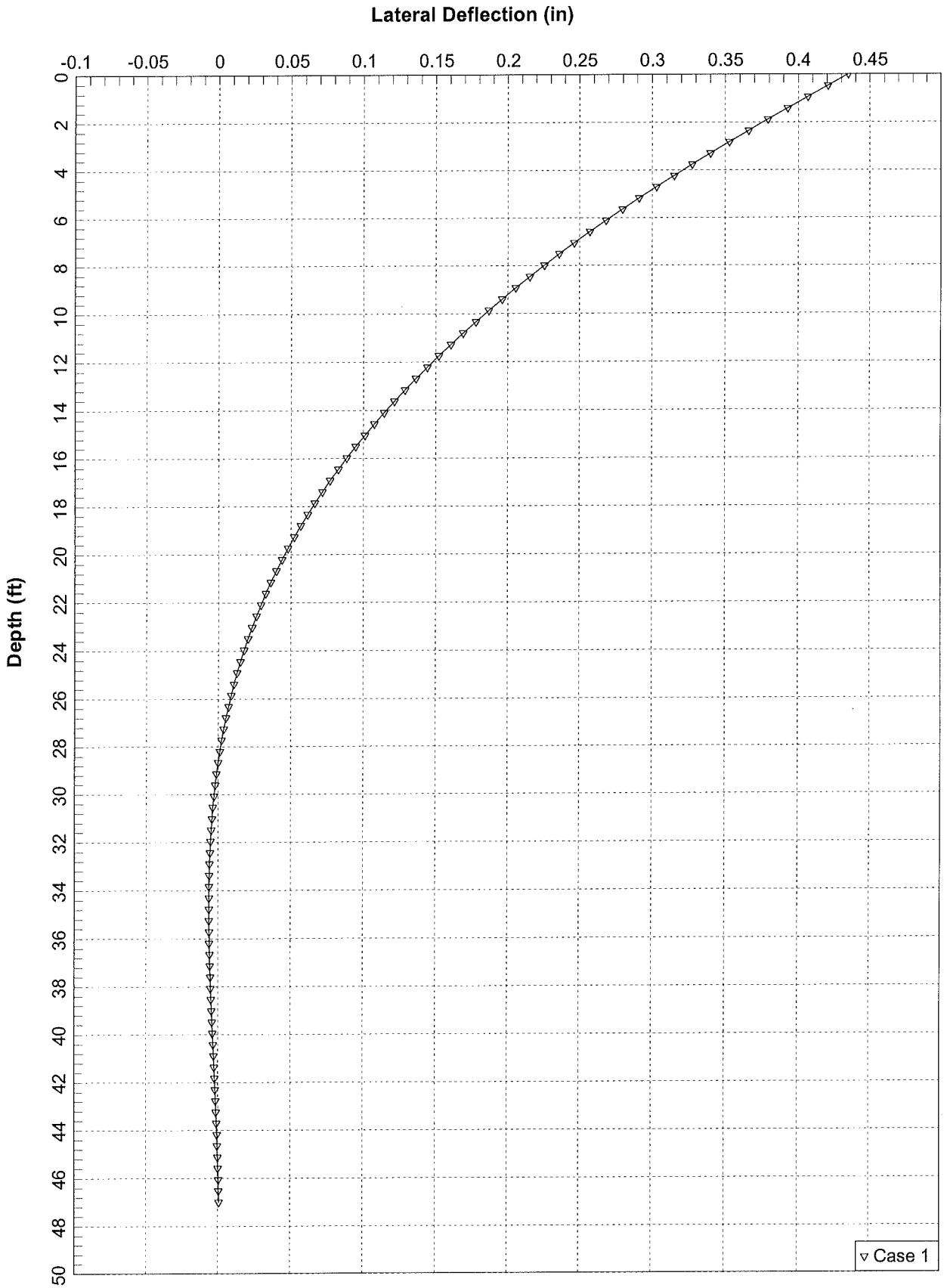


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent 16

Shear Force (kips)

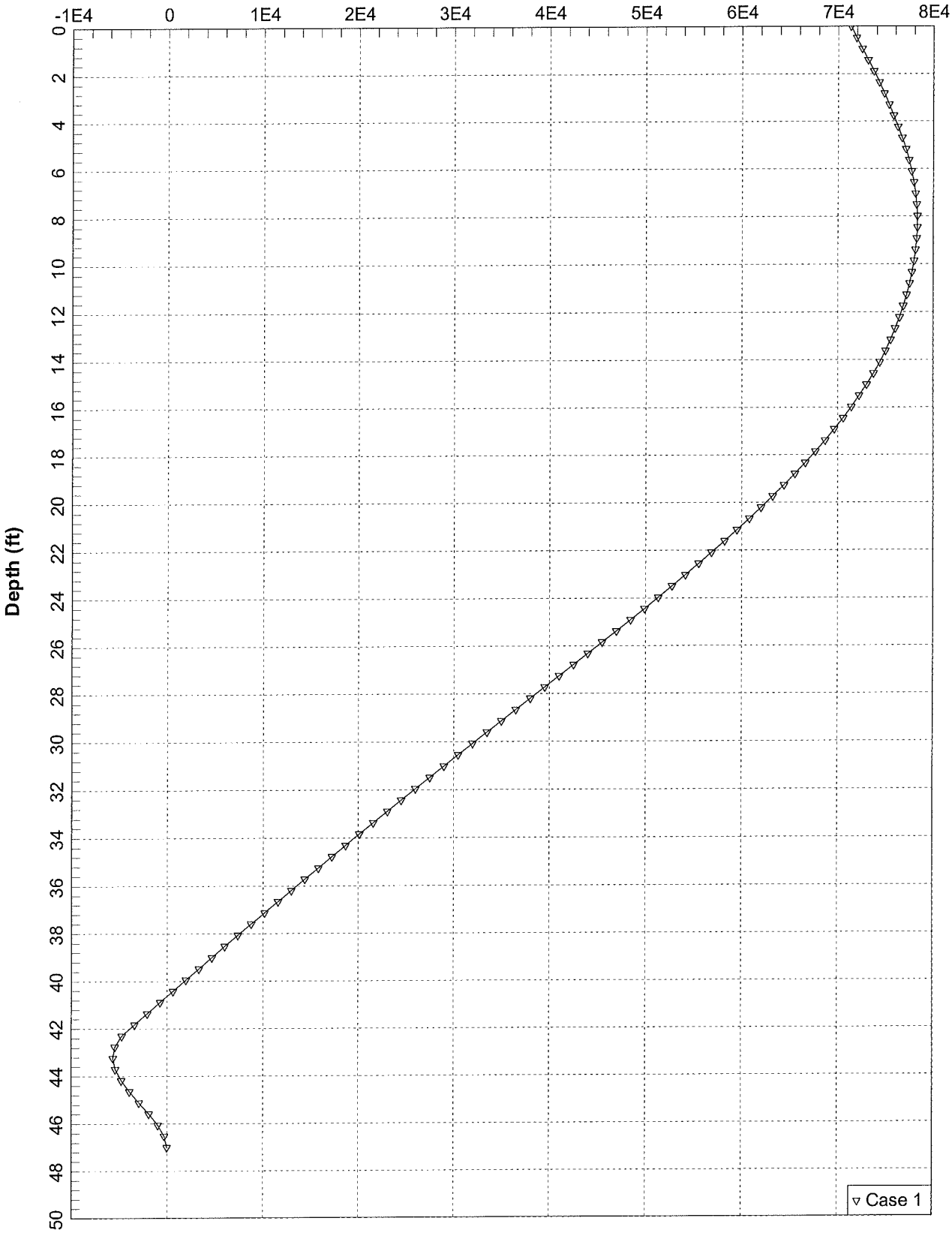


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 19



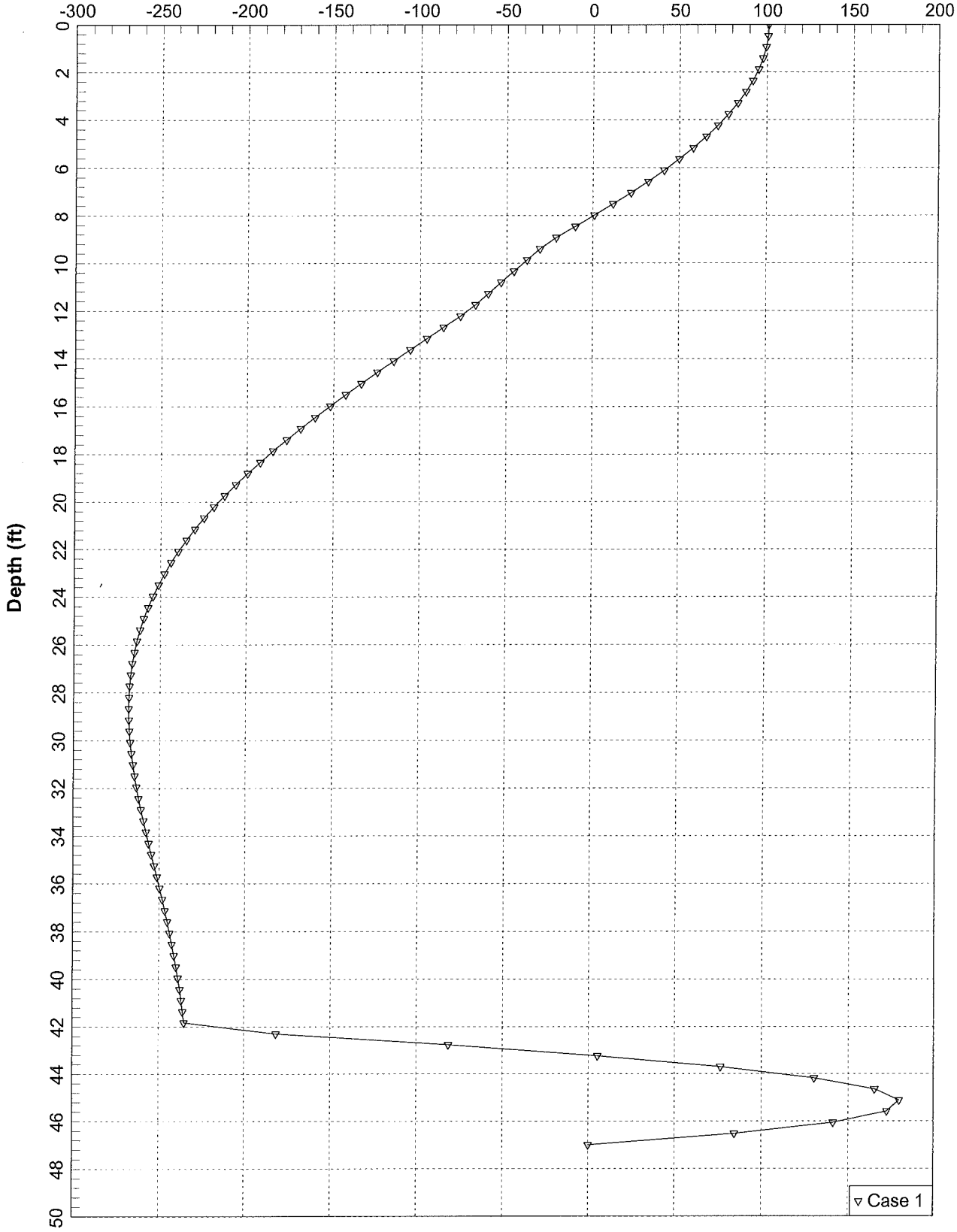
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 19

Unfactored Bending Moment (in-kips)

