RECONSTRUCTION OF I-95 OVER WEST RIVER
WEST HAVEN AND NEW HAVEN, CONNECTICUT

STATE PROJECT NO. 92-522

FINAL
ROADWAY SOILS AND ROCK REPORT

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1.0 PROPOSED CONSTRUCTION

The Reconstruction of I-95 Over West River Project consists of replacing three existing bridges with new structures, widening I-95 and constructing 4 new ramps in West Haven and New Haven, Connecticut. The site location is shown on Figure 1. The three bridges being replaced are Bridge No. 00163, I-95 Over West River, Bridge No. 00164, I-95 Over Ella T. Grasso Boulevard, and Bridge No. 00165, Howard Avenue Over I-95. The project location is shown on Figure 2.

The I-95 roadway is being widened to the south from the beginning of the project at Station 0+480 until approximately Station 1+500 where the widening occurs on both the north and south sides of the existing I-95 roadway, until the end of the project at Station 1+900. The roadway profile is being raised from approximately Station 0+480 to Station 1+520. Four new ramps are being constructed, replacing five existing ramps.

On the west side of the West River, embankment widening of northbound I-95 occurs from approximately Station 0+540 to the western abutment of Bridge No. 00163 at approximately Station 0+745. On the east side of the West River, I-95 embankment widening occurs on both sides of the roadway from approximately Station 1+100 to Station 1+520, where the roadway widening goes into a cut section. Retaining walls are used within some of the cut sections to minimize right-of-way requirements. The four new ramps all require fill sections for at least a portion of their alignment.

2.0 EXISTING CONDITIONS

The existing subsurface data consisted of the original borings drilled for the nearby bridges and boring PB-1 drilled for the I-95 New Haven Harbor Crossing

Corridor Improvement Program Pilot Test Boring Program as well as the surficial geology map of the area. The existing boring data is provided in Appendix A.

The majority of the roadway area, from approximately Station 0+480 to approximately Station 1+500, appeared to be old harbor or river bottom that had been previously backfilled. This resulted in fill material overlying organic silt. Beyond Station 1+520 it appeared that the organic silt no longer existed and that this was part of a natural point of land that extended into the harbor area. The soils in this area tended to be medium dense sand underlain by medium dense sand and silt.

Based on existing borings it appeared that in the fill areas sand was placed over harbor or river bottom organic silt. The thickness of the organic silt underlying the roadway was up to 9 m (30 feet) thick, overlying medium dense sand and silt. It was estimated that organic silt would be encountered from the beginning of the project at I-95 Station 0+480 to approximately Station 1+500.

The existing roadway drawings (Appendix B) indicated that preloading had been performed with an approximate surcharge loading of 1.5 m (5 ft) for embankment sections from Station 0+480 to approximately Station 1+360, and 3.0 m (10 ft) in the area of Abutments 1 and 2 of Bridge N0. 00163. Sand drains had been used to increase the rate of drainage. The preloading appeared to have been performed to preconsolidate the underlying organic silts

3.0 PRELIMINARY DESIGN

Preliminary design showed embankment widening and raising of the roadway grade. The construction of new embankment sections and raising the roadway grade over areas underlain by organic silt raised concerns for slope stability and roadway settlements. Slope stability was not anticipated to be a major concern

since the fills generally were less then 1 m (3 ft) higher than existing embankment fills or previous preload surcharges.

Utilizing consolidation properties of the organic silts encountered in the I-95 New Haven Harbor Crossing Corridor Improvement Program Pilot Test Boring Program it was estimated that placement of approximately 1.0 m (3 ft) of fill over 9 m (30 ft) of organic silt would result in primary consolidation settlements of 25 to 50 mm (1 to 2 in) and secondary settlements of 75 to 125 mm (3 to 5 in) over a 40 year period.

Several methods were utilized to eliminate settlement concerns. It was determined that surcharge preloading with wick drains would be the most cost effective method to minimize settlements. In areas where preloading was not possible, it was recommended that lightweight fill be used. Lightweight fill could eliminate additional settlements due to embankment construction and raising the roadway grade by maintaining the same (existing) effective stress in the organic silt. Sufficient existing soil was excavated and replaced with lightweight fill, to balance the additional weight of the lightweight fill material.

Cut sections were anticipated to be straight forward, but required retaining walls to minimize right-of-way utilized.

4.0 SUBSURFACE EXPLORATION

A series of 14 roadway borings were drilled for this project. The locations of the borings are shown on Figure 2, Project/Boring Location Plan. Subsurface profiles along the roadway alignment west and east of the river are shown on Figures 3 and 4, respectively. Boring logs and laboratory data for these borings are provided in Appendix C and Appendix D, respectively. Logs and laboratory data for structure borings utilized in evaluating the effects of roadway

construction are also included in the appendices. The ground surface at the borings varied from approximately El 2.36 to 8.24 m (7.75 to 27.0 feet).

Table 1 summarizes the elevations of the ground surface, groundwater table, fill and organic silt. The fill varied in thickness from 2.1 m (7 ft) to 11.7 m (38.5 ft), while the organic silt varied in thickness from 0.9 m (3 ft) to 11 m (36 ft). On the west side of the river, the organic silt got thicker to the east, towards the river. On the east, the fill and organic silt both generally became thinner to the east, away from the river.

The boring data indicates the organic silt extends from approximately the beginning of the project at Station 0+480 to Station 1+520 to the east. This is approximately 20 m (65 ft) further east then previously estimated.

Table 2 summarizes the laboratory testing data on the organic silt for the roadway borings and selected structure borings shown on the profiles.

5.0 RECOMMENDATIONS

The roadway is being widened and the grade raised for a significant portion of the project. The majority of the widening occurs to the south and is related to the construction of new off and on ramps.

5.1 West Side of River

The grade of the existing roadway portion of the embankment increases gradually from approximately Station 0+560 to the new bridge abutment at Station 0+753 (see Figure 3). The maximum amount of additional fill required over the existing roadway grade for this portion of the embankment is approximately 0.6 m (2 ft). This portion of the embankment was previously

surcharge preloaded with 1.5 m (5 ft) of fill, with the installation of sand drains, prior to initial roadway construction. Consolidation settlement of the underlying organic silt due to the new fill is not estimated to be significant.

From approximately Station 0+540 to the new bridge abutment at Station 0+753, the northern portion of the existing embankment is being slightly modified with a maximum of 0.9 m (3 ft) of fill being placed. Since this portion of the embankment had also previously been preloaded with 1.5 m (5 ft) of fill, consolidation settlement of the underlying organic silt due to the new fill is not estimated to be significant.

The southern portion of the embankment is being widened from approximately Station 0+560 to the new bridge abutment at Station 0+753. The maximum additional embankment width is approximately 16.5 m (54 ft), with a depth of up to 8 m (26 ft) of fill being placed. The thickness of the underlying organic silt increases from approximately 5 m (17 ft) at the start of the fill area to approximately 10.5 m (35 ft) at the bridge abutment. This amount of fill, being placed over an area that has not been previously preloaded is estimated to cause up to 430 mm (17 in) of primary consolidation in the underlying organic silt and an additional 90 mm (3.5 in) of secondary consolidation over a period of 40 years. It is estimated that it will take approximately 7 years for 95% of the primary consolidation to occur. These estimates are based on consolidation test data (Appendix D) obtained from the final design borings.

This amount of roadway settlement due to consolidation is unacceptable. There are a number of methods available to limit consolidation settlement related to filling. These include removal and replacement of unsuitable soils, surcharge preloading, using lightweight fills, deep soil mixing and stone columns.

Removal and replacement of unsuitable soils is not economically feasible because of the depth and extent of the compressible organic silt. Preloading,

placing the embankment fills and allowing the majority of the consolidation to occur prior to paving is significantly less expensive then removal and replacement. However, the length of the waiting period is unacceptable. The use of wick drains will reduce this waiting period. Also, surcharge loading, placing fill above the final grade elevation, will reduce the waiting time period and allow secondary consolidation to be reduced as well. For this project, surcharge preloading with wick drains was determined to be the least expensive method of limiting settlement concerns, for areas where the construction schedule allows sufficient time for the required waiting period.

Lightweight fill can effectively eliminate settlements if the same effective stress is maintained in the consolidating stratum (the organic silt). This is accomplished by excavating sufficient existing soil to balance the additional weight of the lightweight fill material selected. Typical lightweight fill materials include expanded shale aggregate, geofoam and cellular concrete.

Expanded shale aggregate has approximately one-half the unit weight of soil, weighing approximately 960 kilograms per cubic meter (kg/m^3) (60 pounds per cubic foot (pcf)). For embankment widening sections of this project it is more expensive then surcharge preloading with wick drains. However, for roadway sections where construction staging does not allow time for surcharge preloading, it is the least expensive method to limit settlement concerns.

Geofoam is a relatively new use of polystyrene foam blocks in geotechnical engineering. It has a unit weight of approximately 24 kg/m^3 (1.5 pcf). Because of its insulating properties, geofoam needs to be kept at least 1.2 m (4 ft) below pavement to avoid ice forming on the pavement sooner then areas without underlying geofoam. Geofoam is more expensive then surcharge preloading with wick drains for embankment areas of this project and more expensive then expanded shale aggregate for roadway areas, because of frost considerations.

The use of cellular concrete, deep soil mixing and stone columns were all significantly more expensive then surcharge preloading with wick drains for this project.

It is recommended that the area of new embankment from Station 0+600 to Station 0+750 be surcharge preloaded with the installation of wick drains to preconsolidate the organic silt, as indicated in Table 3.

The surcharge preload should be constructed by first clearing and grubbing the existing slope and new embankment base. Then, wick drains should be installed on a triangular pattern with a 2 m (6.5 ft) spacing. The wick drains should extend from the ground surface to the bottom of the organic silt. The elevation of the bottom of the organic silt appears to vary from -5 to -12 m (-16 to -40 ft), decreasing in elevation to the east. Wick drain installation on the slope should not be problematic since the rigs used for installation are typically tracked backhoes with a special leads attached to the arm.

The wick drains should be covered with 300 mm (1 ft) of material that meets the requirements of Form 815, Section 2.13 Granular Fill and the gradation requirements No. 3 of Section M.01.01. Horizontal drain strips connecting the drains are an acceptable alternative, but are probably not cost effective Embankment fill should be placed over the granular fill such that it slopes up at a 1.5 H to 1 V slope to 1.5 m (5 ft) above final grade and extends horizontally until it meets a 1.5 H to 1 V slope extending from the toe of the proposed slope.

It is estimated that approximately 95% consolidation under the surcharge load will be experienced in 1 year, resulting in elimination of the primary consolidation under the final design loading and a partial reduction in secondary consolidation.

It recommended that approximately 5 settlement monitoring platforms and three vibrating wire piezometers be installed at locations indicated in Table 4 to monitor

the settlement and the pore pressure dissipation of the organic silt. The piezometers should be installed at the center of the triangular wick drain arrangement, maximizing the piezometers distance from the drains. This will help determine when the surcharge load can actually be removed. The recommended preload area and instrumentation are indicated on Figure 5.

The southern side of the roadway at approximately Station 0+740 is the area of the project that has the maximum embankment height and receives the greatest amount of fill. A slope stability analysis was performed utilizing the computer program PCSTABL (Bishop Method). The slope was analyzed for the existing conditions, surcharge preloading condition and the final condition. The minimum factors of safety determined were:

Existing Conditions	1.84
Surcharge Conditions	1.35
Final Conditions	1.48

Section 10.5.2 of the AASHTO LRFD Bridge Design Specifications indicates that the evaluation of overall stability of earth slopes should be investigated at the service limit based on Service 1 Load Combination and an appropriate resistance factor, and suggests that for a slope that does not contain a structural element the resistance factor should be 0.85. This is equivalent to the inverse of the factor of safety as determined above, or a factor of safety of 1.18. The previous code suggested a factor of safety of 1.3 was appropriate for a slope that did not contain a structural element. Based on either criterion, slope stability is not calculated to be a concern for this project.

5.2 East Side of River

Mainline Roadway

The mainline roadway grade is being raised from the east abutment of Bridge No. 00163 at approximately Station 1+070 to station 1+620 (see Figure 5). The

change in grade varies up to a maximum of 1.4 m (4.5 ft). The roadway is underlain by organic silt from Station 1+070 to approximately Station 1+520. The previous roadway construction surcharge preloaded by 1.5 m (5ft), with sand drains, the roadway from Station 1+070 to approximately Station 1+365. For the area previously surcharge loaded, consolidation due to the new fill is estimated to be less then 25 mm (1 in) and is not considered significant. However, from Station 1+365 to Station 1+520, where no record of surcharging exists and where up to 1.4 m (4.5 ft) of fill is to be placed over up to 9.2 m (30 ft) of organic silt, consolidation of the organic silt is a concern. Up to 100 mm (4 in) of primary consolidation and 65 mm (2.5 in) of secondary consolidation are estimated.

It is recommended that lightweight fill be used from Station 1+360 to Station 1+520. Lightweight fill can eliminate additional settlements due to embankment construction if the same effective stress is maintained in the underlying organic silt. Sufficient existing soil needs to be excavated and replaced with lightweight fill, to balance the additional weight of the lightweight fill. Expanded shale aggregate has approximately one-half the unit weight of soil, weighing approximately 960 kg/m^3 (60 pcf) and is recommended. Preloading is not reasonable in this area since traffic must be maintained on the I-95 roadway, requiring construction be performed in stages. The recommended area of lightweight fill is shown on Figure 5.

Cut sections are required to accommodate the widened roadway from approximately Station 15+40 to 17+80. All the cuts are in medium dense sands with 1V to 2H slopes. Retaining walls are used where steeper cuts would be required. The slopes are stable and no difficulties are anticipated.

Ramp A

The new I-95 northbound off ramp (Ramp A), on the south side of I-95, requires up to 2.2 m (7 ft) of fill be placed over an area underlain by up to 11 m (36 ft) of organic silt, Figure 6. Up to approximately 175 mm (7 in) of primary

consolidation and 40 mm (1.5 in) of secondary consolidation over 40 years is estimated for this area, assuming that the organic silt is slightly overconsolidated, as indicated by the laboratory test data from borings in this area. This over consolidation probably is the result of being adjacent to a previously surcharged area.