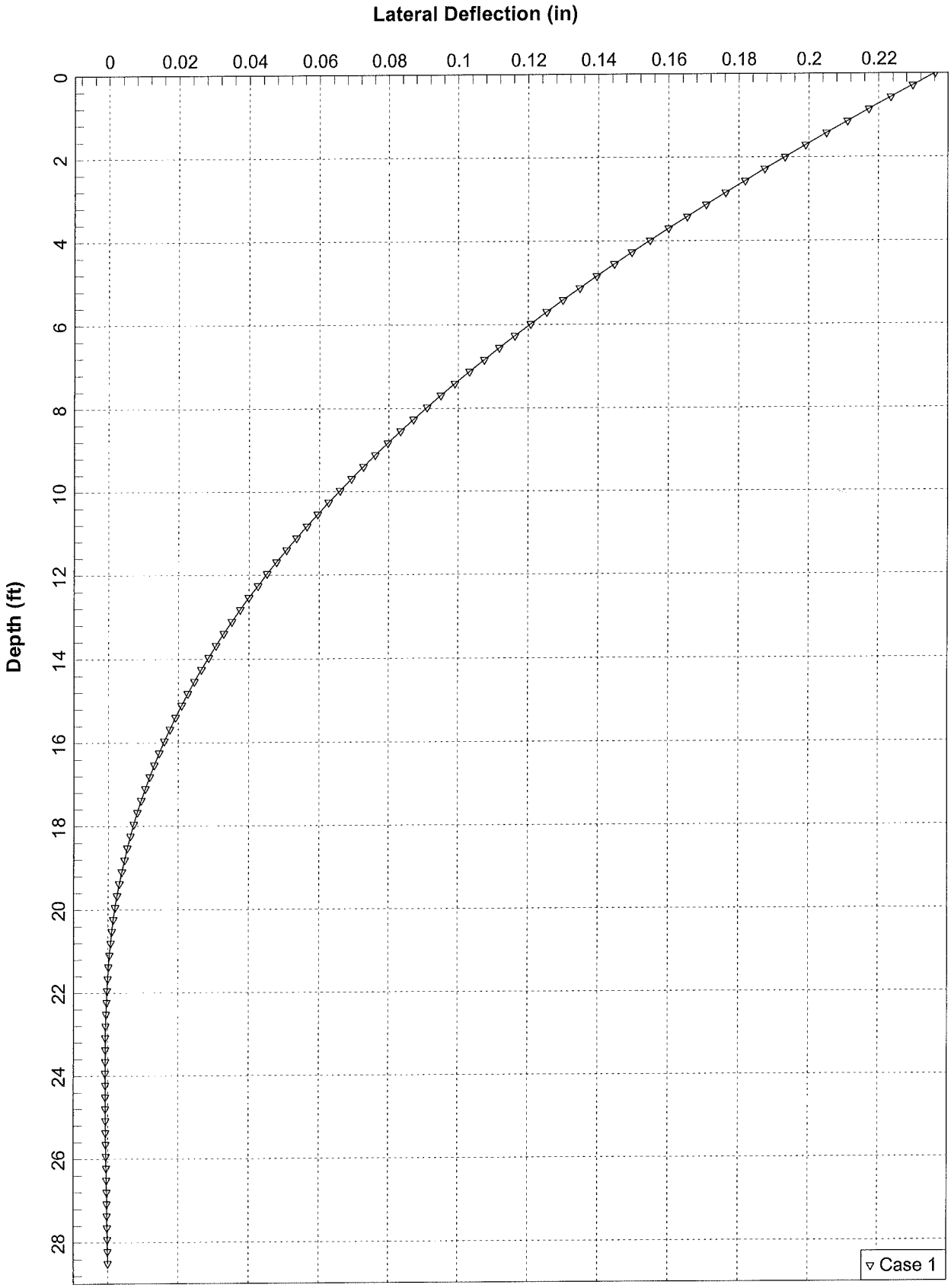


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 19

Shear Force (kips)

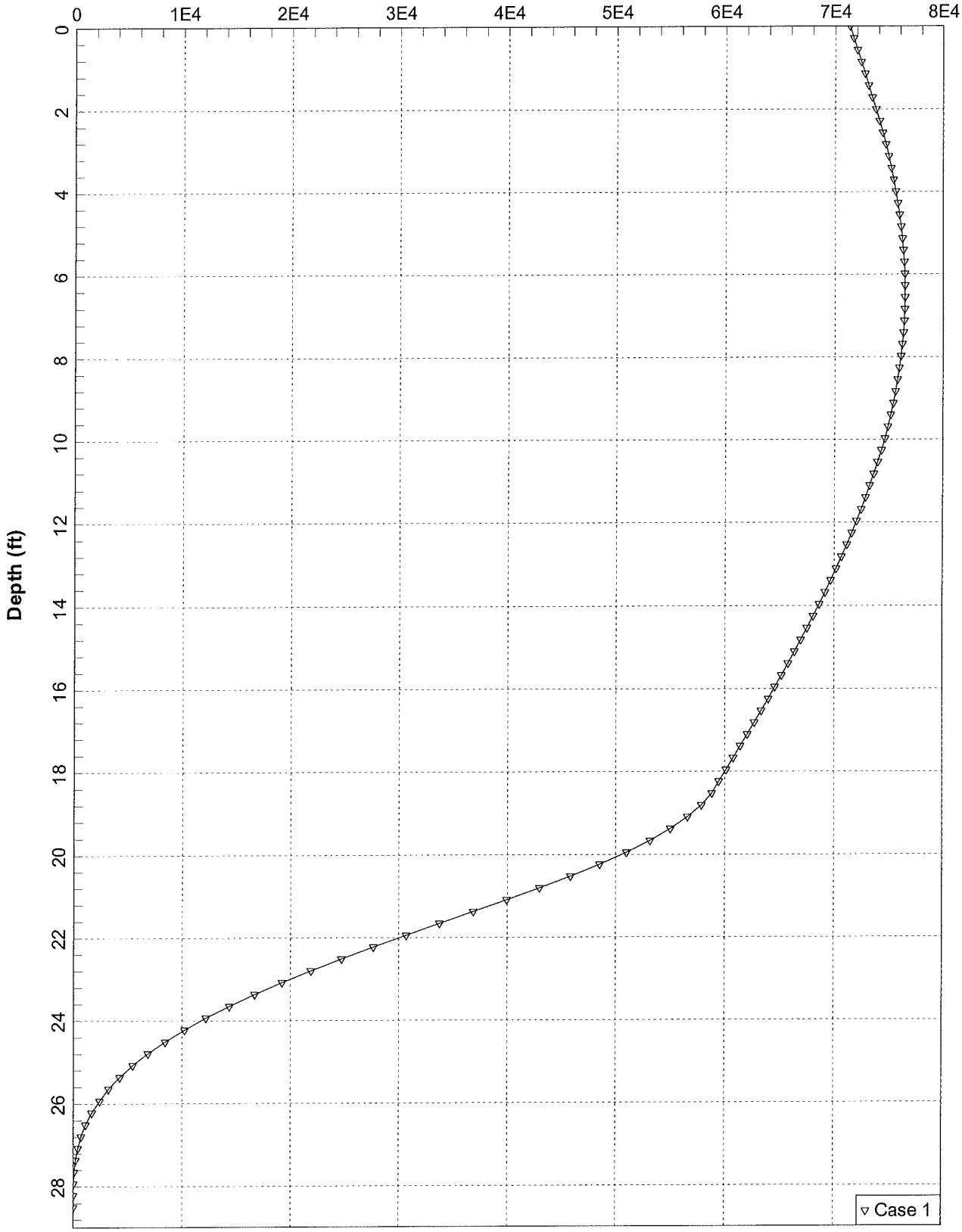


Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 34



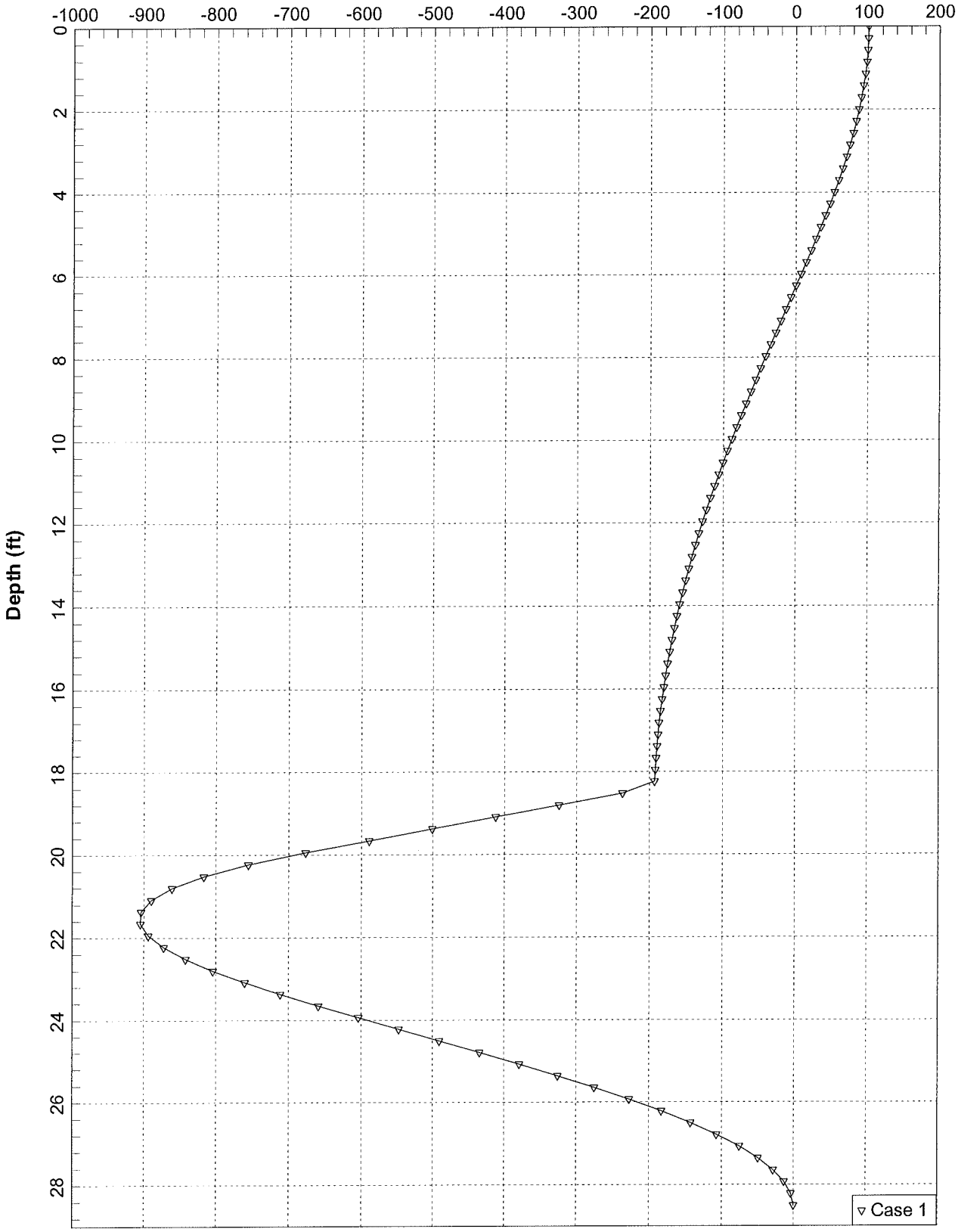
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 34

Unfactored Bending Moment (in-kips)



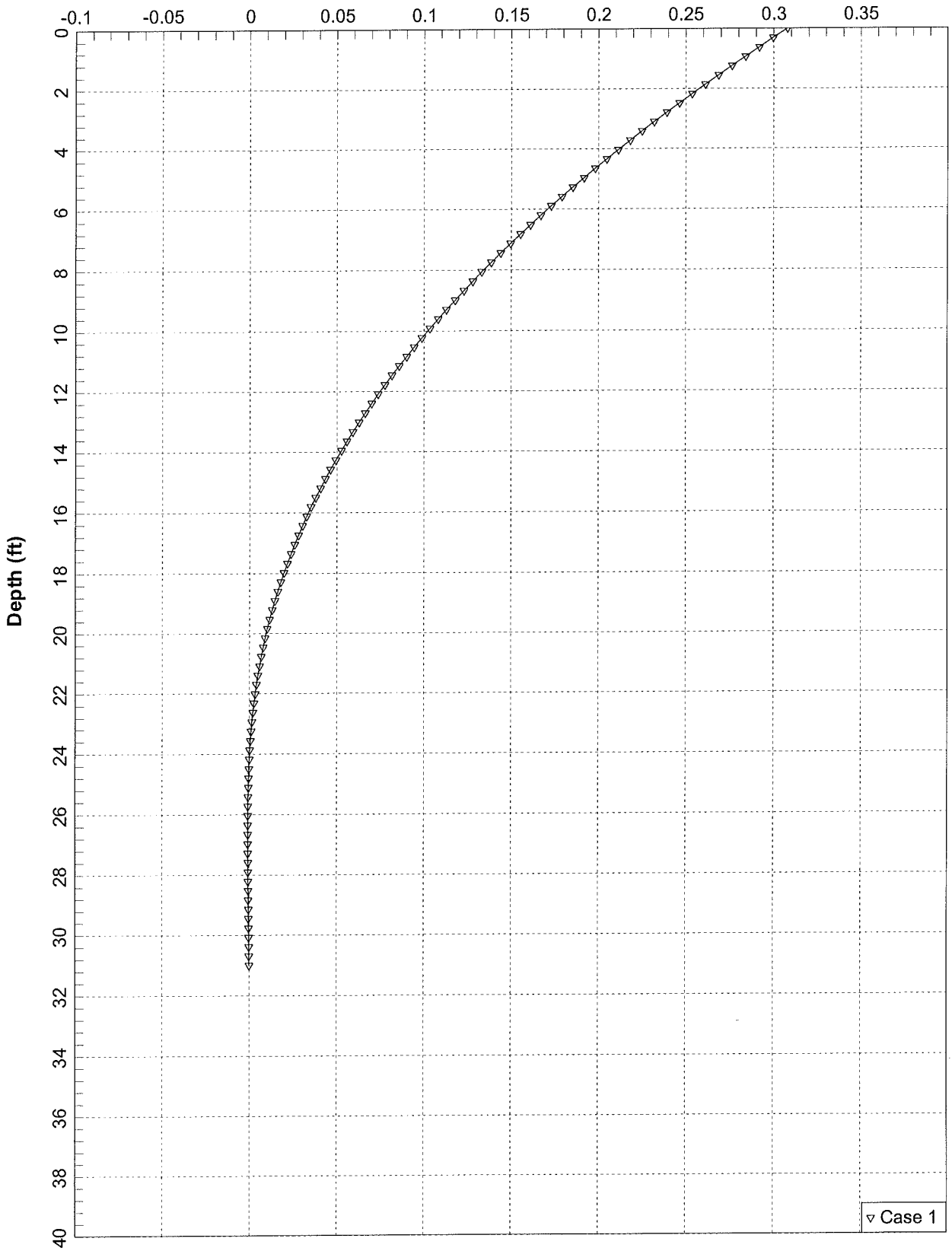
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 34

Shear Force (kips)



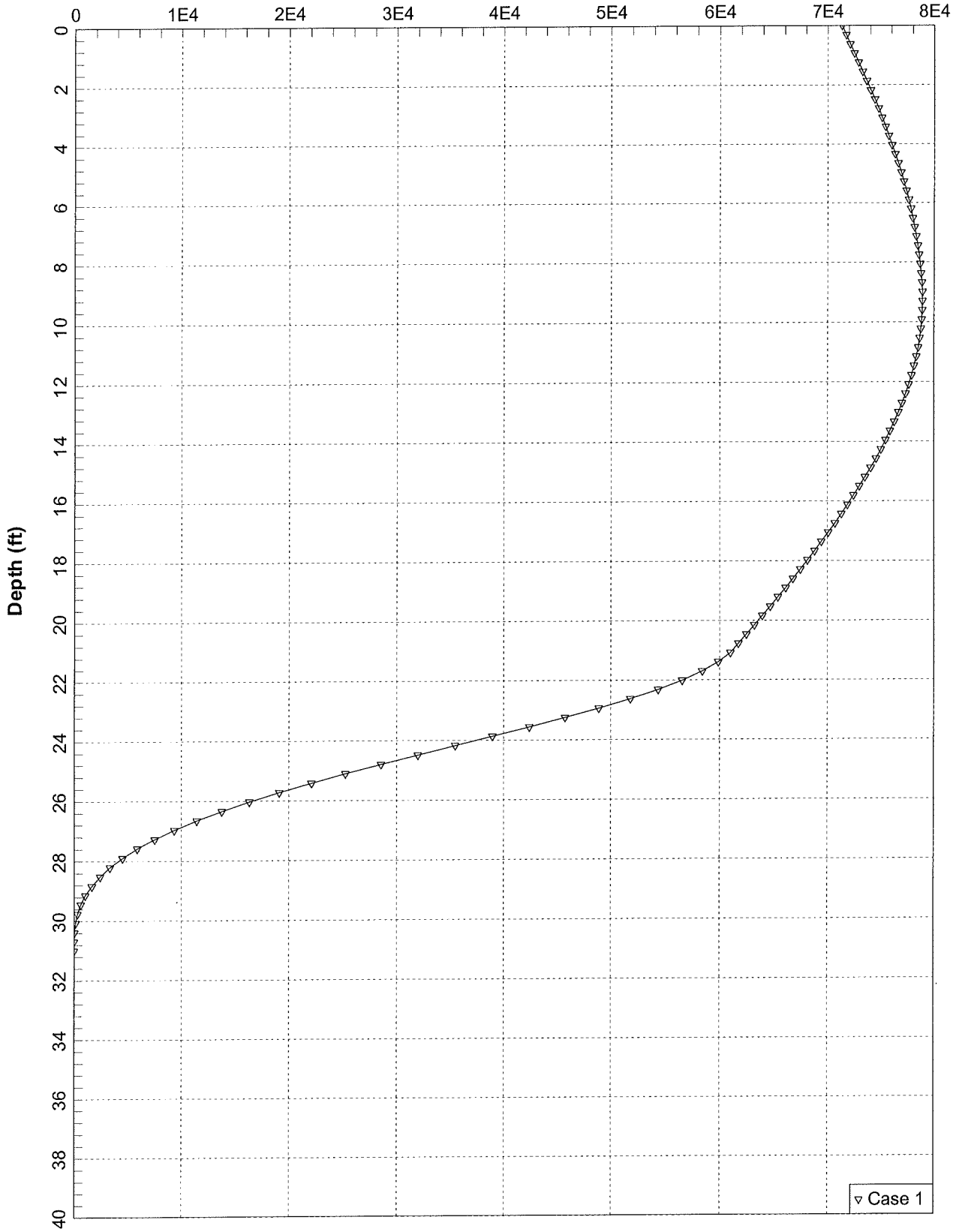
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 35

Lateral Deflection (in)



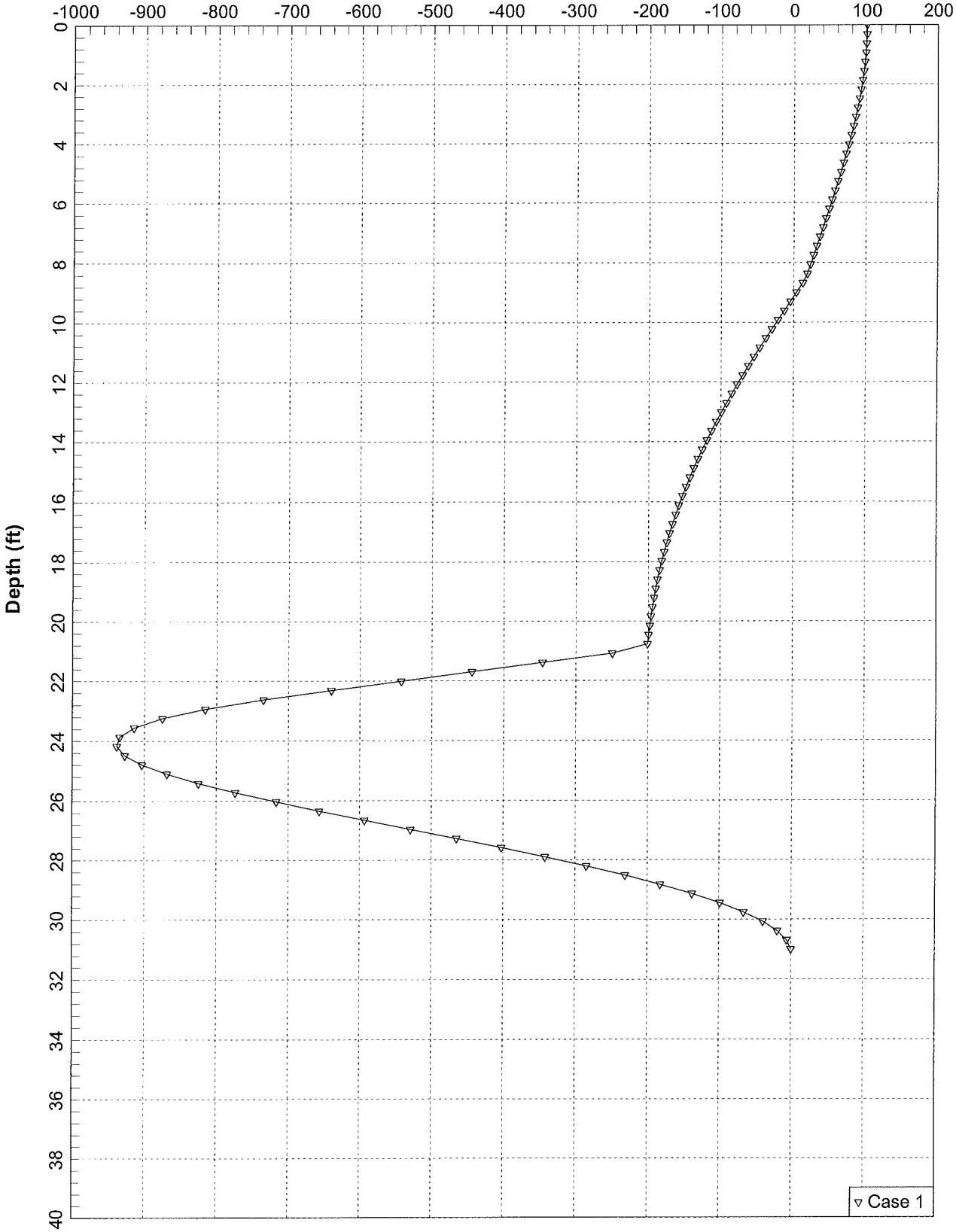
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 35

Unfactored Bending Moment (in-kips)



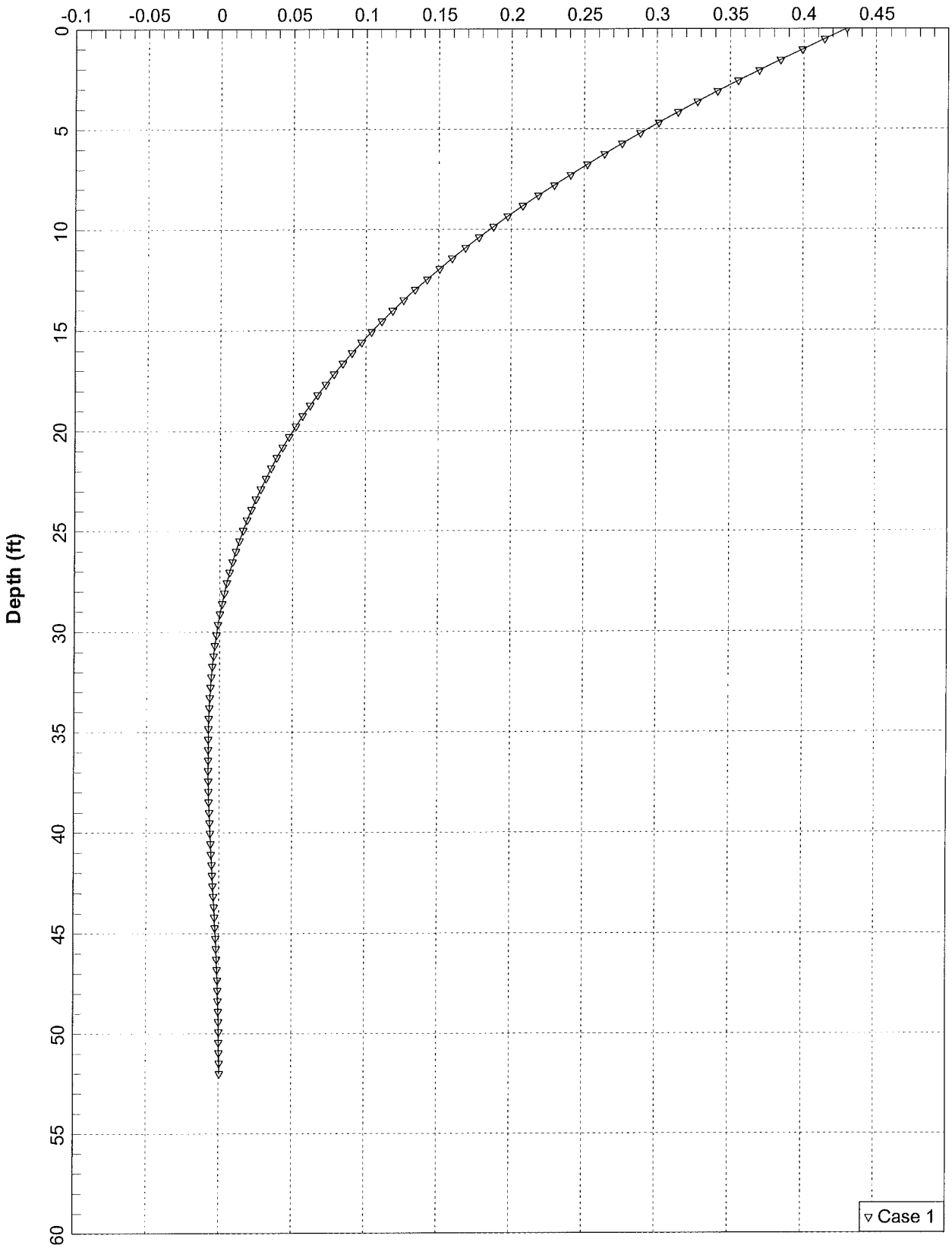
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 35