It is recommended that the area of new embankment from I-95 Station 1+060 to Station 1+240 be surcharge preloaded, with the installation of wick drains to preconsolidate the organic silt, as indicated in Table 3. The preloading and drains should be installed as recommended above, for the area west of the river, except that the wick drain should be installed on a triangular pattern with a 1.5 m (5 ft) spacing. The wick drains should extend from the ground surface to the bottom of the organic silt. The elevation of the bottom of the organic in this area is at approximately El –12 m (–39 ft). The preload will have to be placed around or adjacent to two existing ramps. This results in two smaller surcharge preload areas.

The preload should be placed as soon as possible in Stage 1A since it will have to be removed later in that stage to allow construction of the ramp. The 1.5 m (5 ft) drain spacing is recommended to minimize the preload time. It is estimated that approximately 85% consolidation under the surcharge load will be experienced in 6 months, resulting in elimination of primary consolidation under the final design loading.

It is recommended that 8 settlement monitoring platforms and 3 vibrating wire piezometers as indicated in Table 2 be installed to help evaluate the length of time the surcharges needs to remain in place. The recommended preload and instrumentation are shown on Figure 5.

Ramp B

The new I-95 southbound on ramp (Ramp B), on the north side of I-95, requires up to 3.4 m (11 ft) of fill be placed over an area underlain by approximately 7.5 m (25 ft) of organic silt, Figure 7. Up to approximately 280 mm (11 in) of primary consolidation and 19 mm (3/4 in) of secondary consolidation over 40 years is estimated for this area, assuming that the organic silt is slightly overconsolidated, as indicated by the laboratory test data for this area. This over consolidation probably is the result of being adjacent to a previously surcharged area.

It is recommended that the area of new embankment from Ramp B Station 20+080 to 20+220 be surcharge preloaded, with the installation of wick drains to preconsolidate the organic silt, as indicated in Table 3. The preloading and drains should be installed as recommended above for the area west of the river. The wick drains should be spaced at 2.0 m (6.5 ft) and extend from the ground surface to the bottom of the organic silt. The elevation of the bottom of the organic silt in this area is at approximately El –12 m (-40 ft).

The preload should be placed in Stage 1A but does not have to be removed until later stages. It is estimated that approximately 95% consolidation under the surcharge load will be experienced in 1 year, resulting in elimination of the primary consolidation under the final design loading and a partial reduction in secondary consolidation.

It recommended that approximately 3 settlement monitoring platforms and 1 vibrating wire piezometer be installed at locations indicated in Table 4 to monitor the settlement and the pore pressure dissipation of the organic silt. This will help determine when the surcharge load can actually be removed. The recommended preload area and instrumentation are indicated on Figure 5.

Ramp C

The new I-95 northbound on ramp (Ramp C), on the south side of I-95, requires up to 3.8 m (12.5 ft) of fill be placed over an area underlain by approximately 4.6 m (15 ft) of organic silt, Figure 8. Up to approximately 305 mm (12 in) of primary consolidation and 40 mm (1.5 in) of secondary consolidation over 40 years is estimated for this area, assuming that the organic silt is not overconsolidated, as indicated by the laboratory data for this area. Portions of this area, on the DOT Maintenance Facility property may have had some preloading occur in the past due to stockpiling of soil. However, since no records are available it has been conservatively assumed that no preloading has occurred and the underlying organic silt is normally consolidated.

It is recommended that the area of new embankment from Ramp C Station 30+060 to I-95 Station 1+520 be surcharge preloaded, with the installation of wick drains to preconsolidate the organic silt, as indicated in Table 3. The preloading and drains should be installed as recommended above, for the area west of the river, except that the wick drain should be installed on a triangular pattern with a 1.5 m (5 ft) spacing. The wick drains should extend from the ground surface to the bottom of the organic silt. The elevation of the bottom of the organic silt in this area varies from approximately El –7 to –3 m (-23 to –10 ft), increasing in elevation to the east.

The preload should be placed as soon as possible in Stage 1A since it will have to be removed later in that stage to allow construction of the ramp. The 1.5 m (5 ft) drain spacing is recommended to minimize the preload time. It is estimated that approximately 95% consolidation under the surcharge load will be experienced in 6 months, resulting in elimination of the primary consolidation under the final design loading and a partial reduction in secondary consolidation.

It recommended that approximately 5 settlement monitoring platforms and 2 vibrating wire piezometers be installed at locations indicated in Table 4 to monitor

the settlement and the pore pressure dissipation of the organic silt. This will help determine when the surcharge load can actually be removed. The recommended preload area and instrumentation are indicated on Figure 5.

Ramp D

The new I-95 southbound off ramp (Ramp D), on the north side of I-95, requires up to 3.8 m (12.5 ft) of fill be placed over an area underlain by approximately 4.6 m (15 ft) of organic silt, Figure 9. Up to approximately 150 mm (6 in) of primary consolidation and 90 mm (3.5 in) of secondary consolidation over 40 years is estimated for this area assuming that the organic silt is not overconsolidated, as indicated by the laboratory data for this area.

Surcharge preloading with wick drains is recommended for this area, extending from just south of Ramp D Station 40+060 to 40+1400, as indicated in Table 4. The preloading and drains should be installed as recommended above, for the area west of the river, except that the wick drain should be installed on a triangular pattern with a 1.5 m (5 ft) spacing. The bottom of the organic silt in this area varies from approximately El –4 to –1 m (-13 to –3 ft), increasing in elevation to the east.

The preload should be placed as soon as possible in Stage 1A since it will have to be removed later in that stage to allow construction of the ramp. The 1.5 m (5 ft) drain spacing is recommended to minimize the preload time. It is estimated that approximately 95% consolidation under the surcharge load will be experienced in 6 months, resulting in elimination of the primary consolidation under the final design loading and a partial reduction in secondary consolidation.

It is recommended that 2 settlement monitoring platforms and 2 vibrating wire piezometers be installed, as indicated in Table 2, to help evaluate the length of time the surcharge needs to remain in place. The recommended preload and instrumentation is shown on Figure 5.

5.3 Special Provisions

The use of preloading will require a notice to contractor and the preloading and lightweight fill will require special provisions be developed. The special provisions are:

Lightweight Fill
Wick Drains
Vibrating Wire Piezometers

5.4 Sign Support Structures

New sign support structures are to be installed 1 m (3 ft) from the curb at Station 0+680 on I-95 Southbound and at Station 1+380 on I-95 Northbound. While there is no boring at Station 0+680, the sign support structure foundation will extend through 6.4 m (21 ft) of existing embankment fill. Existing borings in the general vicinity indicate that embankment fill overlies approximately 5 m (16 ft) of previously placed fill over organic silt. Embankment fill in this area tends to be medium dense to dense fine sand (likely placed dredged material), with similar sand underlying the embankment fill. It is not felt it is necessary nor will it be will be cost effective to obtain an additional boring at the sign support structure location to better define the subsurface conditions. At Station 1+380 the sign support structure foundation will extend through 2.4 m (8 ft) of newly placed embankment fill. Borings R-10 and R-11 are in the vicinity of this foundation. They indicate that below this new fill there is approximately 6.4 m (21 ft) of medium dense fine sand. Again, it is not felt necessary to obtain an additional boring at the exact sign support structure location.

TABLES

FINAL ROADWAY SOIL AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER

TABLE 2

SUMMARY OF ROADWAY AND ASSOCIATED BORINGS LABORATORY TEST DATA

Boring Number	Ground Surface Elevation (feet)	Sample Number	Sample Description	Depth (feet)	Elevation (feet)	γ_t (pcf)	γ_d (pcf)	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	CR Casa-grande	CR Schmert mann	RR Casa-grande	RR Schmert mann	OCR Casa-grande	OCR Schmert mann	Unconsolidated Undrained Strength (psf)	Average Torvane (tsf)	c_v (cm^2/sec)	c_α Normally Consolidated	c_α Over Consolidated	e_o
R-1	19.85	UP-1	Gray organic SILT of very high plasticity, stiff consistency, trace fibers	24.0	-4.2	86.7	45.2	91.8	120	57	63	0.55	0.296	0.292	0.035	0.035	1.63	1.70	-	0.69	0.0019	0.0271	0.0015	2.703
R-1	19.85	UP-2	Gray organic SILT of very high plasticity, stiff consistency, trace shell, trace fine sand.	34.0	-14.2	104.5	68.12	53.4	74	32	42	0.51	0.264	0.256	0.023	0.029	1.78	1.37	-	0.60	0.0012	0.0110	0.001	1.483
R-2	17.88	UP-2	Gray organic SILT of high plasticity, medium consistency, trace shell, trace fine sand.	33.0	-15.1	98.0	59.8	63.9	73	36	37	0.75	0.233	0.232	0.020	0.020	1.13	1.04	990	0.41	0.0016	0.0136	0.004	1.661
R-2	17.88	UP-3	Gray organic SILT of high plasticity, trace shell, trace fine sand.	43.0	-25.1	80.8	51.8	56.0	69	32	37	0.65	0.239	0.239	0.027	0.027	1.00	0.89	924	0.45	0.0015	0.0150	0.001	1.738
R-3	16.34	UP-1	Gray organic SILT of very high plasticity, medium consistency, trace shell, trace fine sand.	31.0	-14.7	93.4	54.6	71.0	81	40	41	0.76	0.246	0.246	0.032	0.025	0.89	0.86	-	0.40	0.0012	0.0144	0.0013	1.984
R-4	23.20	UP-1	Gray organic SILT of high plasticity, soft to medium consistency, little shells, trace fine sand.	39.0	-15.8	89.8	57.9	55.0	66	33	33	0.67	0.218	0.216	0.028	0.028	0.91	0.86	524	0.25	0.0012	0.0010	0.0002	1.578
R-4	23.20	UP-2	Gray organic SILT of very high plasticity, medium to stiff consistency, little fine sand, little shell.	56.0	-32.8	102.5	62.6	63.8	79	36	43	0.65	-	-	-	-	-	-	1538	0.47	-	-	-	-
R-5*	27.03	UP-1	Gray organic SILT of high plasticity, trace shell (Entire sample disturbed)	44.0	-17.0	91.7	57.7	58.8	65	32	33	0.81	-	-	-	-	-	-	-	0.02	-	-	-	-
R-6	20.90	UP-1	Gray organic SILT of very high plasticity, medium consistency, trace shells, trace fine sand.	34.0	-13.1	91.4	56.0	63.2	86	39	47	0.51	0.238	0.237	0.032	0.032	1.19	1.10	-	0.23	0.0010	0.0150	0.002	1.770
R-6	20.90	UP-2	Gray organic SILT of very high plasticity, medium consistency, trace shells, trace sand.	44.0	-23.1	93.8	55.0	70.5	80	37	43	0.78	-	-	-	-	-	-	997	0.34	-	-	-	-
R-7	12.93	UP-1	Gray organic SILT of very high plasticity, medium consistency, trace shells, trace fine sand.	29.0	-16.1	94.4	54.6	72.9	79	37	42	0.85	0.249	0.239	0.031	0.031	1.10	1.15	-	0.32	0.0015	0.0030	0.0004	1.911
R-8	25.79	UP-1	Gray organic SILT of high plasticity, trace shell, trace fine sand.	30.0	-4.2	96.2	59.9	60.6	74	38	36	0.63	0.202	0.202	0.026	0.026	1.01	0.97	-	0.54	0.0018	0.0040	0.001	1.538
R-9	19.95	UP-1	Gray organic SILT of very high plasticity, medium consistency, trace shells, trace fine sand.	34.0	-14.1	98.4	56.7	73.4	81	39	42	0.82	-	-	-	-	-	-	758	0.30	-	-	-	-
R-9	19.95	UP-2	Gray organic SILT of very high plasticity, medium consistency, trace shells, trace fine sand.	44.0	-24.1	92.4	52.6	75.5	78	37	41	0.94	0.269	0.268	0.034	0.034	0.97	0.94	-	0.29	0.0010	-	-	2.078
R-10	20.14	UP-1	Gray organic SILT of very high plasticity, medium consistency, trace shell, trace fine sand.	31.0	-10.9	92.0	56.34	63.3	79	33	46	0.66	0.206	0.206	0.027	0.027	0.88	0.70	-	0.26	0.0018	0.0110	0.001	1.168
R-10	20.14	UP-2	Gray organic SILT of high plasticity, medium to stiff consistency, trace shell, trace fine sand.	39.0	-18.9	104.8	71.78	46.0	61	29	32	0.53	0.185	0.185	0.021	0.021	0.83	1.01	-	0.49	0.0026	0.0010	0.0002	1.168
R-11	11.19	UP-1	Gray organic SILT of high plasticity, soft to medium consistency, some fine sand, trace gravel.	14.0	-2.8	108.2	70.5	53.5	56	30	26	0.90	0.185	0.185	0.020	0.020	1.00	1.31	-	0.24	0.0015	0.0060	0.0005	1.671
R-11	11.19	UP-2	Gray organic SILT of very high plasticity, medium consistency.	24.0	-12.8	95.8	57.9	65.5	74	34	40	0.79	-	-	-	-	-	-	552	0.26	-	-	-	-
R-12	17.65	UP-1	Gray organic SILT of very high plasticity, medium consistency, some fine-grained peat, trace fine sand.	23.0	-5.4	93.2	53.9	72.9	102	48	54	0.46	0.256	0.257	0.030	0.030	1.61	1.31	-	0.33	0.0018	0.0130	0.0005	1.931
A1-2	15.19	UP-1	Gray organic SILT of high plasticity, medium consistency, trace shell, trace fine sand.	31.0	-15.81	97.7	57.9	68.8	86	39	47	0.63	0.249	0.249	0.022	0.022	1.05	1.04	909	0.36	0.0014	-	-	1.897
A1-2	15.19	UP-2	Gray organic SILT of very high plasticity, medium consistency, trace shell, trace fine sand.	41.0	-25.81	98.9	57.4	72.3	89	40	49	0.66	0.280	0.280	0.033	0.033	1.24	0.88	1040	0.38	0.0012	-	-	1.788
A2-2	9.58	UP-1	Gray organic SILT of very high plasticity, medium consistency, trace shells, trace fine sand.	28.0	-18.42	91.0	52.2	74.2	77	36	41	0.93	-	-	-	-	-	-	738	0.28	-	-	-	-
A2-2	9.58	UP-2	Gray organic SILT of high plasticity, soft to medium consistency, trace shell, trace fine sand.	38.0	-28.42	93.2	52.8	76.5	74	36	38	1.07	0.258	0.232	0.034	0.034	0.84	0.75	-	0.24	0.0010	0.0140	0.001	1.807
B164-5	23.56	UP-1	Gray organic SILT of high plasticity, stiff consistency, trace shell, trace fine sand.	39.0	-15.44	103.3	65.8	57.0	75	38	37	0.51	0.244	0.215	0.027	0.028	2.31	1.93	-	0.66	0.0020	-	-	1.460
W101-1	4.82	UP-1	Gray organic SILT of high plasticity, soft consistency, trace shells, trace fine sand.	14.0	-9.2	86.4	51.4	68.2	66	30	36	1.06	0.212	0.211	0.023	0.023	0.80	0.87	320	0.24	0.0017	0.0140	0.0014	1.798

FINAL ROADWAY SOIL AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER

TABLE 1

SUMMARY OF ROADWAY AND ASSOCIATED BORINGS

Boring Number	Ground Surface El.		Groundwater El.		Bottom of Fill/Top of Organic Silt El.		Thickness of Fill		Bottom Organic Silt/ Top of Sand & Silt El.		Thickness of Organic Silt	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
R-1	6.05	19.85	0.41	1.35	0.41	1.35	5.64	18.50	-4.77	-15.65	5.18	16.99
R-2	5.45	17.88	-0.19	-0.62	-2.67	-8.76	8.12	26.64	-9.79	-32.12	7.12	23.36
R-3	4.98	16.34	0.87	2.85	-1.08	-3.54	6.06	19.88	-10.52	-34.51	9.44	30.97
R-4	7.07	23.20	2.96	9.71	-0.09	-0.30	7.16	23.49	-11.07	-36.32	10.98	36.02
R-5	8.24	27.03	4.13	13.55	-3.49	-11.45	11.73	38.48	-10.96	-35.96	7.47	24.51
R-6	6.37	20.90	3.02	9.91	-0.79	-2.59	7.16	23.49	-11.30	-37.07	10.51	34.48
R-7	3.94	12.93	1.35	4.43	-3.07	-10.07	7.01	23.00	-11.76	-38.58	8.69	28.51
R-8	7.86	25.79	2.22	7.28	-2.35	-7.71	10.21	33.50	-9.97	-32.71	7.62	25.00
R-9	6.08	19.95	3.34	10.96	-2.61	-8.56	8.69	28.51	-11.59	-38.02	8.98	29.46
R-10	6.14	20.14	0.50	1.64	-1.02	-3.35	7.16	23.49	-7.58	-24.87	6.56	21.52
R-11	3.41	11.19	0.82	2.69	0.21	0.69	3.20	10.50	-6.80	-22.31	7.01	23.00
R-12	5.38	17.65	1.27	4.17	-0.11	-0.36	5.49	18.01	-4.07	-13.35	3.96	12.99
R-13	2.36	7.74	0.23	0.75	0.24	0.79	2.12	6.96	-0.69	-2.26	0.93	3.05
R-14	2.90	9.51	-1.21	-3.97	0.31	1.02	2.59	8.50	-2.74	-8.99	3.05	10.01
A1-2	4.63	15.19	2.04	6.69	-1.16	-3.81	5.79	19.00	-11.68	-38.32	10.52	34.51
A2-2	2.92	9.58	0.48	1.57	-2.72	-8.92	5.64	18.50	-11.86	-38.91	9.14	29.99
A2-3	2.94	9.65	0.65	2.13	-7.27	-23.85	10.21	33.50	-10.32	-33.86	3.05	10.01
B164-2	7.58	24.87	3.47	11.38	-2.63	-8.63	10.21	33.50	-10.39	-34.09	7.76	25.46
B164-3	5.49	18.01	-0.15	-0.49	-3.81	-12.50	9.30	30.51	-10.82	-35.50	7.01	23.00
B164-5	7.18	23.56	1.54	5.05	-2.88	-9.45	10.06	33.01	-8.21	-26.94	5.33	17.49
B164-6	6.38	20.93	0.74	2.43	-2.31	-7.58	8.69	28.51	-8.40	-27.56	6.09	19.98
B165-2	2.62	8.60	0.03	0.10	-	-	-	-	-	-	-	-
W101-1	1.47	4.82	-1.12	-3.67	0.4	1.31	1.07	3.51	-4.17	-13.68	4.57	14.99

FINAL ROADWAY SOIL AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER

TABLE 3

PREFABRICATED VERTICAL DRAIN LOCATIONS

Preload Area	Baseline	Station From	Station to	Limits of PV Drain Installation Left Extent*		Limits of PV Drain Installation Right Extent*		Minimum Tip Elevation
PLA-1	I-95	0+600	0+620	15	RT	34	RT	-8
	I-95	0+620	0+640	14	RT	35	RT	-10
	I-95	0+640	0+660	14	RT	35	RT	-11
	I-95	0+660	0+680	12	RT	35	RT	-11
	I-95	0+680	0+700	11	RT	36	RT	-11
	I-95	0+700	0+720	11	RT	36	RT	-12
	I-95	0+720	0+740	10	RT	37	RT	-12
	I-95	0+740	0+755	8	RT	38	RT	-13
PLA-2	Ramp B	20+080	20+100	17	LT	6	LT	-12
	Ramp B	20+100	20+120	18	LT	2	LT	-12
	Ramp B	20+120	20+140	17	LT	1	RT	-12
	Ramp B	20+140	20+160	15	LT	3	RT	-12
	Ramp B	20+160	20+180	13	LT	5	RT	-12
	Ramp B	20+180	20+200	13	LT	4	RT	-12
	Ramp B	20+200	20+220	12	LT	2	RT	-12
PLA-3.1	I-95	1+060	1+080	11	RT	46	RT	-12
	I-95	1+080	1+100	13	RT	45	RT	-12
	I-95	1+100	1+120	16	RT	44	RT	-12
	I-95	1+120	1+140	26	RT	44	RT	-12
PLA-3.2	I-95	1+120	1+140	9	RT	22	RT	-12
	I-95	1+140	1+160	9	RT	25	RT	-12
	I-95	1+160	1+180	10	RT	30	RT	-12
	I-95	1+180	1+200	11	RT	33	RT	-12
	I-95	1+200	1+220	12	RT	29	RT	-12
	I-95	1+220	1+240	12	RT	25	RT	-12
PLA-4	Ramp D	4+060	4+080	19	LT	5	LT	-4
	Ramp D	4+080	4+100	19	LT	2	LT	-3
	Ramp D	4+100	4+120	20	LT	2	RT	-3
	Ramp D	4+120	4+140	18	LT	4	RT	-2
PLA-5	Ramp C	30+060	30+080	12	LT	3	LT	-7
	Ramp C	30+080	30+100	12	LT	10	RT	-7
	Ramp C	30+100	30+120	11	LT	13	RT	-7
	Ramp C	30+120	30+140	8	LT	16	RT	-6
	Ramp C	30+140	30+160	10	LT	16	RT	-5
	I-95	1+480	1+500	16	RT	37	RT	-4
	I-95	1+500	1+520	16	RT	35	RT	-3

* Extent is approximate average of the two stations, intent is to include entire surcharged area.

FINAL ROADWAY SOIL AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER

TABLE 4

INSTRUMENTATION LOCATIONS

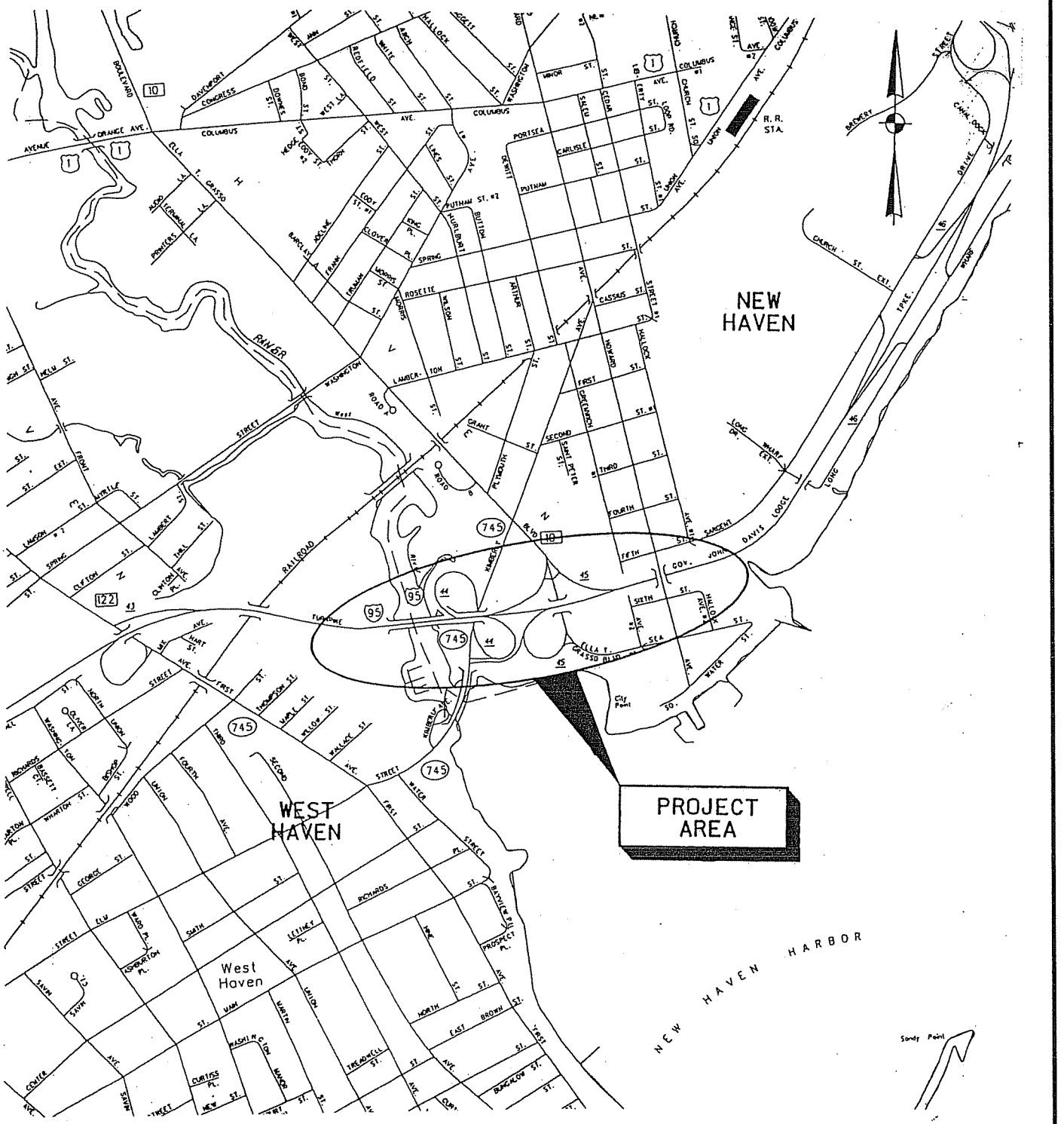
SETTLEMENT PLATFORMS

Preload Area	Baseline	Station	Offset
PLA-1	I-95	0+620	24 RT
	I-95	0+650	24 RT
	I-95	0+680	24 RT
	I-95	0+710	24 RT
	I-95	0+740	22 RT
PLA-2	Ramp B	20+120	8 LT
	Ramp B	20+150	6 LT
	Ramp B	20+180	4 LT
PLA-3.1	I-95	1+080	18 RT
	I-95	1+080	32 RT
	I-95	1+110	22 RT
	I-95	1+110	32 RT
	I-95	1+140	36 RT
PLA-3.2	I-95	1+140	15 RT
	I-95	1+170	19 RT
	I-95	1+200	22 RT
PLA-4	Ramp D	40+080	12 LT
	Ramp D	40+110	11 LT
	Ramp D	40+140	8 LT
PLA-5	Ramp C	30+070	6 LT
	Ramp C	30+100	0 LT
	Ramp C	30+130	2 RT
	I-95	1+480	26 RT
	I-95	1+510	24 RT

VIBRATING WIRE PIEZOMETERS

Preload Area	Baseline	Station	Offset	Tip Elevation
PLA-1	I-95	0+620	22 RT	-4.5
	I-95	0+680	22 RT	-6.0
	I-95	0+740	22 RT	-7.0
PLA-2	Ramp B	20+150	6 LT	-4.5
PLA-3.1	I-95	1+080	32 RT	-8.0
	I-95	1+110	22 RT	-5.5
PLA-3.2	I-95	1+170	19 RT	-6.0
PLA-4	Ramp D	40+120	10 LT	-2.0
PLA-5	Ramp C	30+100	0 LT	-3.5
	I-95	1+480	26 RT	-1.5

FIGURES



FINAL ROADWAY SOILS AND ROCK REPORT

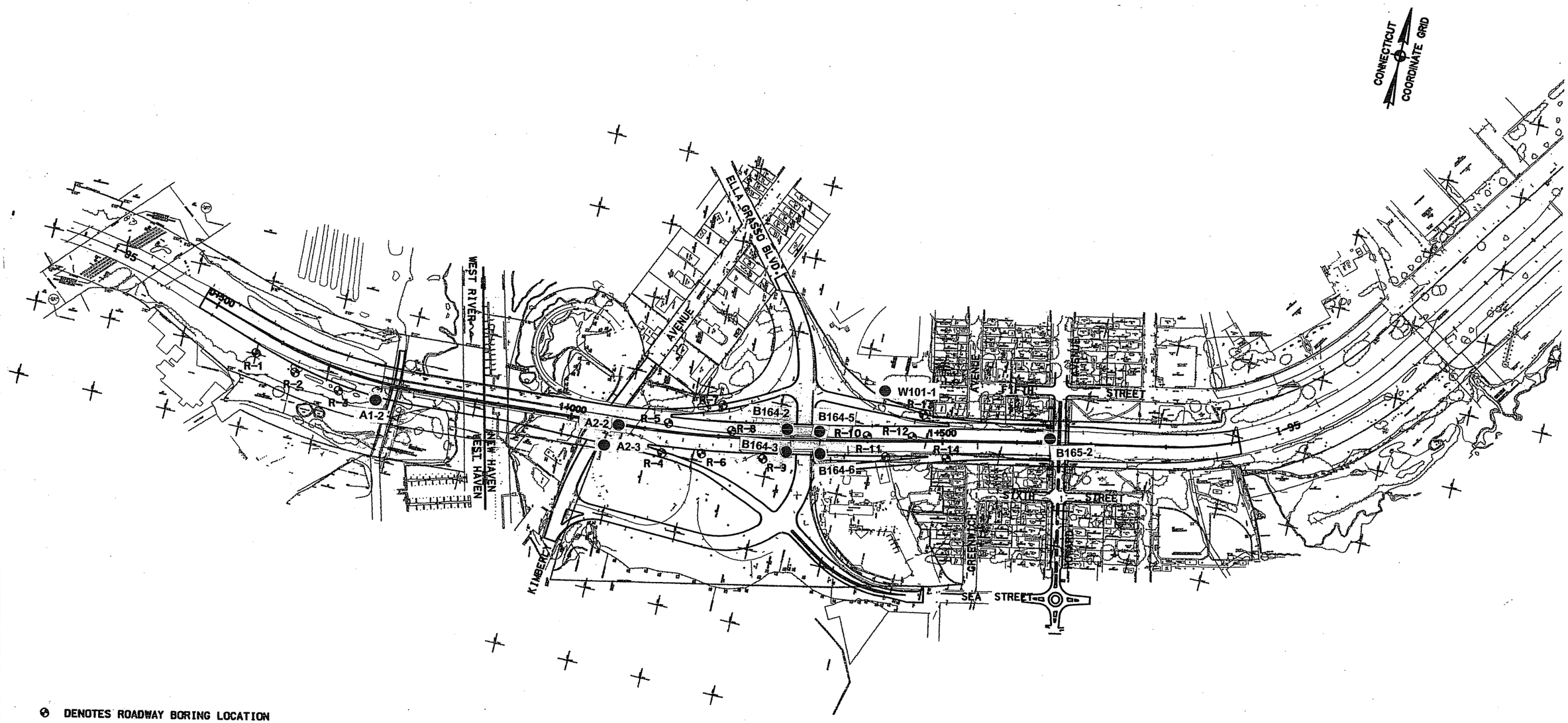
RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