Shear Force (kips)



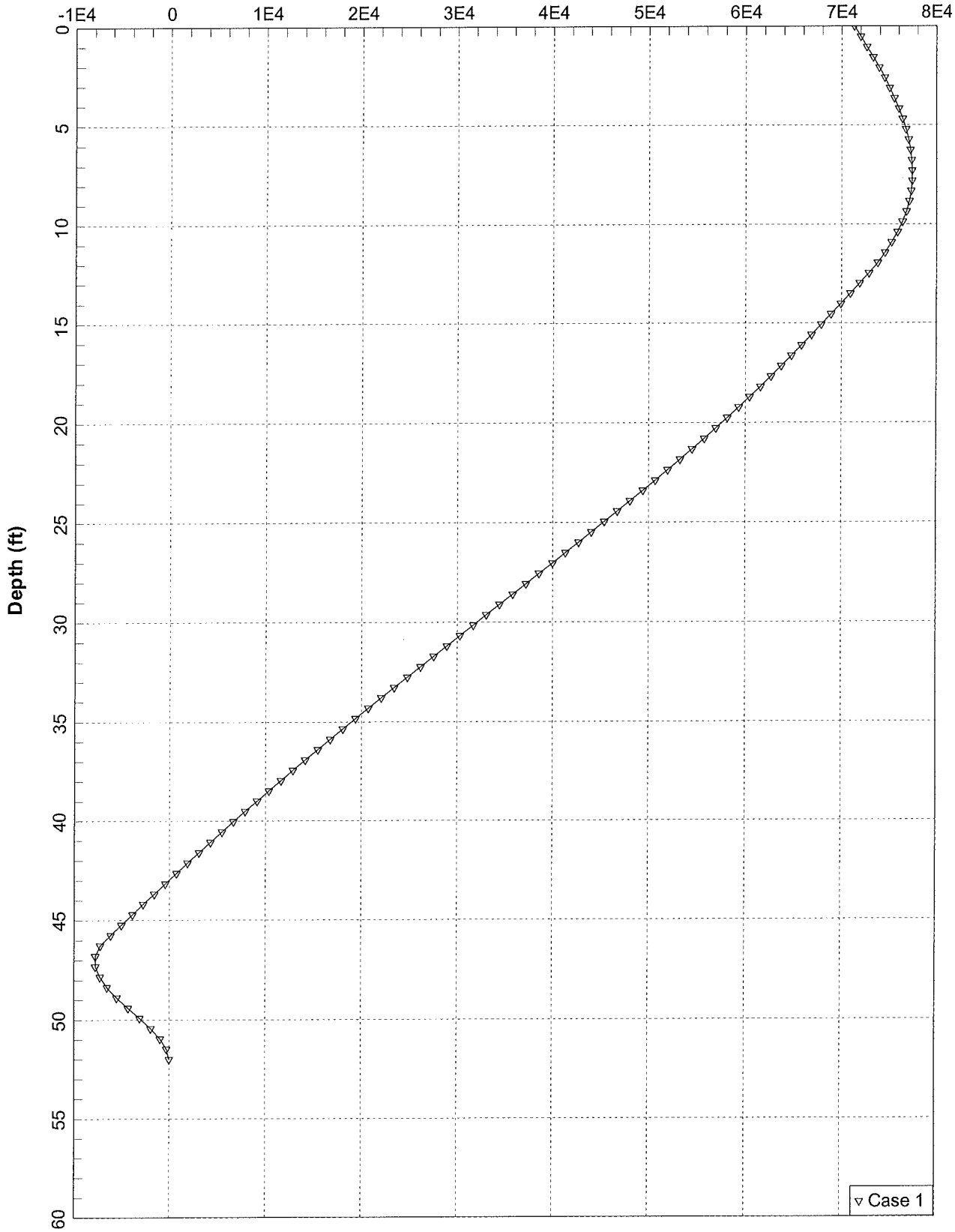
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 6

Lateral Deflection (in)



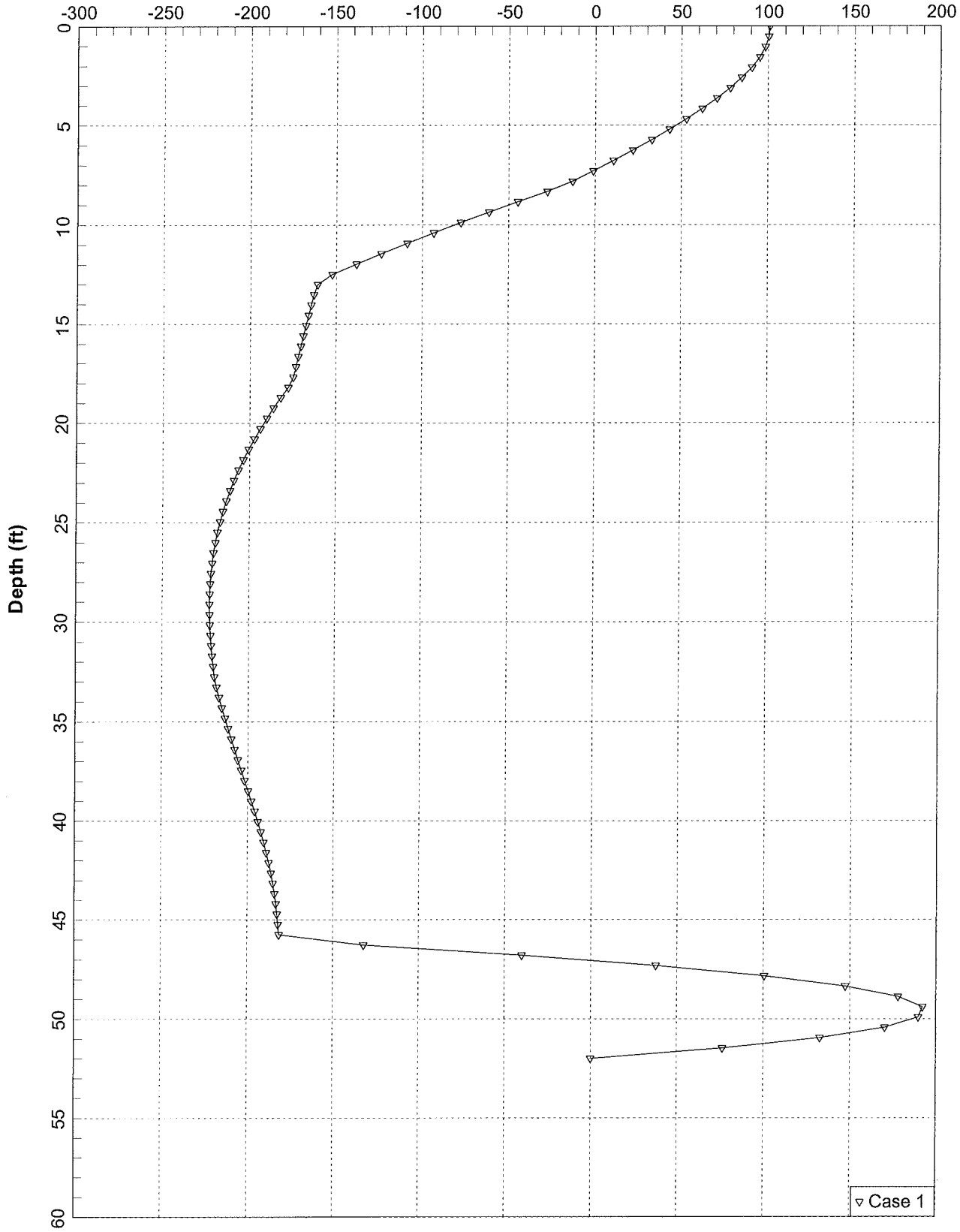
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 6

Unfactored Bending Moment (in-kips)



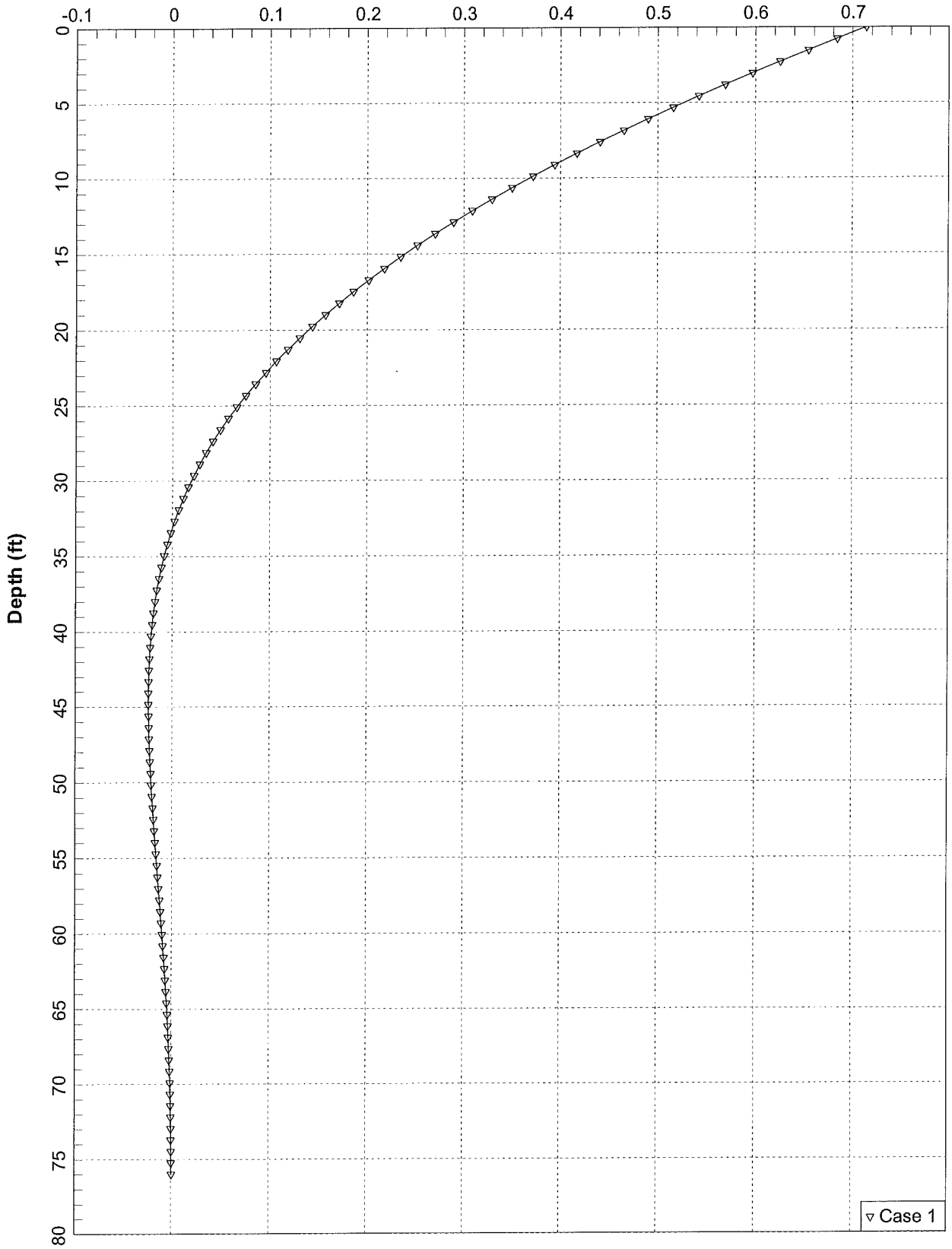
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 6

Shear Force (kips)



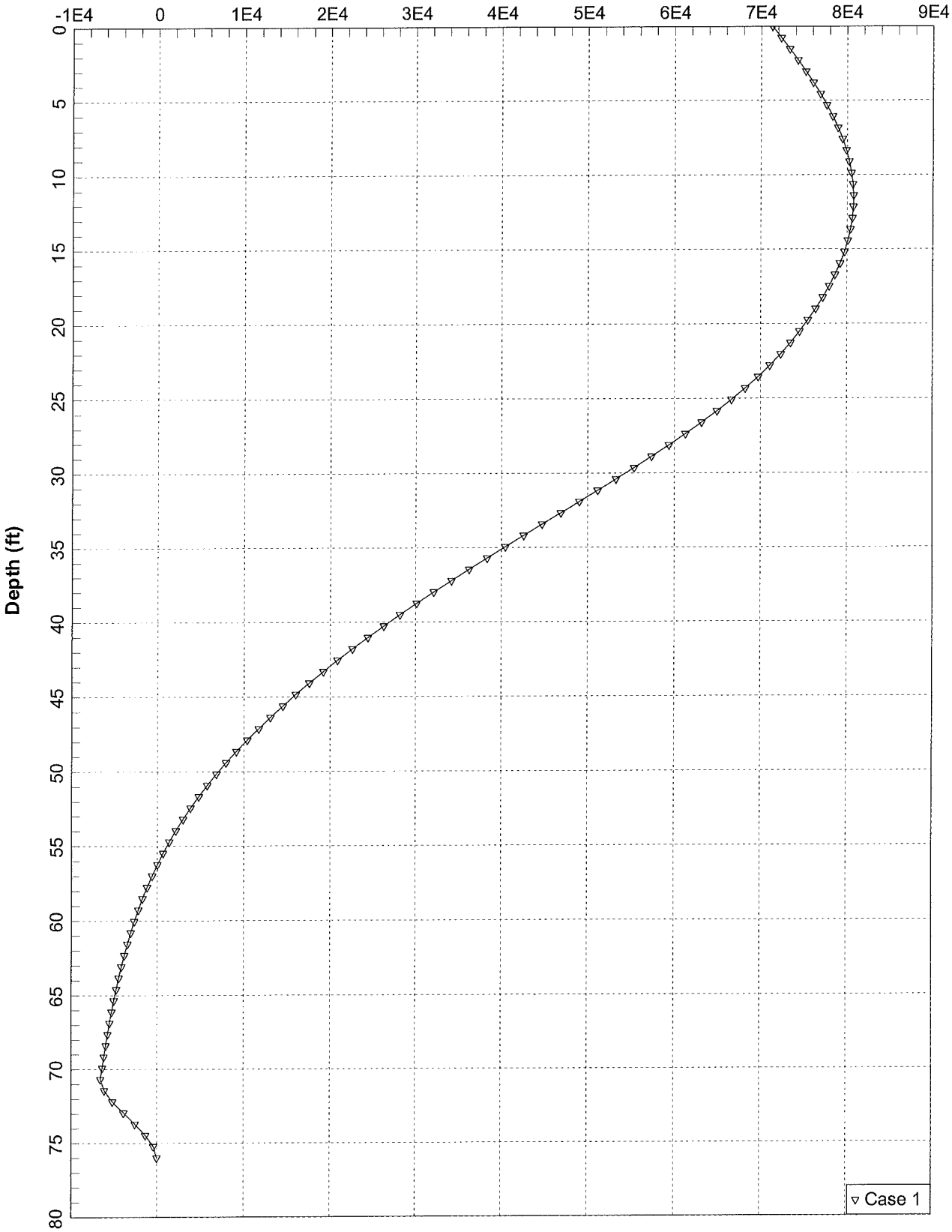
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 7

Lateral Deflection (in)



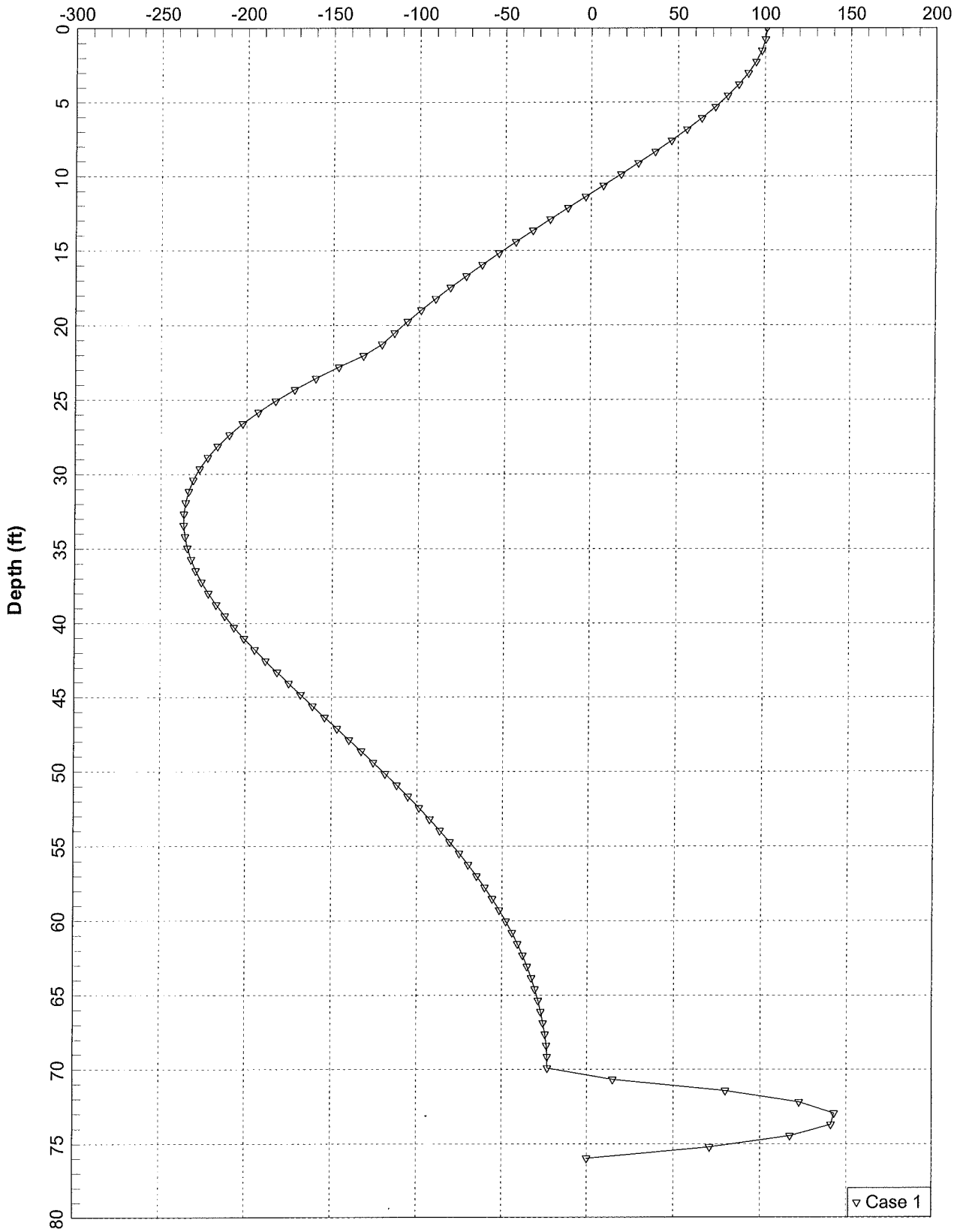
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 7

Unfactored Bending Moment (in-kips)



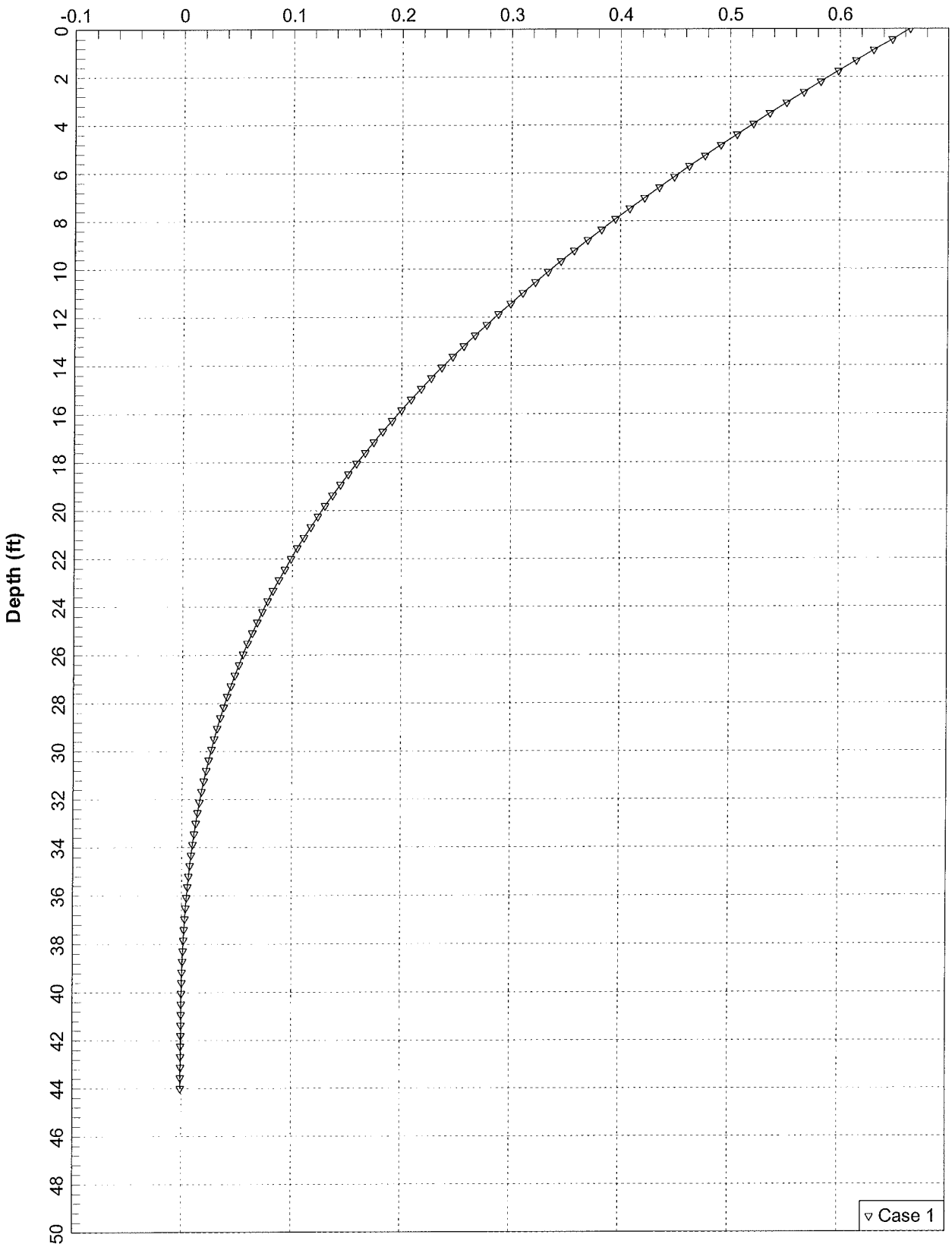
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 7

Shear Force (kips)