SITE LOCATION PLAN

PB 100 YEARS

MARCH 2004

FIGURE 1



DENOTES ROADWAY BORING LOCATION

DENOTES STRUCTURE BORING UTILIZED IN ROADWAY EVALUATION

SCALE IN METERS

0 25 50 75 100 125

SCALE 1:2500

PB 100 YEARS

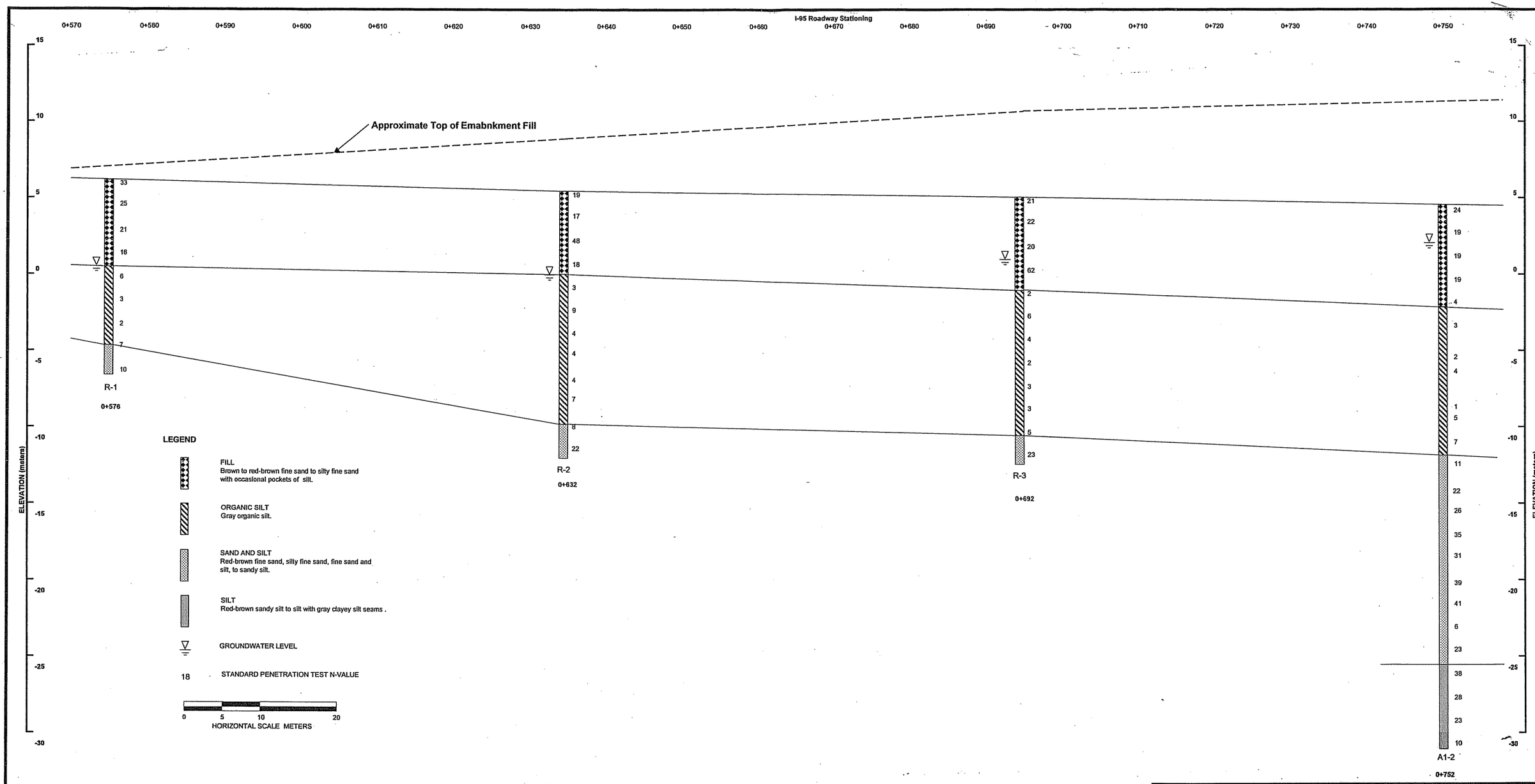
FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

PROJECT/BORING LOCATION PLAN

MARCH 2004

FIGURE 2



FINAL ROADWAY SOILS AND ROCK REPORT

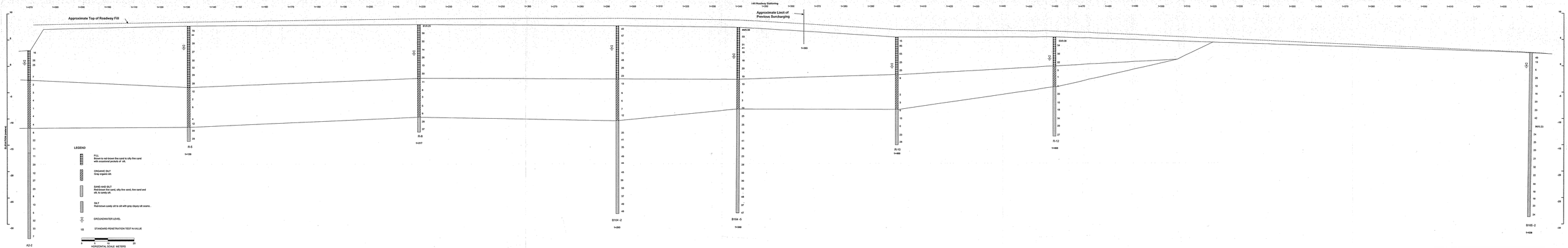
RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

WEST MAINLINE

SUBSURFACE PROFILE

MARCH 2004

FIGURE 3



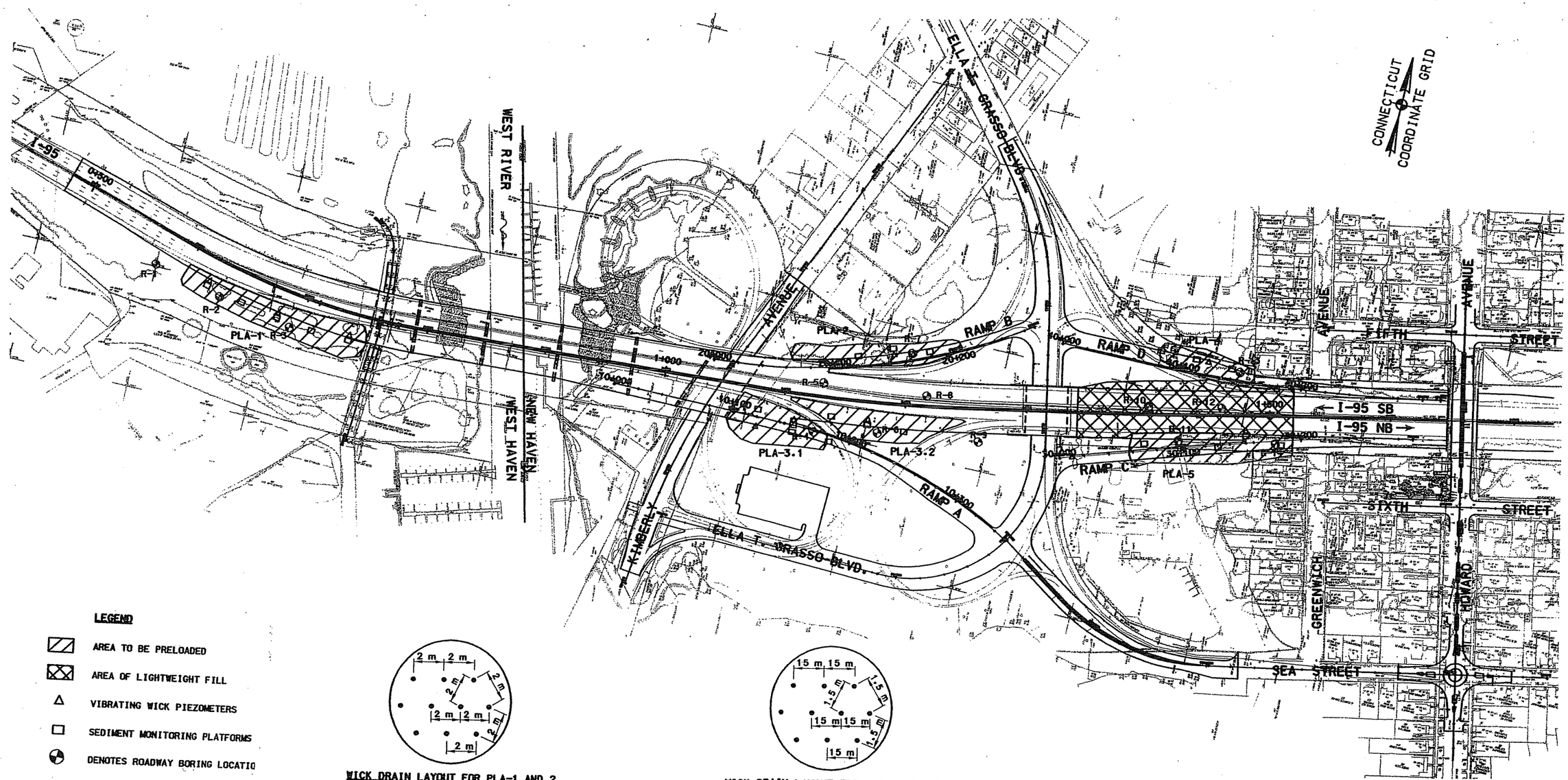
FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

EAST MAINLINE
SUBSURFACE PROFILE

MARCH 2004

FIGURE 4



WICK DRAIN LAYOUT FOR PLA-1 AND 2
2.0 m TRIANGULAR SPACING (TYP.)

WICK DRAIN LAYOUT FOR PLA-3, 4 & 5
2.0 m TRIANGULAR SPACING (TYP.)

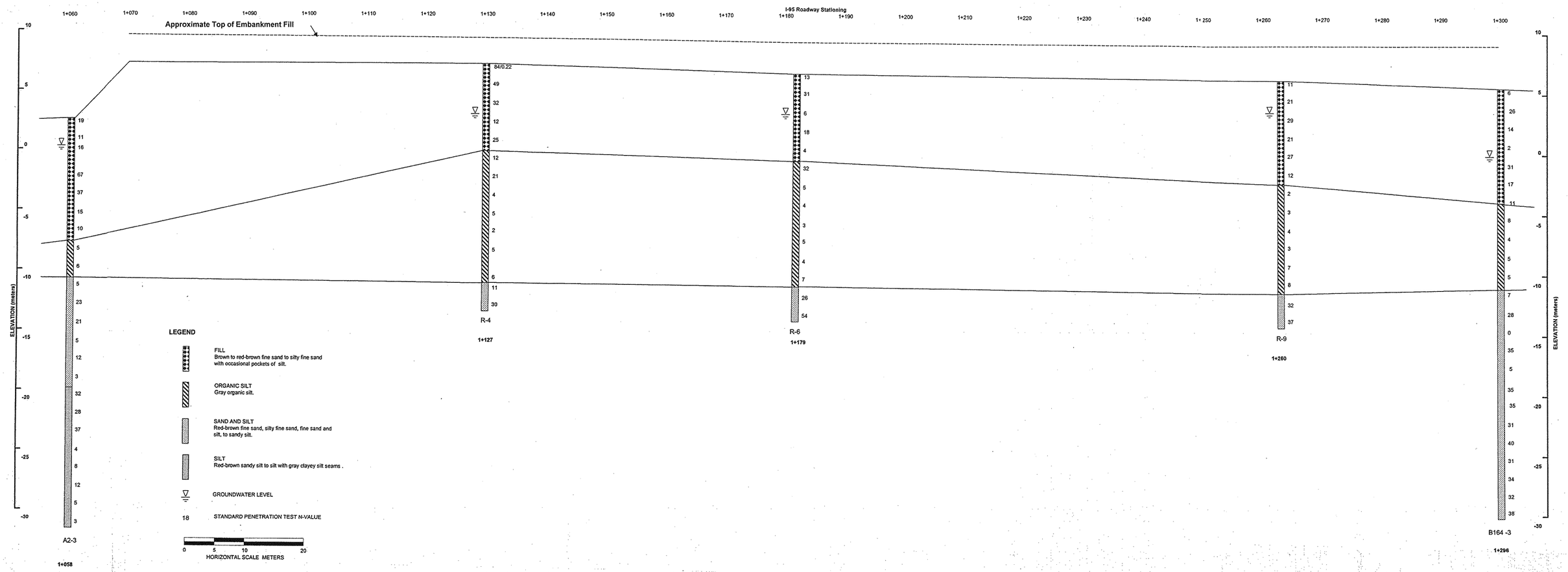
FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