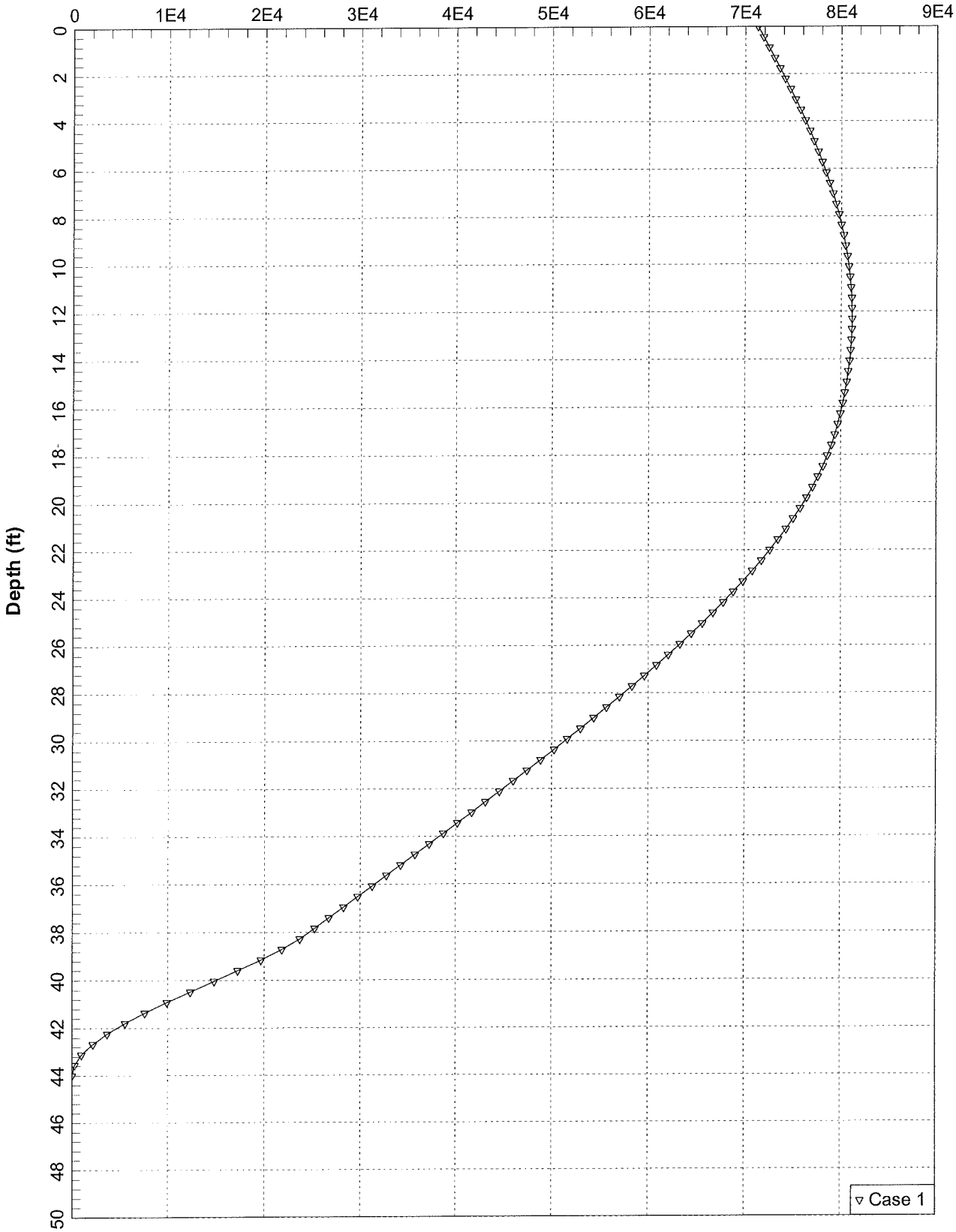
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 8

Lateral Deflection (in)



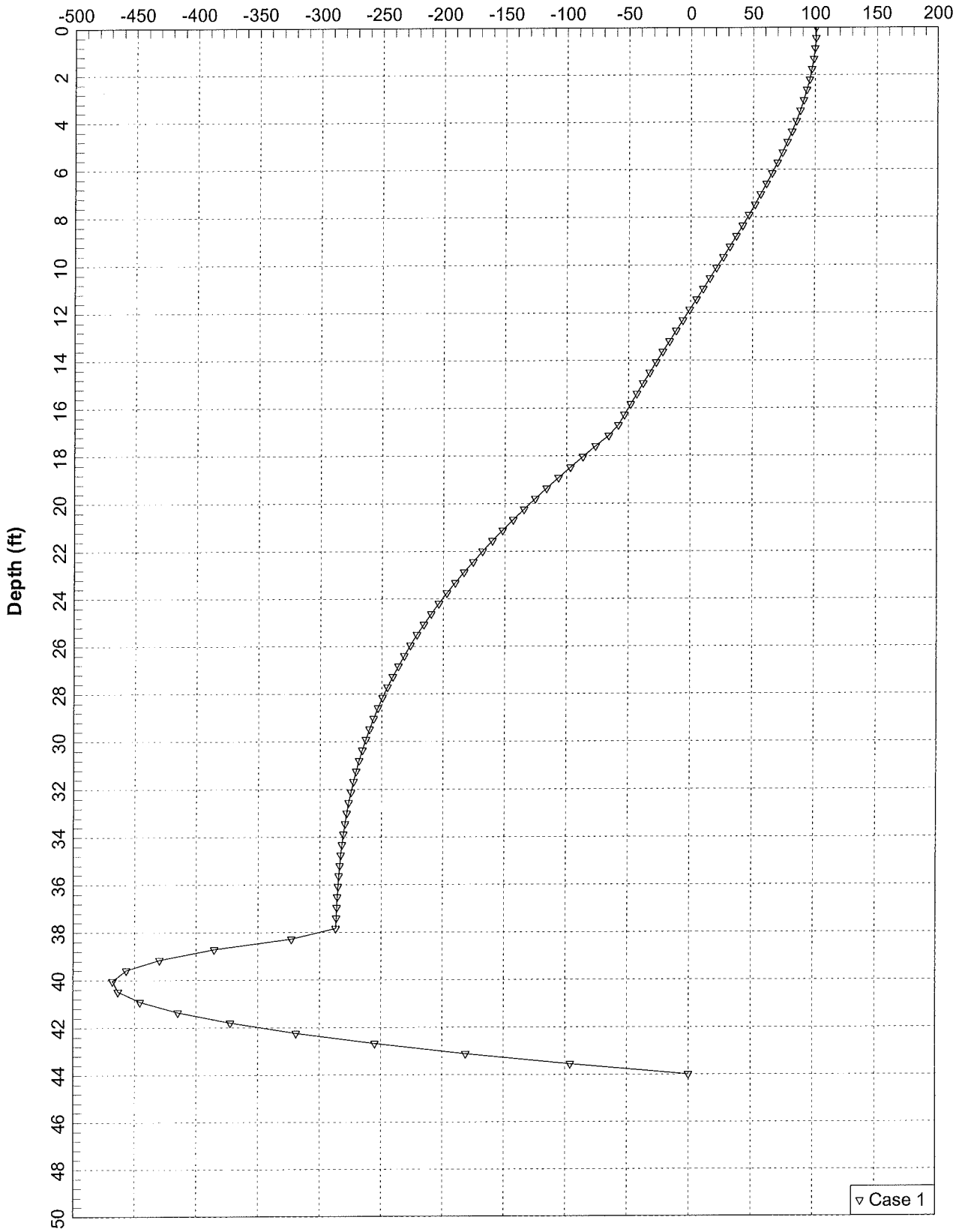
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 8

Unfactored Bending Moment (in-kips)



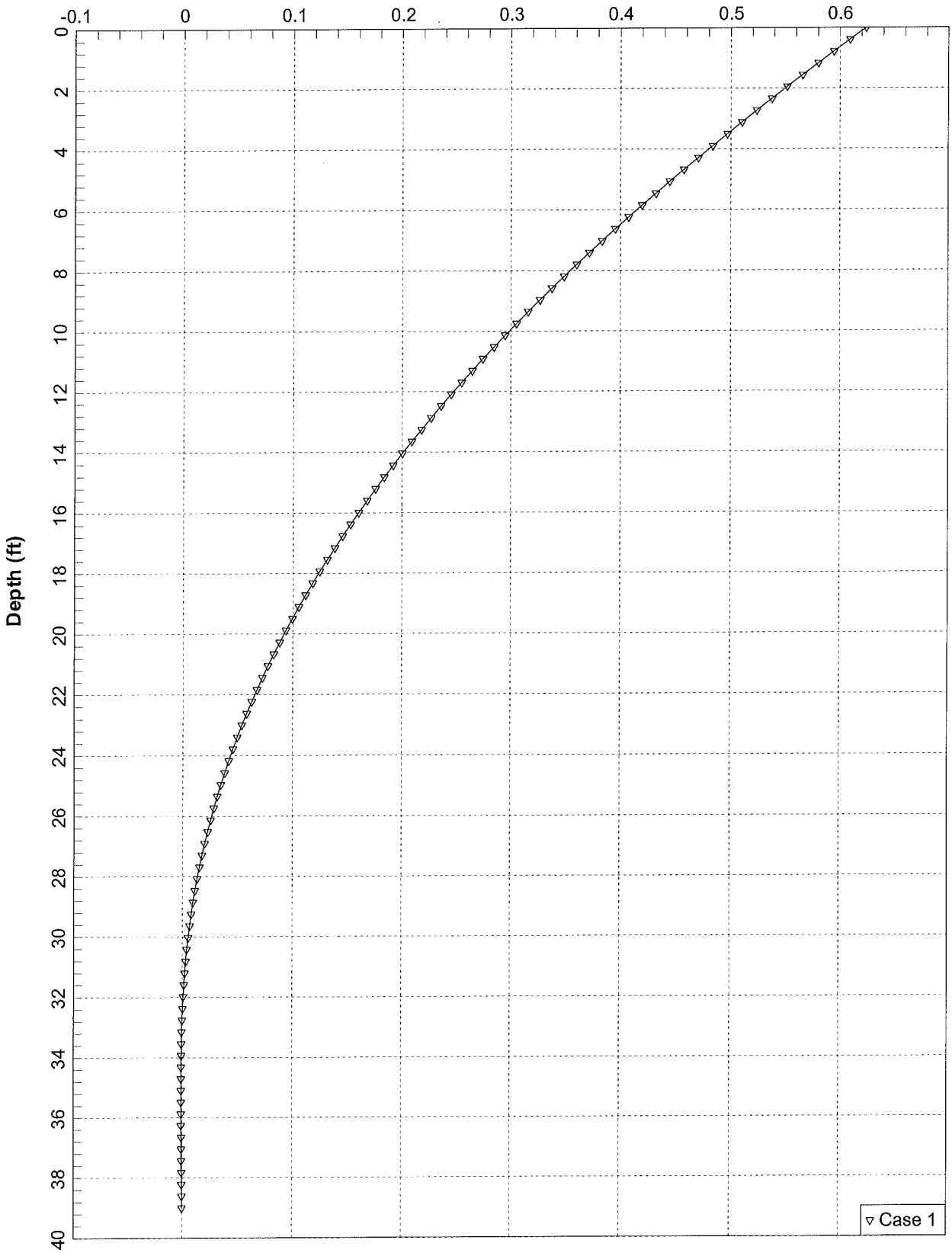
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 8

Shear Force (kips)