PRELOAD PLAN

MARCH 2004

FIGURE 5



FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

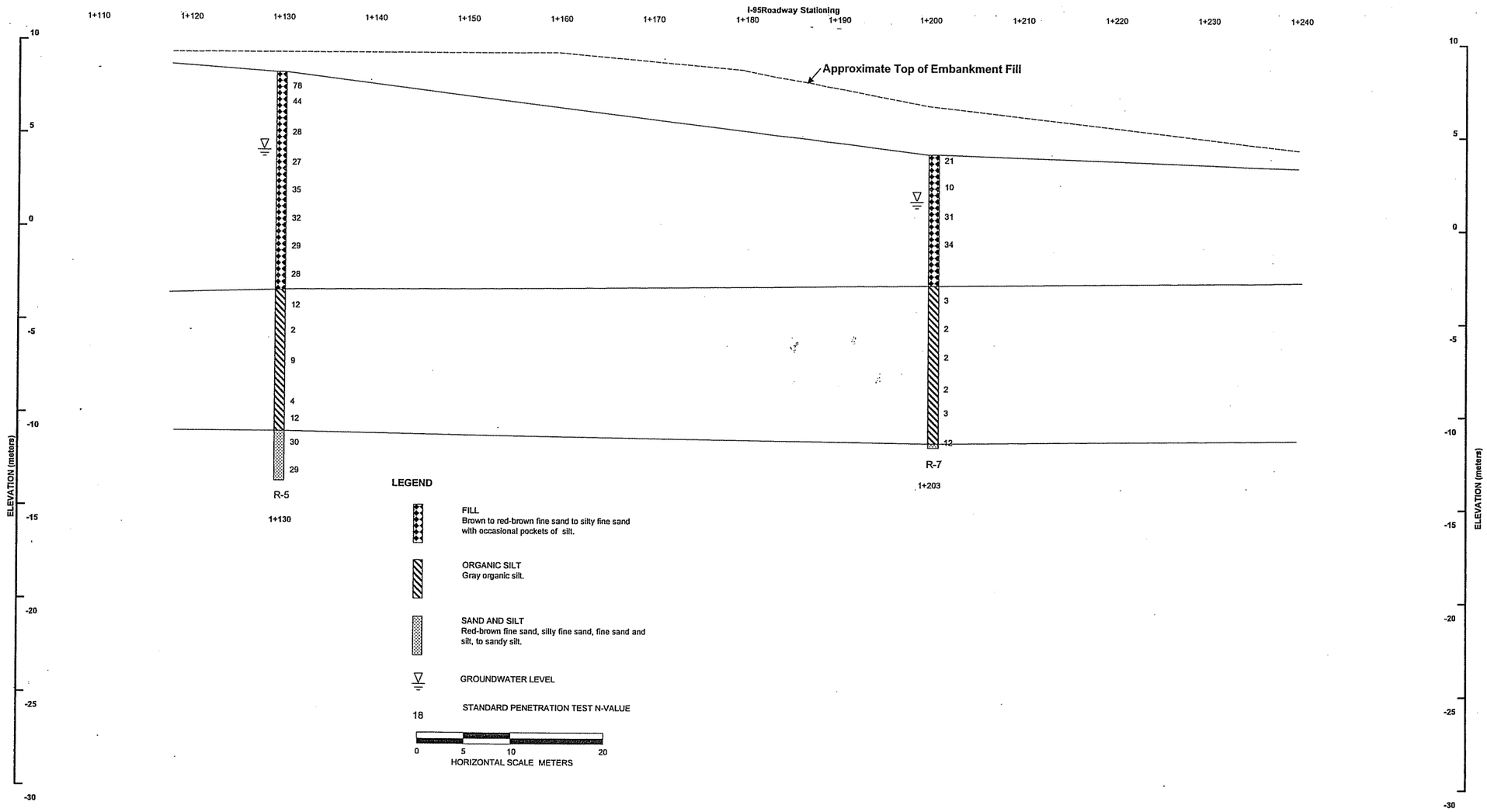
NORTHBOUND OFF RAMP (RAMP A) & SOUTH EMBANKMENT WIDENING SUBSURFACE PROFILE

MARCH 2004

FIGURE 6

APPENDIX A

Existing Boring Data



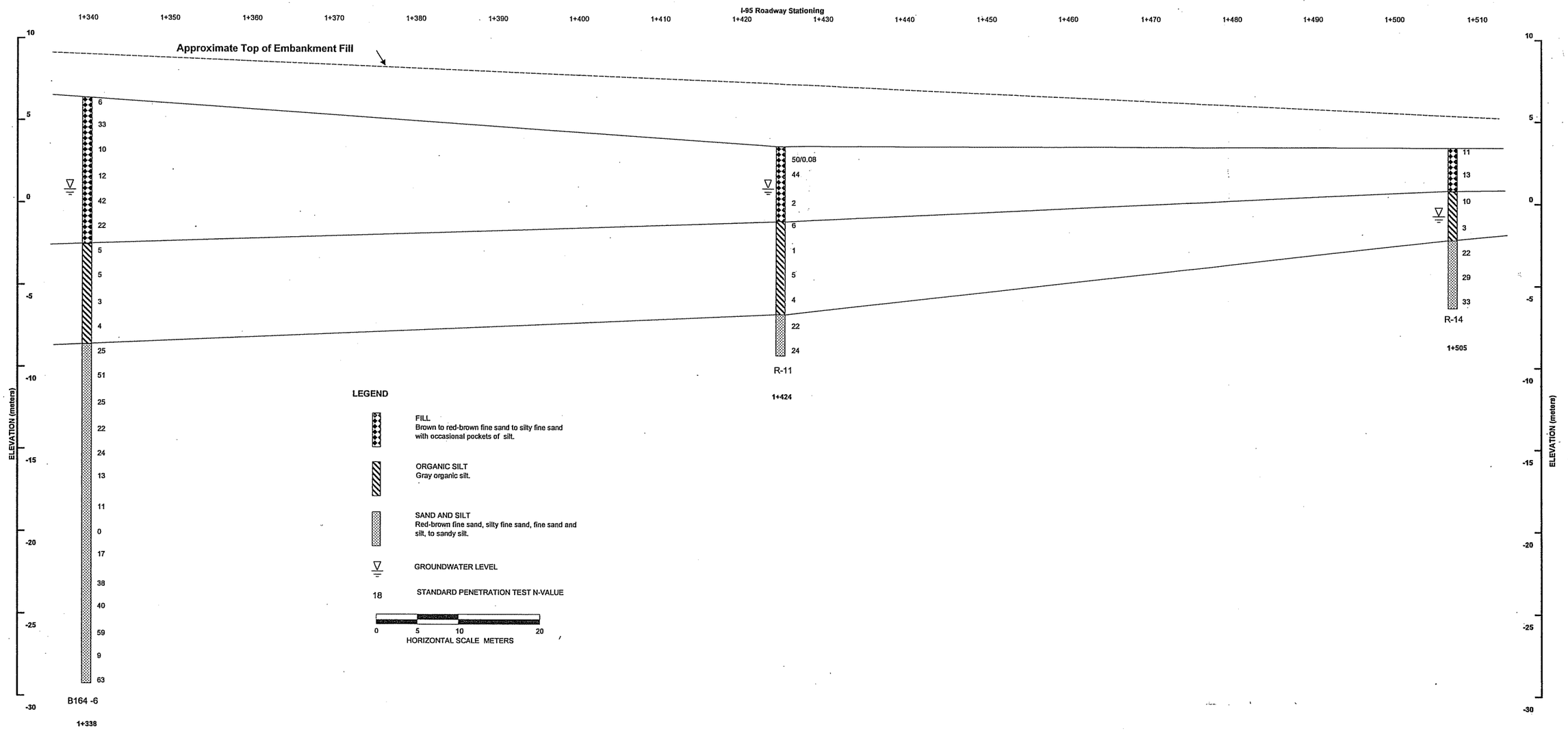
FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

SOUTHBOUND ON RAMP (RAMP B) SUBSURFACE PROFILE

MARCH 2004

FIGURE 7



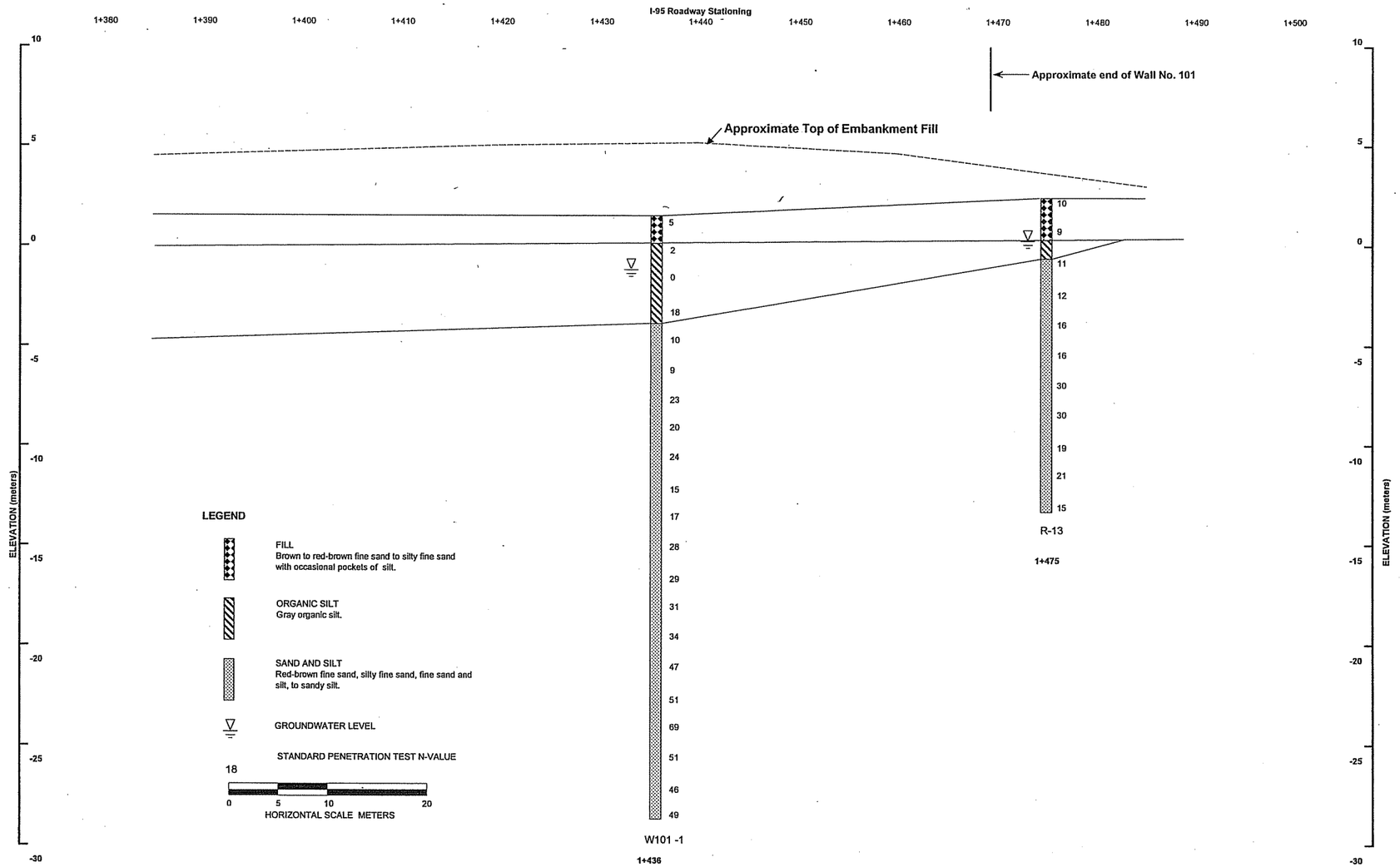
FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

NORTHBOUND ON RAMP (RAMP C) SUBSURFACE PROFILE

MARCH 2004

FIGURE 8



FINAL ROADWAY SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

SOUTHBOUND OFF RAMP (RAMP D)
SUBSURFACE PROFILE

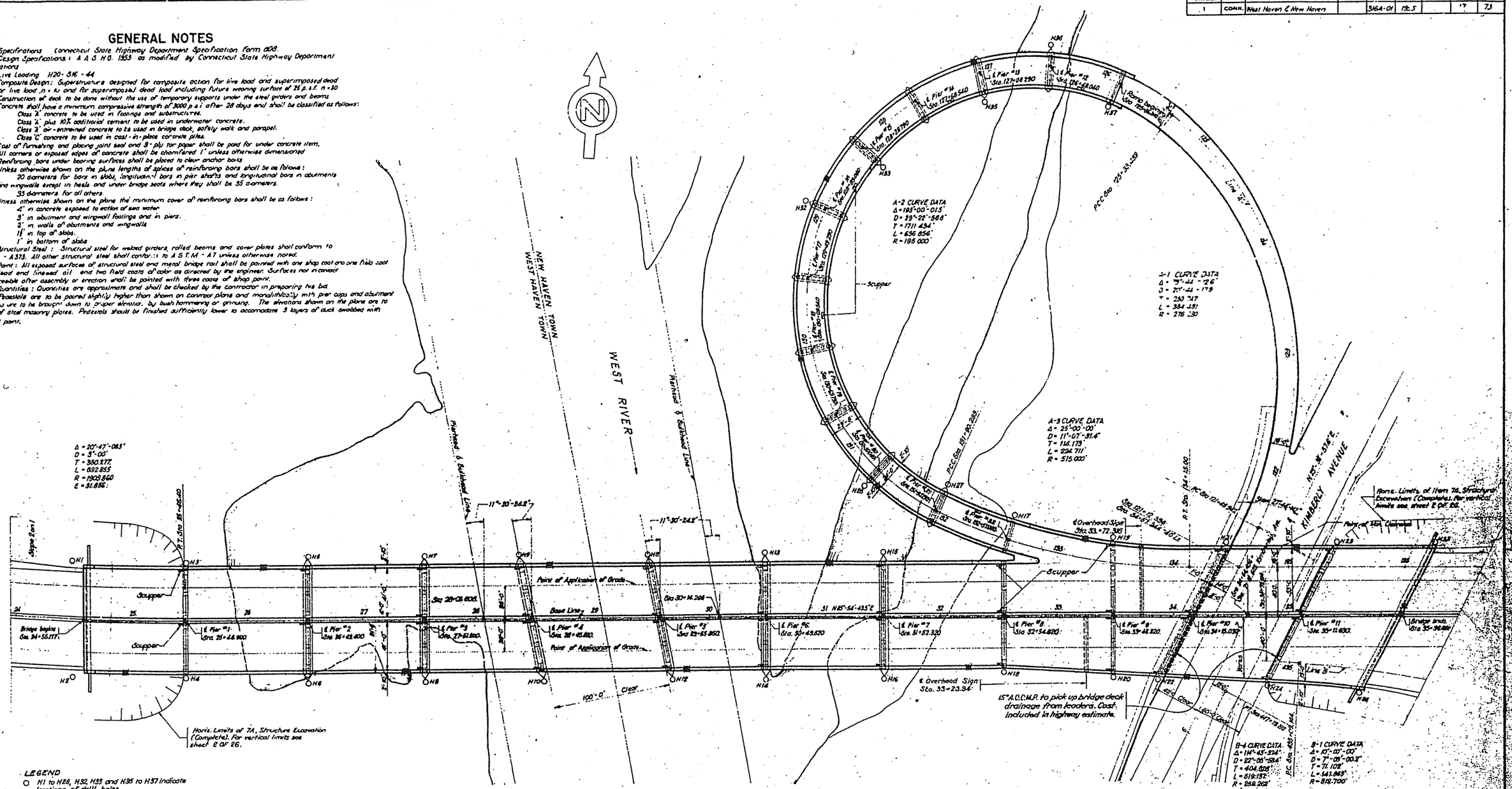
MARCH 2004

FIGURE 9

FUN. & AID DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		316A-01	1955		17	73