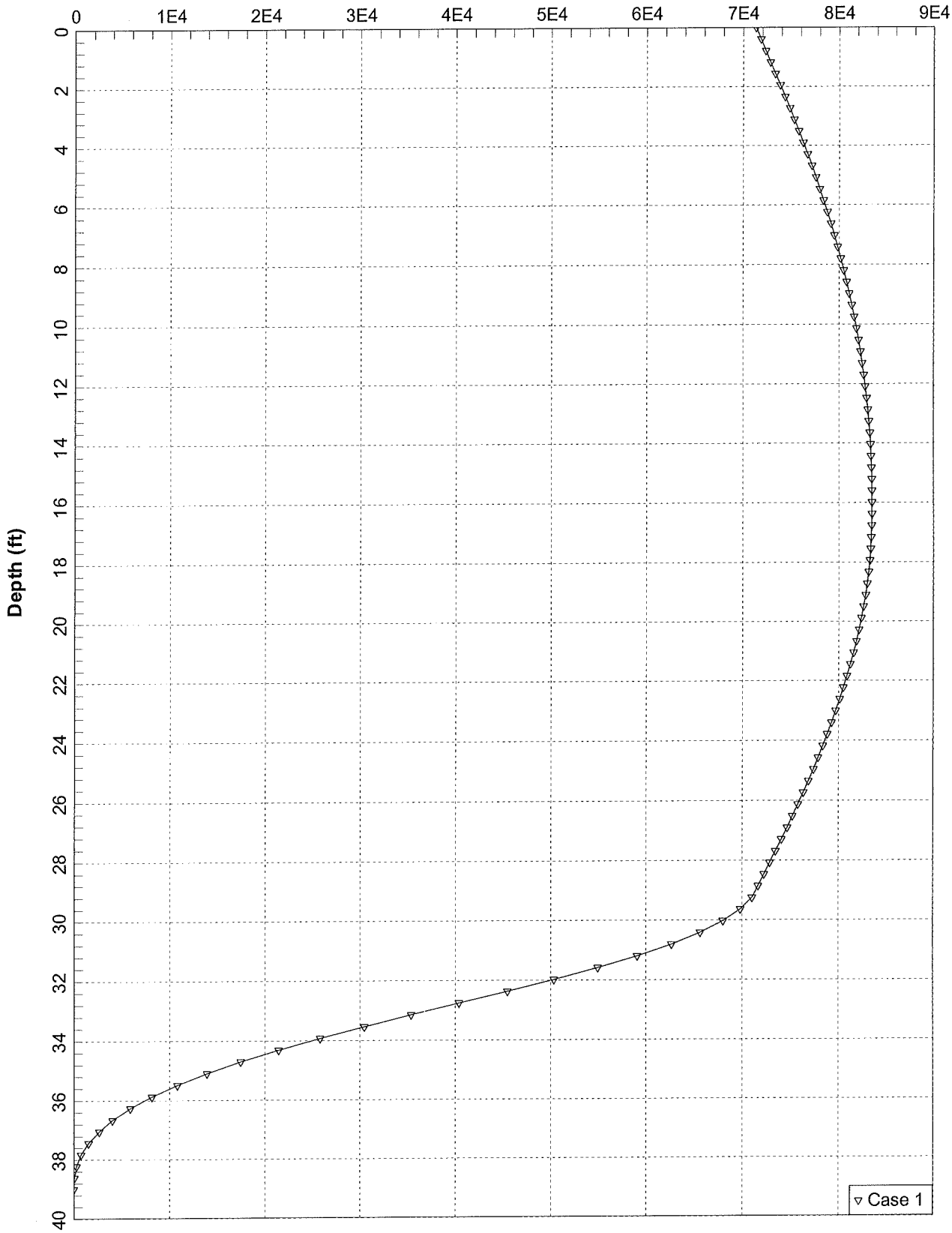
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 9

Lateral Deflection (in)



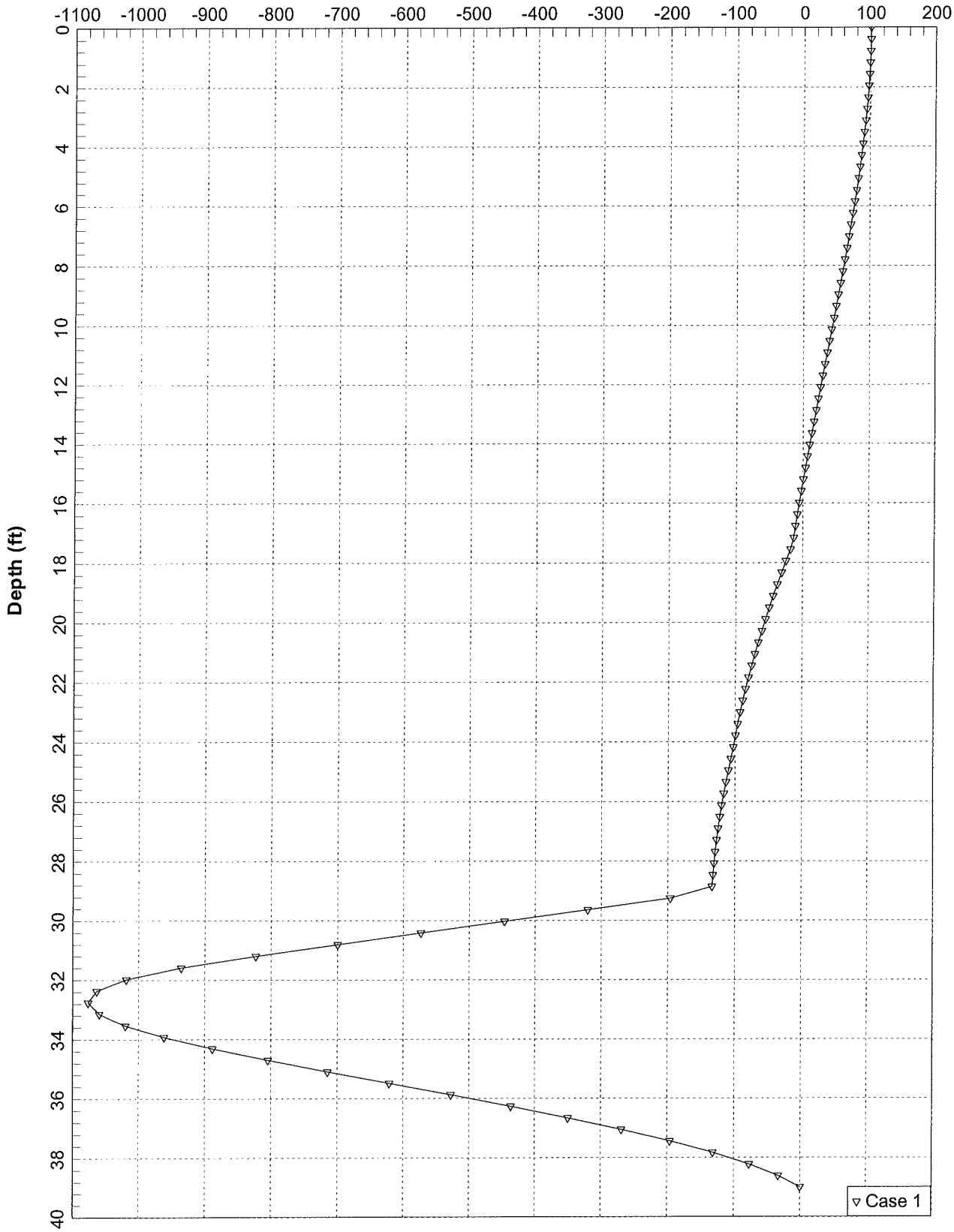
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 9

Unfactored Bending Moment (in-kips)



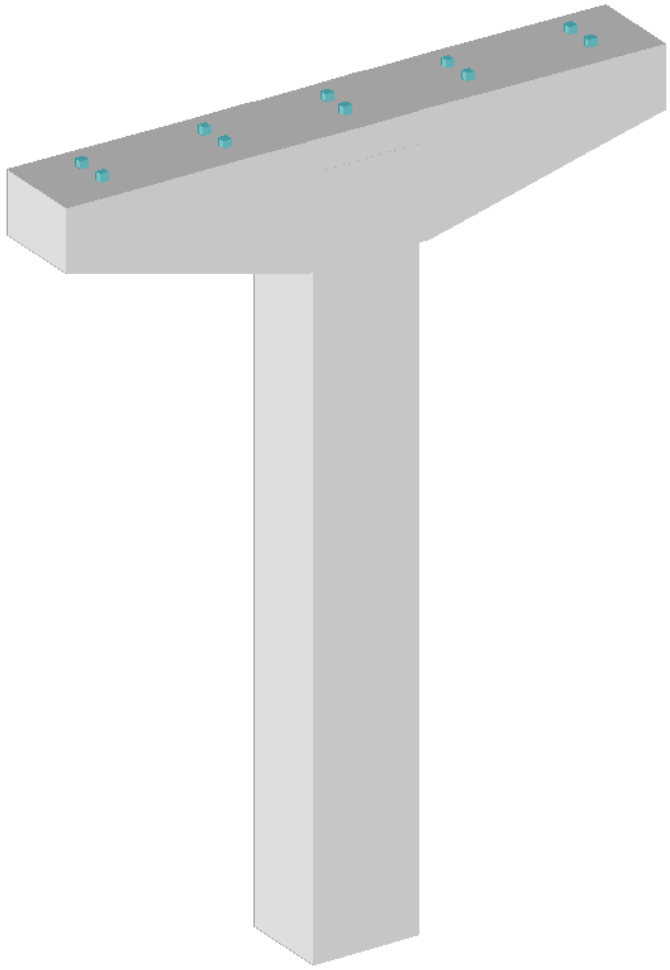
Bridge 25: I-75 Reversible Lanes over Canton Road - Bent No. 9

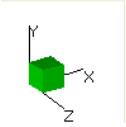
Shear Force (kips)



PROJECT: I-75 Costing Plans

FULL IMAGE:





PROJECT: I-75 Costing Plans

AASHTO STANDARD Envelope Service

Coord. system: Global Units: kips kips-ft

Memb	Node	Fx(Max/Min)	Fy	Fz	Mx	My	Mz
1	1	-77.11	1874	-66.11	-3306	4.357e-006	4940
		77.11	2094	-66.11	-3306	4.357e-006	-4942
1	2	-67.03	-1791	66.11	133	-4.357e-006	1513
		67.03	-1571	66.11	132.9	-4.357e-006	-1510
2	3	0	0	0	0	0	0
		0	0	0	0	0	0
2	4	0	14.59	-0.7594	0	-1.378	-26.47
		0	14.59	-0.7594	0	-1.378	-26.47
3	4	13.02	-237.4	13.22	26.55	0	0.4277
		-13.02	-367.7	13.22	26.62	0	52.52
3	5	13.02	410.5	-13.22	-26.62	-105.8	-3165
		-13.02	280.2	-13.22	-26.55	-105.8	-2071
4	5	26.05	-551.3	26.44	53.13	105.8	2045
		-26.05	-725.6	26.44	53.22	105.8	3191
4	6	26.05	752.5	-26.44	-53.22	-211.4	-6144
		-26.05	578.2	-26.44	-53.13	-211.4	-4301
5	6	26.05	-578.2	26.44	53.13	211.4	4301
		-26.05	-752.5	26.44	53.22	211.4	6144
5	7	26.05	756.1	-26.44	-53.22	-224.8	-6525
		-26.05	581.9	-26.44	-53.13	-224.8	-4594
6	7	26.05	-581.9	26.44	53.13	224.8	4594
		-26.05	-756.1	26.44	53.22	224.8	6525
6	2	26.05	781.3	-26.44	-53.22	-317.3	-9215
		-26.05	607.1	-26.44	-53.13	-317.3	-6675
7	2	26.05	694.9	-26.44	-53.18	317.3	7729
		-26.05	693.3	-26.44	-53.18	317.3	8159
7	8	26.05	-668.1	26.44	53.18	-224.8	-5776
		-26.05	-669.7	26.44	53.18	-224.8	-5341
8	8	26.05	669.7	-26.44	-53.18	224.8	5341
		-26.05	668.1	-26.44	-53.18	224.8	5776
8	9	26.05	-664.6	26.44	53.18	-211.7	-5447
		-26.05	-666.2	26.44	53.18	-211.7	-5010
9	9	26.05	666.2	-26.44	-53.18	211.7	5010
		-26.05	664.6	-26.44	-53.18	211.7	5447
9	10	26.05	-637.6	26.44	53.18	-105.8	-2839
		-26.05	-639.2	26.44	53.18	-105.8	-2396
10	10	13.02	324.1	-13.22	-26.58	105.8	2422
		-13.02	366.5	-13.22	-26.6	105.8	2813
10	11	13.02	-323.7	13.22	26.6	0	-52.37
		-13.02	-281.3	13.22	26.58	0	-0.2745
11	11	0	14.54	-0.7573	0	1.371	26.32
		0	14.54	-0.7573	0	1.371	26.32
11	12	0	0	0	0	0	0
		0	0	0	0	0	0

COLUMN BOTTOM LOADS WITHOUT IMPACT

1	1	-77.11	1874	-66.11	-3306	4.357e-006	4940
		77.11	2094	-66.11	-3306	4.357e-006	-4942