GENERAL NOTES

Specifications Connecticut State Highway Department Specification Form 408.
Design Specifications: A A S H O. 1953 as modified by Connecticut State Highway Department Specifications
Live Loading H20-S16-44
Composite Design: Superstructure designed for composite action for live load and superimposed dead load. For live load n = 10 and for superimposed dead load including future wearing surface of 25 p.s.f. n = 30
Construction of deck to be done without the use of temporary supports under the steel girders and beams
Concrete shall have a minimum compressive strength of 3000 p.s.i. after 28 days and shall be classified as follows:
Class 'A' concrete to be used in footings and substructures.
Class 'A' plus 10% additional cement to be used in underwater concrete.
Class 'A' air-entrained concrete to be used in bridge deck, safety walk and parapet.
Class 'C' concrete to be used in cast-in-place concrete piles.
Cost of furnishing and placing joint seal and 3-ply tar paper shall be paid for under concrete item.
All corners or exposed edges of concrete shall be chamfered 1" unless otherwise dimensioned
Reinforcing bars under bearing surfaces shall be placed to clear anchor bolts
Unless otherwise shown on the plans lengths of splices of reinforcing bars shall be as follows:
20 diameters for bars in slabs, longitudinal bars in pier shafts and longitudinal bars in abutments and wingwalls except in heels and under bridge seats where they shall be 35 diameters.
35 diameters for all others.
Unless otherwise shown on the plans the minimum cover of reinforcing bars shall be as follows:
4" in concrete exposed to action of sea water
3" in abutment and wingwall footings and in piers.
2" in walls of abutments and wingwalls
1½" in top of slabs.
1" in bottom of slabs
Structural Steel: Structural steel for welded girders, rolled beams and cover plates shall conform to A.S.T.M. - A373. All other structural steel shall conform to A.S.T.M. - A7 unless otherwise noted.
Paint: All exposed surfaces of structural steel and metal bridge rail shall be painted with one shop coat and one field coat of red lead and linseed oil and two field coats of color as directed by the engineer. Surfaces not in contact but inaccessible after assembly or erection shall be painted with three coats of shop paint.
Quantities: Quantities are approximate and shall be checked by the contractor in preparing his bid.
Pedestals are to be poured slightly higher than shown on contract plans and monolithically with pier caps and abutment stems and are to be brought down to proper elevation by bush hammering or grinding. The elevations shown on the plans are to bottom of steel masonry plates. Pedestals should be finished sufficiently lower to accomodate 3 layers of duck swabbed with red-lead paint.



LEGEND
○ H1 to H28, H32, H33 and H35 to H37 indicate locations of drill holes.
■ Lighting Standard
▭ Scupper.

Item "Cofferdam and Pumping" to be used for Piers 2-7, and Piers 12-21
Item 73 "Excavation Complete for Abutment Columns" to be used for West and East Abutments.
Item 7 Structure Excavation (Complete) to be used at all other locations

PLAN
Scale 1" = 40'

Date Started: 5-10-56
Date Completed: 12-6-57
Final Length: 1900.00'
Total Cost: $4,400,190.57

REVISIONS		
NO.	DATE	DESCRIPTION

CONNECTICUT
STATE HIGHWAY DEPARTMENT
TOWNS OF WEST HAVEN & NEW HAVEN
GREENWICH KILLINGLY EXPRESSWAY
OVER
WEST RIVER AND KIMBERLY AVENUE

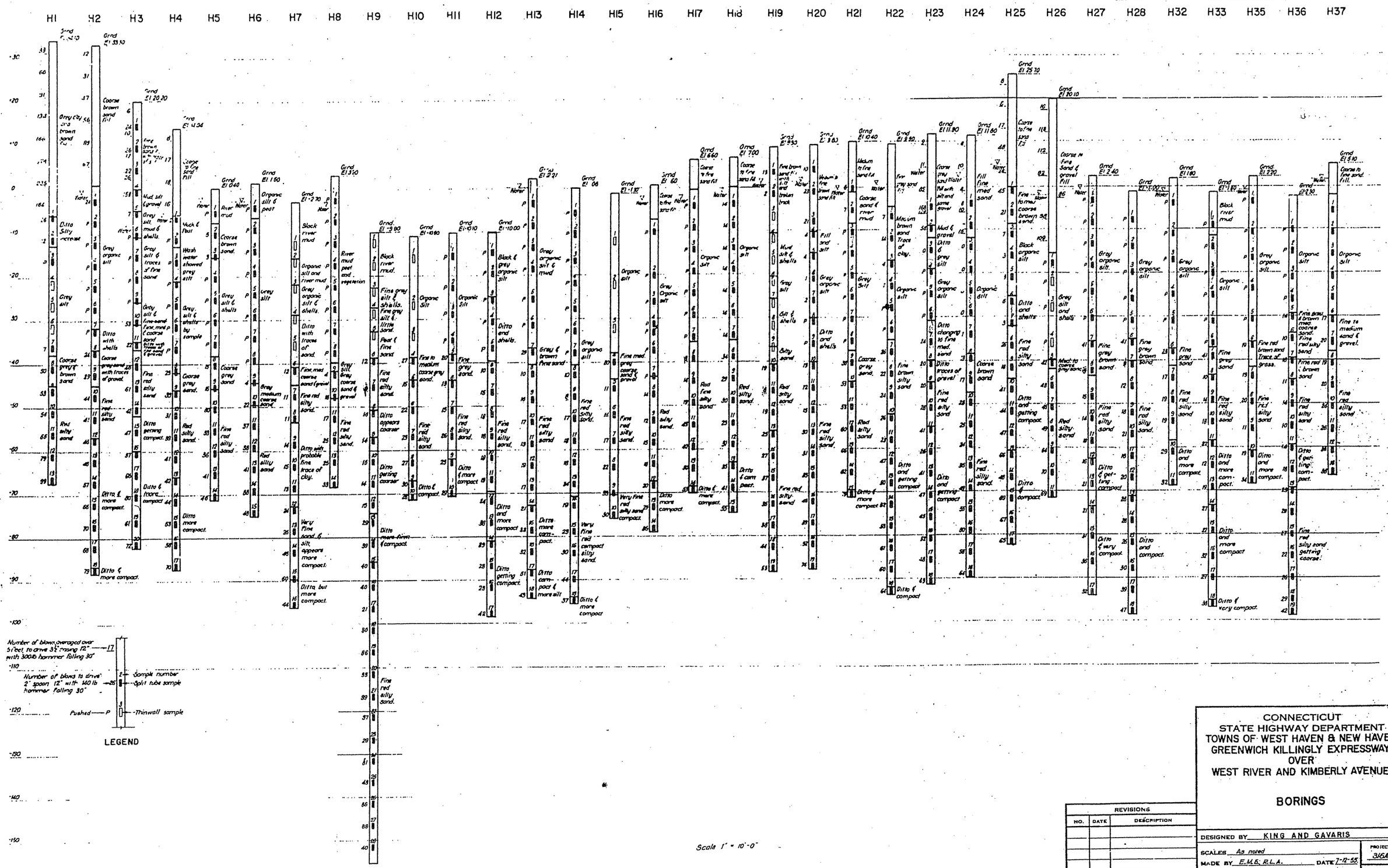
GENERAL PLAN

DESIGNED BY KING AND GAVARIS
SCALES As noted
MADE BY
CHECKED BY
APPROVED

316A 01

320 05

PUB. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		316A-01	1955		2C	73



REVISIONS		
NO.	DATE	DESCRIPTION

CONNECTICUT
STATE HIGHWAY DEPARTMENT
TOWNS OF WEST HAVEN & NEW HAVEN
GREENWICH KILLINGLY EXPRESSWAY
OVER
WEST RIVER AND KIMBERLY AVENUE

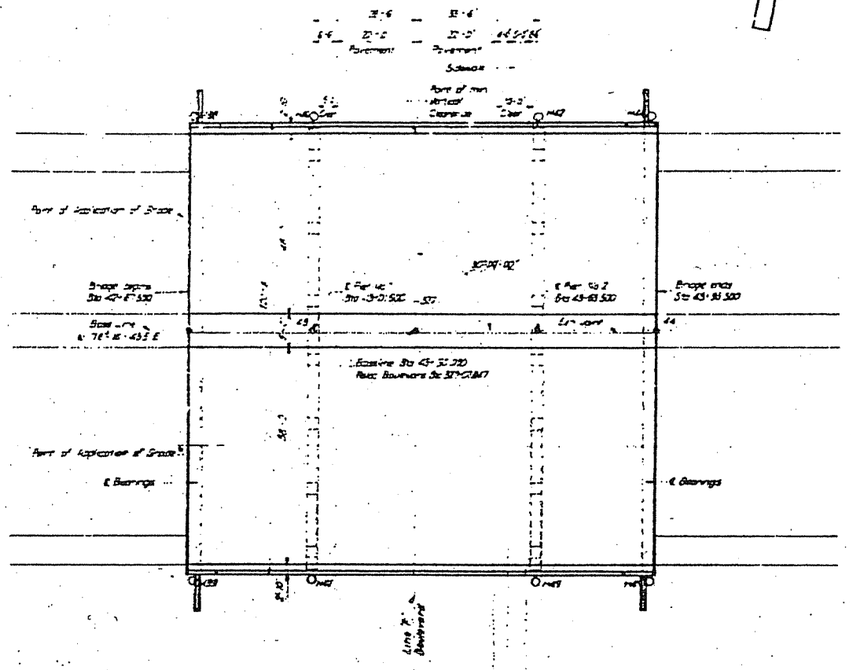
BORINGS

DESIGNED BY KING AND GAVARIS
SCALES As noted
MADE BY E.M.B. R.L.A. DATE 7-12-55
CHECKED BY V.J.L. DATE 8-22-55
APPROVED [signature] DATE 8-26-55
PROJECT NO. 316A-01
BRIDGE SHEET NO. 4 OF 26

316A 01

320 05

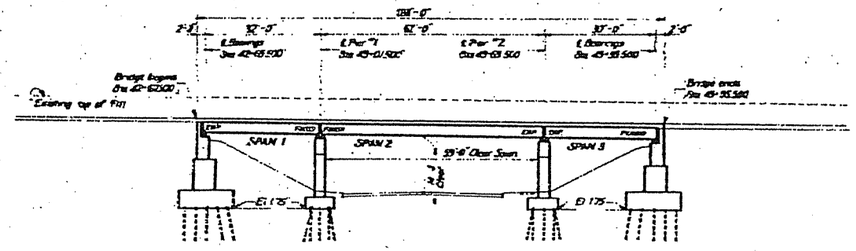
20



NOTE: ⊥ 38 to ⊥ 45 denote location of drill holes

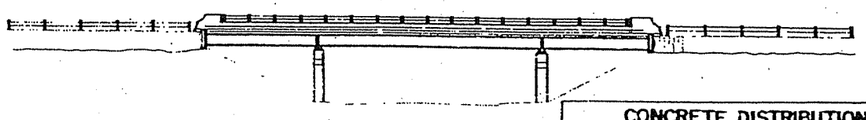
PLAN

Scale 1"=30'



LONGITUDINAL SECTION ON BASE LINE

Scale 1"=20'

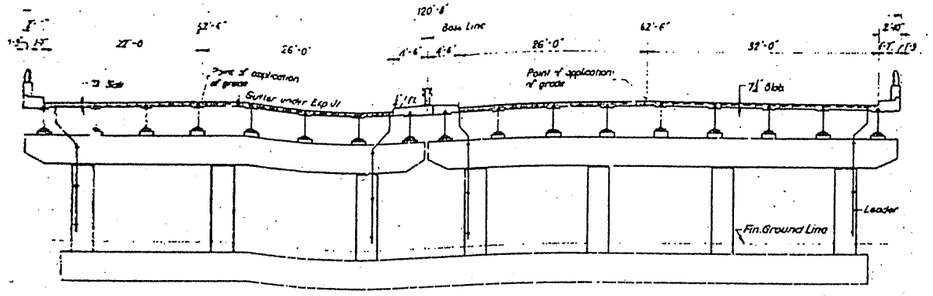


ELEVATION

Scale 1"=20'

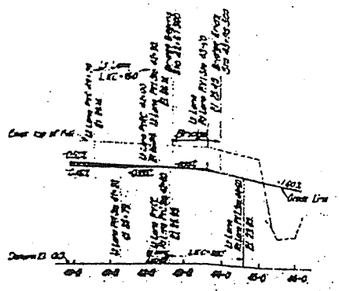
CONCRETE DISTRIBUTION	
Bridge	504 C.y.
Substructure	495 C.y.
Superstructure	459 C.y.
Total	1458 C.y.