PROJECT: I-75 Costing Plans

AASHTO STANDARD Envelope Service

Coord. system: Global Units: kips kips-ft

Memb	Node	Fx	Fy(Max/Min)	Fz	Mx	My	Mz
1	1	-0	2726	0	-168	0	-2231
		-77.11	1874	-66.11	-3306	4.357e-006	4940
1	2	67.03	-1571	66.11	132.9	-4.357e-006	-1510
		-0	-2423	0	168	0	2231
2	3	0	0	0	0	0	0
		0	0	0	0	0	0
2	4	0	14.59	-0.7594	0	-1.378	-26.47
		0	14.59	-0.7594	0	-1.378	-26.47
3	4	13.02	-237.4	13.22	26.55	0	0.4277
		0	-474.5	0	38.9	0	26.47
3	5	0	517.3	0	-38.9	0	-3994
		-13.02	280.2	-13.22	-26.55	-105.8	-2071
4	5	26.05	-551.3	26.44	53.13	105.8	2045
		0	-1023	0	87.05	0	3994
4	6	0	1050	0	-87.05	0	-8136
		-26.05	578.2	-26.44	-53.13	-211.4	-4301
5	6	26.05	-578.2	26.44	53.13	211.4	4301
		0	-1050	0	87.05	0	8136
5	7	0	1054	0	-87.05	0	-8667
		-26.05	581.9	-26.44	-53.13	-224.8	-4594
6	7	26.05	-581.9	26.44	53.13	224.8	4594
		0	-1054	0	87.05	0	8667
6	2	0	1079	0	-87.05	0	-1.24e+004
		-26.05	607.1	-26.44	-53.13	-317.3	-6675
7	2	0	1079	0	-86.99	0	1.239e+004
		22.92	685.8	-30.1	-59.42	360	7765
7	8	-22.92	-660.6	30	59.42	-254.8	-5409
		0	-1054	0	86.99	0	-8662
8	8	0	1054	0	-86.99	0	8662
		22.92	660.6	-30	-59.42	254.8	5409
8	9	-22.92	-657	29.99	59.42	-240	-5082
		0	-1050	0	86.99	0	-8141
9	9	0	1050	0	-86.99	0	8141
		22.92	657	-29.99	-59.42	240	5082
9	10	-22.92	-630	29.88	59.42	-120.1	-2505
		0	-1023	0	86.99	0	-3990
10	10	0	516.9	0	-38.82	0	3990
		13.02	324.1	-13.22	-26.58	105.8	2422
10	11	-13.02	-281.3	13.22	26.58	0	-0.2745
		0	-474.1	0	38.82	0	-26.32
11	11	0	14.54	-0.7573	0	1.371	26.32
		0	14.54	-0.7573	0	1.371	26.32
11	12	0	0	0	0	0	0
		0	0	0	0	0	0

COLUMN BOTTOM LOADS WITHOUT IMPACT

1	1	-0	2608	0	-141.4	0	-1877
		-77.11	1874	-66.11	-3306	4.357e-006	4940

PROJECT: I-75 Costing Plans

AASHTO STANDARD Envelope Service

Coord. system: Global Units: kips kips-ft

Memb	Node	Fx	Fy	Fz(Max/Min)	Mx	My	Mz
1	1	-36.07	1984	114.8	5267	0.04105	1632
		36.07	1984	-114.8	-5268	-0.04105	-1634
1	2	-26.98	-1681	99.06	182.4	0.04105	148.4
		26.98	-1681	-99.06	-181	-0.04105	-146.1
2	3	0	0	0	0	0	0
		0	0	0	0	0	0
2	4	0	14.59	0.7594	0	1.378	-26.47
		0	14.59	-0.7594	0	-1.378	-26.47
3	4	-4.428	-305.7	18.93	36.49	1.378	35.33
		4.428	-299.3	-18.93	-36.2	-1.378	17.62
3	5	-4.428	342.2	20.6	36.2	159.5	-2584
		4.428	348.6	-20.6	-36.49	-159.5	-2653
4	5	-8.856	-641.6	38.77	72.97	159.5	2662
		8.856	-635.2	-38.77	-72.39	-159.5	2575
4	6	-8.856	662.1	39.61	72.39	316.1	-5166
		8.856	668.6	-39.61	-72.97	-316.1	-5279
5	6	-8.856	-668.6	39.61	72.97	316.1	5279
		8.856	-662.1	-39.61	-72.39	-316.1	5166
5	7	-8.856	665.8	39.71	72.39	336.1	-5501
		8.856	672.2	-39.71	-72.97	-336.1	-5617
6	7	-8.856	-672.2	39.71	72.97	336.1	5617
		8.856	-665.8	-39.71	-72.39	-336.1	5501
6	2	-8.856	691	40.45	72.39	476.4	-7876
		8.856	697.4	-40.45	-72.97	-476.4	-8014
7	2	-8.856	697.3	40.44	72.39	-476.3	8013
		8.856	690.9	-40.44	-72.97	476.3	7875
7	8	-8.856	-665.7	39.71	72.97	-336.1	-5501
		8.856	-672.1	-39.71	-72.39	336.1	-5616
8	8	-8.856	672.1	39.71	72.39	-336.1	5616
		8.856	665.7	-39.71	-72.97	336.1	5501
8	9	-8.856	-662.1	39.61	72.97	-316.4	-5172
		8.856	-668.6	-39.61	-72.39	316.4	-5285
9	9	-8.856	668.6	39.61	72.39	-316.4	5285
		8.856	662.1	-39.61	-72.97	316.4	5172
9	10	-8.856	-635.1	38.77	72.97	-159.5	-2574
		8.856	-641.6	-38.77	-72.39	159.5	-2661
10	10	-4.428	348.5	20.6	36.19	-159.5	2652
		4.428	342.1	-20.6	-36.48	159.5	2583
10	11	-4.428	-299.3	18.93	36.48	-1.371	-17.46
		4.428	-305.7	-18.93	-36.19	1.371	-35.18
11	11	0	14.54	0.7573	0	-1.371	26.32
		0	14.54	-0.7573	0	1.371	26.32
11	12	0	0	0	0	0	0
		0	0	0	0	0	0

COLUMN BOTTOM LOADS WITHOUT IMPACT

1	1	-36.07	1984	114.8	5267	0.04105	1632
		36.07	1984	-114.8	-5268	-0.04105	-1634

PROJECT: I-75 Costing Plans

AASHTO STANDARD Envelope Service

Coord. system: Global Units: kips kips-ft

Memb	Node	Fx	Fy	Fz	Mx(Max/Min)	My	Mz
1	1	36.07	1984	-114.8	-5268	-0.04105	-1634
		-36.07	1984	114.8	5267	0.04105	1632
1	2	12.85	-2052	-95.84	-452.8	-0.01231	506.9
		-12.85	-2052	95.84	454.7	0.01231	1230
2	3	0	0	0	0	0	0
		0	0	0	0	0	0
2	4	0	14.59	-0.7594	0	-1.378	-26.47
		0	14.59	-0.7594	0	-1.378	-26.47
3	4	-2.28	-391.3	18.15	55.37	0.4135	31.03
		2.28	-385.7	-18.15	-54.99	-0.4135	21.91
3	5	-2.28	428.5	18.65	54.99	147.6	-3279
		2.28	434.2	-18.65	-55.37	-147.6	-3333
4	5	-4.561	-833.7	36.57	115.4	147.6	3338
		4.561	-828	-36.57	-114.6	-147.6	3274
4	6	-4.561	855	36.82	114.6	294.2	-6636
		4.561	860.6	-36.82	-115.4	-294.2	-6722
5	6	-4.561	-860.6	36.82	115.4	294.2	6722
		4.561	-855	-36.82	-114.6	-294.2	6636
5	7	-4.561	858.6	36.86	114.6	312.8	-7068
		4.561	864.3	-36.86	-115.4	-312.8	-7158
6	7	-4.561	-864.3	36.86	115.4	312.8	7158
		4.561	-858.6	-36.86	-114.6	-312.8	7068
6	2	-4.561	883.8	37.08	114.6	442.2	-1.012e+004
		4.561	889.5	-37.08	-115.4	-442.2	-1.023e+004
7	2	-4.561	889.3	37.08	114.6	-442.2	1.022e+004
		4.561	883.6	-37.08	-115.3	442.2	1.011e+004
7	8	-4.561	-858.4	36.86	115.3	-312.8	-7066
		4.561	-864.1	-36.86	-114.6	312.8	-7155
8	8	-4.561	864.1	36.86	114.6	-312.8	7155
		4.561	858.4	-36.86	-115.3	312.8	7066
8	9	-4.561	-854.8	36.82	115.3	-294.6	-6642
		4.561	-860.5	-36.82	-114.6	294.6	-6728
9	9	-4.561	860.5	36.82	114.6	-294.6	6728
		4.561	854.8	-36.82	-115.3	294.6	6642
9	10	-4.561	-827.8	36.57	115.3	-147.6	-3272
		4.561	-833.5	-36.57	-114.6	147.6	-3336
10	10	-2.28	434	18.65	54.95	-147.6	3331
		2.28	428.3	-18.65	-55.33	147.6	3277
10	11	-2.28	-385.4	18.15	55.33	-0.4112	-21.76
		2.28	-391.1	-18.15	-54.95	0.4112	-30.88
11	11	0	14.54	-0.7573	0	1.371	26.32
		0	14.54	-0.7573	0	1.371	26.32
11	12	0	0	0	0	0	0
		0	0	0	0	0	0

COLUMN BOTTOM LOADS WITHOUT IMPACT

1	1	36.07	1984	-114.8	-5268	-0.04105	-1634
		-36.07	1984	114.8	5267	0.04105	1632

PROJECT: I-75 Costing Plans

AASHTO STANDARD Envelope Service

Coord. system: Global Units: kips kips-ft

Memb	Node	Fx	Fy	Fz	Mx	My	Mz (Max/Min)
1	1	-77.11	1874	-66.11	-3306	4.357e-006	4940
		77.11	2094	-66.11	-3306	4.357e-006	-4942
1	2	-0	-2231	0	124.6	0	4401
		-0	-2231	0	124.6	0	-4393
2	3	0	0	0	0	0	0
		0	0	0	0	0	0
2	4	0	14.59	-0.7594	0	-1.378	-26.47
		0	14.59	-0.7594	0	-1.378	-26.47
3	4	-13.02	-367.7	13.22	26.62	0	52.52
		13.02	-237.4	13.22	26.55	0	0.4277
3	5	-13.02	280.2	-13.22	-26.55	-105.8	-2071
		0	517.3	0	-38.9	0	-3994
4	5	0	-1023	0	87.05	0	3994
		26.05	-551.3	26.44	53.13	105.8	2045
4	6	-26.05	578.2	-26.44	-53.13	-211.4	-4301
		0	1050	0	-87.05	0	-8136
5	6	0	-1050	0	87.05	0	8136
		26.05	-578.2	26.44	53.13	211.4	4301
5	7	-26.05	581.9	-26.44	-53.13	-224.8	-4594
		0	1054	0	-87.05	0	-8667
6	7	0	-1054	0	87.05	0	8667
		26.05	-581.9	26.44	53.13	224.8	4594
6	2	-26.05	607.1	-26.44	-53.13	-317.3	-6675
		0	1079	0	-87.05	0	-1.24e+004
7	2	0	1079	0	-86.99	0	1.239e+004
		26.05	694.9	-26.44	-53.18	317.3	7729
7	8	-26.05	-669.7	26.44	53.18	-224.8	-5341
		0	-1054	0	86.99	0	-8662
8	8	0	1054	0	-86.99	0	8662
		26.05	669.7	-26.44	-53.18	224.8	5341
8	9	-26.05	-666.2	26.44	53.18	-211.7	-5010
		0	-1050	0	86.99	0	-8141
9	9	0	1050	0	-86.99	0	8141
		26.05	666.2	-26.44	-53.18	211.7	5010
9	10	-26.05	-639.2	26.44	53.18	-105.8	-2396
		0	-1023	0	86.99	0	-3990
10	10	0	516.9	0	-38.82	0	3990
		13.02	324.1	-13.22	-26.58	105.8	2422
10	11	-13.02	-281.3	13.22	26.58	0	-0.2745
		13.02	-323.7	13.22	26.6	0	-52.37
11	11	0	14.54	-0.7573	0	1.371	26.32
		0	14.54	-0.7573	0	1.371	26.32
11	12	0	0	0	0	0	0
		0	0	0	0	0	0

COLUMN BOTTOM LOADS WITHOUT IMPACT

1	1	-77.11	1874	-66.11	-3306	4.357e-006	4940
		77.11	2094	-66.11	-3306	4.357e-006	-4942