Date Started: 6-15-36
Date Completed: 10-7-37
Final Length: 128.00'
Total Cost $420,614.37



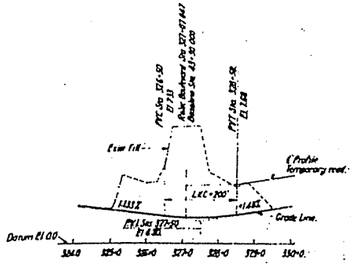
TRANSVERSE SECTION

Scale 1"=10'-0



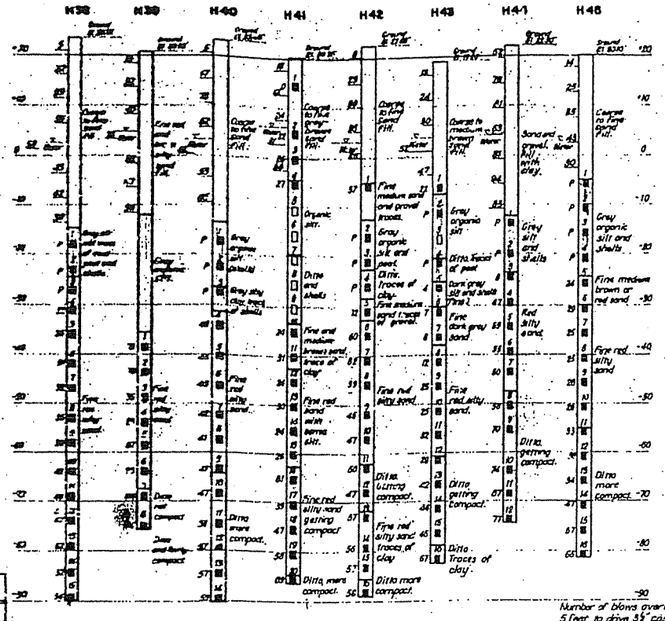
EXPRESSWAY PROFILE

Scales: Hor. 1"=100' Vert. 1"=20'



RELOCATED BOULEVARD PROFILE

Scales: Hor 1"=200' Vert 1"=20'



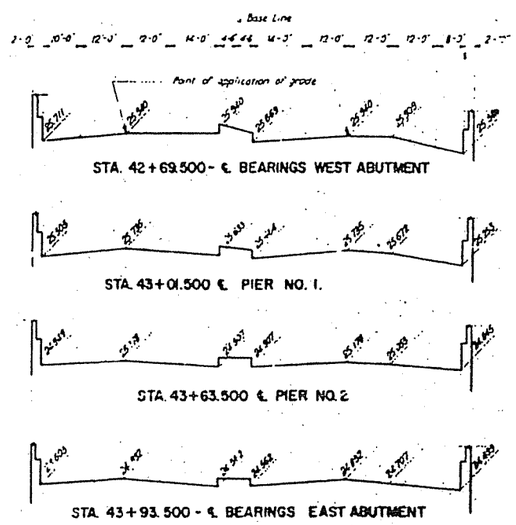
BORINGS

LEGEND

- Thin-wall sample
- Sample number
- Split tube sample

GENERAL NOTES (cont'd)

The elevations shown on the plans are to bottom of steel masonry plates. Pedestals should be finished sufficiently lower to accommodate 3 layers of duck swabbed with red-lead paint.



DECK CROSS SECTIONS

Scales. Hor. 1"=20' Vert. 1"=2.5'

GENERAL NOTES

Specifications: Connecticut State Highway Department Specifications Form 1955. Design Spec. of Concrete: A.A.S.H.O. 1953 as modified by Connecticut State Highway Department Specifications.

Live Loading: H20-S16-44.

Composite Design: Superstructure designed for composite action for live load and superimposed dead load. For live load n = 10 and for loads "superimposed dead load and sidewalk flume & wearing surface of 1½" p.s.f. n = 30.

Construction of deck to be done without the use of temporary supports in [illegible] the steel stringers.

Concrete: shall have a minimum compressive strength of [illegible] 28 days and shall be classified as follows:

Class "A" concrete to be used in floorings and [illegible]

Class "A" air-entrained concrete to be used in [illegible]

Class C concrete to be used in cast-in-place concrete piles.

Cost of furnishing and placing joint seal and 3-ply tarpaper shall be paid for under concrete item.

All corners or exposed edges of concrete shall be chamfered 1" unless otherwise dimensioned.

Reinforcing bars under bearing surfaces shall be placed to obtain [illegible]

Unless otherwise shown on the plans lengths of splices of reinforcing bars shall be as follows:

20 diameters for bars in slabs, longitudinal bars in pier shafts and longitudinal bars in abutments and wingwalls except in footings and [illegible] bridge seats where they shall be 35 diameters.

35 diameters for all others.

Unless otherwise shown on the plans, the minimum cover of reinforcing bars shall be as follows:

3" in abutment and wingwall footings and in piers.

2" in walls of abutments and wingwalls.

1½" in top of slabs

1" in bottom of slabs.

Structural Steel: Structural steel for plated rolled beams shall conform to A.S.T.M.-A373. All other structural steel shall conform to A.S.T.M.-A7 unless otherwise noted.

Paint: All exposed surfaces of structural steel of bridge shall be painted with one shop coat and one field coat of red lead and linseed oil and two field coats of paint as directed by the Engineer. Surfaces not in contact but inaccessible after assembly or erection shall be painted with three coats of shop paint.

Quantities: Quantities are approximate and shall be checked by the contractor in preparing his bid.

Pedestals are to be poured slightly higher than shown on contract plans and monolithically with pier caps and abutment stems and are to be brought down to proper elevation by bushhammering or grinding (GENERAL NOTES cont'd above).

QUANTITIES

ITEM	UNIT	QUANTITY
Structure Excavation (Complete)	c.y.	1407
Structure Excavation Complete for Abutment Columns	c.y.	1140
6" Perf. A.C.C.M. Pipe	l.f.	283
Pipe Pile Sheeres 24" Diam.	l.f.	66
12 BP 53. Central Pile (95')	ea.	3
Special 12 BP 53 Test Pile (65')	ea.	1
Special 12 BP 53 Test Pile (95')	ea.	1
Pile Loading Test (110 Ton)	ea.	2
Class "A" Concrete.	c.y.	1438
½" Premoulded Bituminous Joint Filler for Bridges	s.f.	22
¾" Premoulded Bituminous Joint Filler for Bridges	s.f.	168
½" Premoulded Bituminous Joint Filler for Bridges	s.f.	149
¾" Premoulded Bituminous Joint Filler for Bridges	s.f.	80
Furnishing Steel Piles.	lbs.	1405546
Deformed Steel Bars	lbs.	229634
Structural Steel	lbs.	339438
Spiral Shear Connectors & Bars	lbs.	2928
Copper Gutters and Leaders (20 oz.)	lbs.	210
Dampproofing	s.y.	288
Metal Bridge Rail	l.f.	216
Pervious Structure Backfill	c.y.	731
Portland Cement	bbl.	3025
Natural Cement	bbl	534
Driving Steel Piles	l.f.	26488
Splicing Steel Piles	ea.	18
Junction Box (18"x18"x10')	ea.	6
2" Rigid Steel Conduit	l.f.	20
2½" Rigid Steel Conduit	l.f.	336
6" A.C.C.M. Pipe	l.f.	64

REVISIONS		
NO.	DATE	DESCRIPTION

CONNECTICUT
STATE HIGHWAY DEPARTMENT
TOWN OF NEW HAVEN
GREENWICH KILLINGLY EXPRESSWAY
OVER
RELOCATED BOULEVARD

GENERAL PLAN AND ELEVATIONS

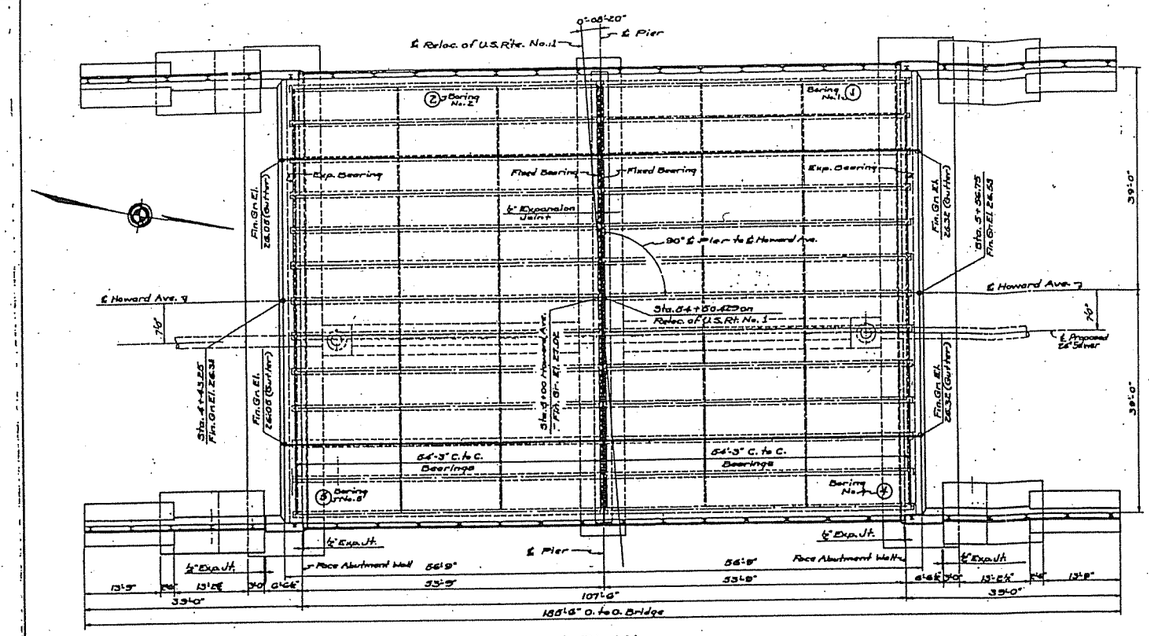
DESIGNED BY: KING AND GAVARIS
SCALES: As noted
MADE BY: R.L.K., I.H. DATE: 7-12-35
CHECKED BY: M.A.S. DATE: 8-10-35
APPROVED: [illegible] DATE: 8-26-35
PROJECT NO. 319A-01
DRAWING NO. E-6

319A 01

320 05

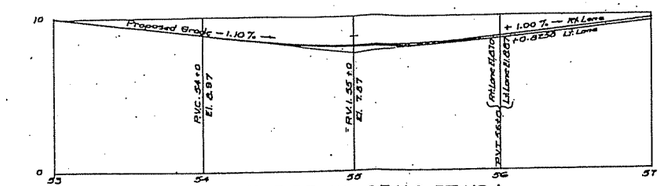
No Corrections Submitted For This Sheet

FED. ROAD DIST. NO.	STATE	TOWN	PROJECT NO.	YEAR	SHEETS NO.	SHEET NO.	TOTAL SHEETS
	CONN.	NEW HAVEN	U-HTR 92-64	1950	1	9	22

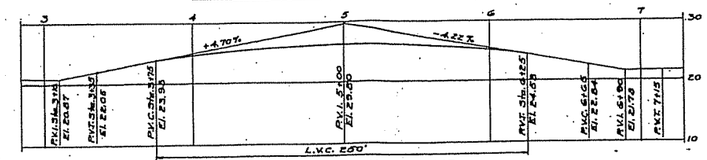


PLAN

SCALE 1/16"=1'-0"



PROFILE RELOC. OF U.S. RT. NO. 1



PROFILE HOWARD AVE.

GENERAL NOTES

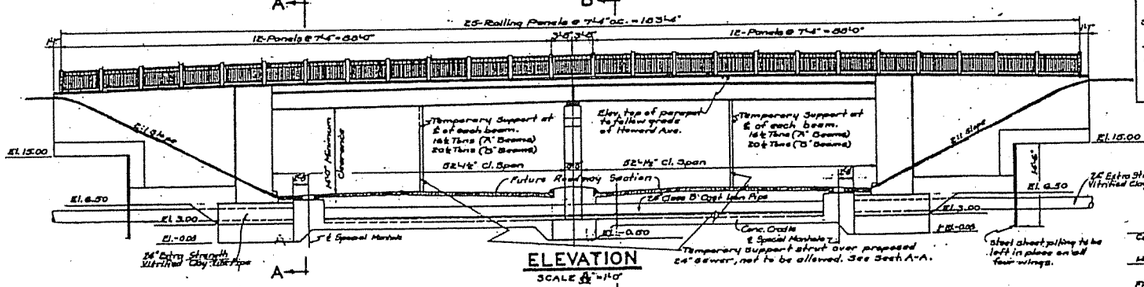
Specifications: Conn. State Highway Dept. Form 807 (1947)
Live Load: HS20-S16-44
Concrete: Class "A" Concrete to be used throughout.
Paint: All exposed surfaces of structural steel and Metal Bridge Rail to have three coats of paint; one shop coat of zinc chromate and two field coats of paint of a color and shade as directed.
Quantities: Cost of furnishing & placing 2 layers of 3-ply tar-paper on top of abutment backwalls and 4" ø weep-holes with one cubic ft. of broken stone at each drain at back of abutment walls as shown on plans, is to be included in the general cost of the contract. Quantities are approximate only & should be checked by the Contractor before preparing his bid.
Bridge Excavation: Bridge Excavation consists of that required after Rdwy excavation (including side slopes) on relocation of U.S. Rt. No. 1 is assumed complete.
Royalty: Royalty in the amount of ($62.30) shall be paid to the Poreta Mfg. Co. of North Arlington, N.J. by the Contractor for use of patented spiral shear connector bars. Royalty is based on 0.10/lb. See Special Provision - Spiral Shear connector Bars for structures involving temporary support.
Sheet Piling: Steel sheet piling under wings will be left in place and paid for at 23 #/□' of wall.
42" Steel Pipe Sleeve: The cost of furnishing & placing 42" steel pipe sleeve through (Abutts. only) for proposed 24" sewer, and furnishing & placing of suitable caulking material around vitrified tile pipe in 42" steel pipe sleeve to be included in unit price bid for class "A" Concrete.
Utilities: Any additional steel members or devices required for the proper support of the public utilities pipes being carried by the superstructure will be the obligation of the owning utility Co. Cost of placing pipe sleeves for the G.N.E.T. Co. & N.H.G. Light Co. and forming hole in abutments for 10" water main to be included in general cost of Contract.
Sequence of Slab Pour: All "A" & "B" (Rdwy) beams are of composite design & all "C" (sidewalk) beams are not composite design. Therefore all "A" & "B" beams are to be supported at their centers & all "C" beams are not to be supported.
The first portion of superstructure to be poured is the Rdwy slab, from gutter to gutter, being carried on "A" & "B" beams. The supports under these "A" & "B" beams are to remain until such time as they are ordered removed by Engineer.
After the supports have been removed from the "A" & "B" beams, the remaining portion of the superstructure is to be poured. This remaining portion being the sidewalk slab which is carried by the "C" beams.

QUANTITIES

BRIDGE EXCAVATION	C.Y.	1,810
STEEL SHEET PILES (If ordered left in place)	lbs.	20,000
PORTLAND CEMENT	Bbl.	1,987
NATURAL CEMENT	Bbl.	953
CLASS "A" CONCRETE	C.Y.	1,385
½" PREM. BIT. JT. FILLER FOR BRIDGES	S.F.	593
DEFORMED STEEL BARS	lbs.	133,535
SPIRAL SHEAR CONNECTOR BARS	lbs.	4,023
STRUCTURAL STEEL	lbs.	246,000
METAL FLASHING	lbs.	400
DAMP PROOFING	S.Y.	570
METAL BRIDGE RAILING	L.F.	368
PERVIOUS MATERIAL	C.Y.	2,300

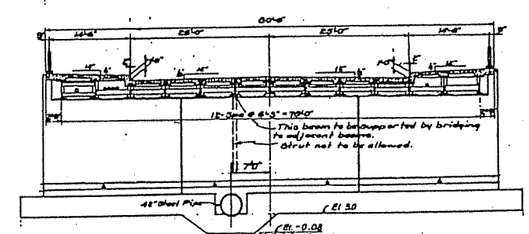
CONCRETE DISTRIBUTION

	Class A Concrete	Portland Cement	Natural Cement
Footings	246 C.Y.	778 Bbl.	140 Bbl.
Substructure	512 "	372 "	148 "
Superstructure	627 "	360 "	65 "



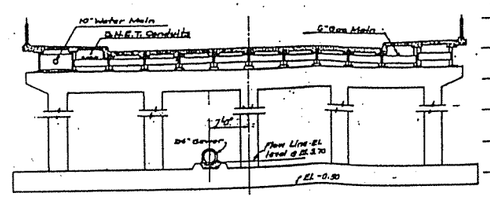
ELEVATION

SCALE 1/16"=1'-0"



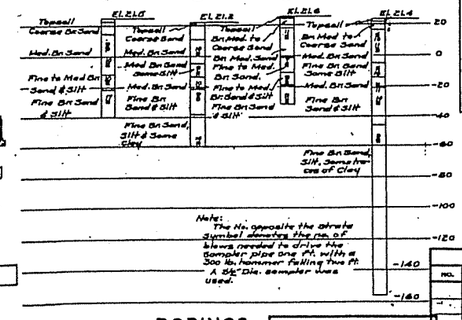
SECTION A-A

SCALE 1/16"=1'-0"



SECTION B-B

SCALE 1/16"=1'-0"



Note: The No. opposite the strata symbol denotes the no. of blows needed to drive the Sampler pipe one ft. with a 300 lb. hammer falling two ft. A 3½" Dia. sampler was used.

BORINGS

REDUCED DRAWING NOT TO SCALE

REVISIONS		
NO.	DATE	DESCRIPTION

CONNECTICUT
STATE HIGHWAY DEPARTMENT
TOWN OF NEW HAVEN
HOWARD AVE. BRIDGE OVER
RELOC. OF U.S. ROUTE NO. 1
STATION 54+50.43
GENERAL PLAN

DESIGNED BY C.L.L.
SCALES As Shown
MADE BY W.R.R. DATE 5/19/50
CHECKED BY C.L.L. DATE 2/23/50
APPROVED ____ DATE ____
PROJECT NO. 92-64-03A
PROJECT SHEET NO. 1 of 3

STANDARD No. 9

FOR INFORMATION ONLY
FED. AID PROJ. No. U.I. 147 (1)

92 64

160 01

NOTE
THE "SOIL PROFILES" DRAWING SHOWN ON THIS SHEET HAS BEEN REPRODUCED FROM THE ORIGINAL DESIGN DRAWINGS OF STATE PROJECT NO. 316A-01, DATED 1955.

THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR

DESIGNER: T.P. NGUYEN
DRAFTER: T.P. NGUYEN
CHECKED BY

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. / BY GM2 ASSOCIATES, INC.

PROJECT TITLE:
RECONSTRUCTION OF I-95
OVER WEST RIVER
HOWARD AVENUE OVER I-95

TOWN: NEW HAVEN / WEST HAVEN

DRAWING TITLE: EXISTING BORINGS

PROJECT NO. 92-522
DRAWING NO. SL/D-03
SHEET NO.

A. Mason	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	PB-1
DRILLER	STATE OF CONNECTICUT	Line & Station	
J. Freitas	DEPARTMENT OF TRANSPORTATION	Offset	
INSPECTOR	TOWN: New Haven	N. Coordinate	202,509.2
R Borjeson	PROJECT NAME: I-95 New Haven Harbor Program Management	E. Coordinate	289,715.4
SOILS ENGINEER	PROJECT NUMBER: 95-205	Parsons Brinckerhoff Quade & Douglas, Inc.	
Parsons Brinckerhoff Quade & Douglas, Inc.	BORING CONTRACTOR: Guild Drilling Co., Inc.	PRIME DESIGNER	

Surface Elevation: 5.44		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 03/22/00	Utilized			X				X	X					
Date Finished: 03/24/00	Type	BW	NW	HW	Pipe	Solid	Hollow		SS		B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64				36		35	35	55	55
@ 5.18 m after 25 hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6				0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.36	D	1	2	2	3		Black SILT, some f-m sand, little organic matter, roots, grass, trace shells, moist. (TOPSOIL)
		1.22 - 1.82	2	0.60	0.45	D	3	5	5	7		Orange-brown SILT, trace f gravel, some f-c sand, moist.
											2.74	
		2.74 - 3.34	3	0.60	0.08	D	12	12	11	12	2.70	Red-brown SILT, some f-m sand, wet.
		4.27 - 4.87	4	0.60	0.15	D	6	8	7	8		Red-brown f SAND, little silt.
5												
		5.79 - 6.39	5	0.60	0.25	D	4	7	9	9		Red-brown f-m SAND, trace silt.
		7.32 - 7.92	6	0.60	0.25	D	5	7	9	11		Red-brown m SAND, trace silt.
		8.84 - 9.44	7	0.60	0.43	D	11	7	7	9		Top 0.10m: Red-brown SILT, trace clay. Bottom 0.33m: Red-brown f-m SAND, little silt, few 6mm silt layers.
10												
		10.36 - 10.96	8	0.60	0.25	D	5	6	8	10		Red-brown f SAND and SILT.
		11.89 - 12.49	9	0.60	0.30	D	7	9	10	10		Red-brown f SAND and SILT.
		13.41 - 14.01	10	0.60	0.25	D	6	7	12	13		Red-brown f-m SAND, little silt.
											14.78	
15		14.94 - 15.54	11	0.60	0.43	D	23	26	31	46	-9.34	Top 0.20m: Red-brown SILT, trace f sand, trace clay, slow to

Casing			Meters of	
Size	From	To	Earth	Rock
100	0	14.94	37.18	0
			No. of Samples	
			25	0

NOTES: Hole grouted to 6.40 m, observation well installed, screened from 3.05 m to 6.10m.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. PB-1

A. Mason	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. PB-1
DRILLER	STATE OF CONNECTICUT	Line & Station
J. Freitas	DEPARTMENT OF TRANSPORTATION	Offset
INSPECTOR	TOWN: New Haven	N. Coordinate 202,509.2
R Borjeson	PROJECT NAME: I-95 New Haven Harbor Program Management	E. Coordinate 289,715.4
SOILS ENGINEER	PROJECT NUMBER: 95-205	Parsons Brinckerhoff Quade & Douglas, Inc.
Parsons Brinckerhoff Quade & Douglas, Inc.	BORING CONTRACTOR: Guild Drilling Co., Inc.	PRIME DESIGNER

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 5.44														
Date Started: 03/22/00	Utilized			X				X	X					
Date Finished: 03/24/00	Type	BW	NW	HW	Pipe	Solid	Hollow		SS		B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64				36		35	35	55	55
@ 5.18 m after 25 hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6				0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												medium dilatancy.
												Bottom 0.23m: Red-brown f-m SAND, trace silt.
		16.46 - 17.06	12	0.60	0.43	D	29	35	55	50		Red-brown SILT, some f sand, trace clay.
		17.98 - 18.58	13	0.60	0.51	D	9	11	12	18		Red-brown SILT, little clay, few clay layers, rapid dilatancy.
20		19.51 - 20.11	14	0.60	0.41	D	7	8	10	12		Red-brown SILT, little clay, rapid dilatancy.
		21.03 - 21.63	15	0.60	0.45	D	8	10	13	15		Red-brown SILT, little clay, rapid dilatancy.
		22.56 - 23.16	16	0.60	0.41	D	9	11	13	15		Red-brown SILT, little clay, rapid dilatancy.
25		24.08 - 24.68	17	0.60	0.51	D	7	9	11	20		Red-brown SILT, little clay, rapid dilatancy.
		25.60 - 26.20	18	0.60	0.45	D	8	9	12	17		Red-brown SILT, little clay, 3mm clay layer, rapid dilatancy.
		27.13 - 27.73	19	0.60	0.60	D	8	8	9	19		Red-brown SILT, little clay, few 3-6mm clay layers, rapid dilatancy.
		28.65 - 29.25	20	0.60	0.51	D	7	8	10	20		Red-brown SILT, little clay, 6mm clay layer, rapid dilatancy.
30												

Casing Size	From	To	Meters of Earth	Rock
100	0	14.94	37.18	0
			No. of Samples	
			25	0

NOTES: Hole grouted to 6.40 m, observation well installed, screened from 3.05 m to 6.10m.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. PB-1

A. Mason	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. PB-1
DRILLER	STATE OF CONNECTICUT	Line & Station
J. Freitas	DEPARTMENT OF TRANSPORTATION	Offset
INSPECTOR	TOWN: New Haven	N. Coordinate 202,509.2
R Borjeson	PROJECT NAME: I-95 New Haven Harbor Program Management	E. Coordinate 289,715.4
SOILS ENGINEER	PROJECT NUMBER: 95-205	Parsons Brinckerhoff Quade & Douglas, Inc.
Parsons Brinckerhoff Quade & Douglas, Inc.	BORING CONTRACTOR: Guild Drilling Co., Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 5.44		Utilized			X				X	X					
Date Started: 03/22/00		Type	BW	NW	HW	Pipe	Solid	Hollow		SS		B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 03/24/00		Size I.D. (mm)	60	76	100	64				36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ 5.18 m after 25 hours		Fall (m)	0.6	0.6	0.6	0.6				0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.18 - 30.78	21	0.60	0.60	D	8	8	9	17		Red-brown SILT, little clay, 3mm clay layer, rapid dilatancy.
		31.70 - 32.30	22	0.60	0.45	D	6	9	12	19		Red-brown SILT, little clay, rapid dilatancy.
		33.22 - 33.82	23	0.60	0.51	D	8	9	12	18		Red-brown SILT, little clay, 3mm clay layer, rapid dilatancy.
35		34.75 - 35.35	24	0.60	0.60	D	7	8	8	18		Red-brown SILT, little clay, few 3mm clay layers, rapid dilatancy.
		36.58 - 37.18	25	0.60	0.56	D	5	11	13	21		Red-brown SILT, little clay, many 6mm clay layers, rapid dilatancy.
											37.18	
											-31.74	Bottom of boring at 37.18 m
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100	0	14.94	37.18	0
			No. of Samples	
			25	0

NOTES: Hole grouted to 6.40 m, observation well installed, screened from 3.05 m to 6.10m.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. PB-1

Sheet 3 of 3

APPENDIX B

Existing Roadway Drawings

CONNECTICUT TURNPIKE

FED. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	SHEETS NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		346-01	1955		

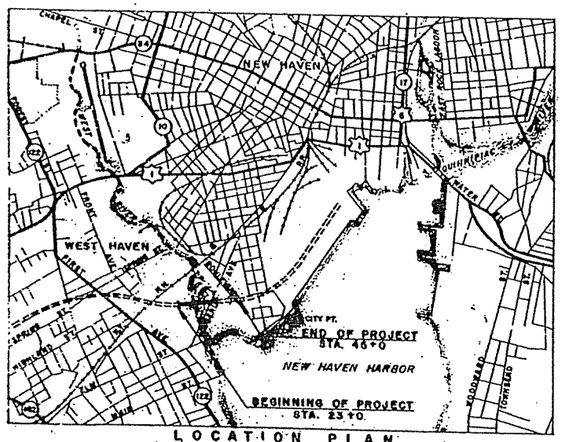
CONNECTICUT
STATE HIGHWAY DEPARTMENT
PLAN
FOR
CONSTRUCTION
OF 2 GRADE SEPARATION STRUCTURES ON
GREENWICH–KILLINGLY EXPRESSWAY
PUB. ACT. 52, SPEC. SESSION JUNE 1953 SUPP. CHAP. 107, PART IV CONNECTICUT TURNPIKE

SECTION NO. 16A
CONTRACT NO. 1
IN THE TOWNS OF
WEST HAVEN AND NEW HAVEN

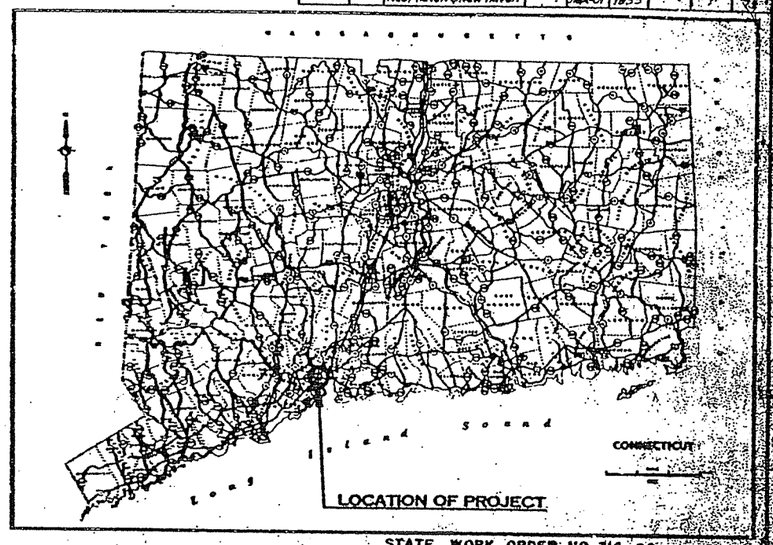
FROM STA. SEE BELOW TO STA. SEE BELOW

LENGTH 1,900.00 FT.

SCALES { PLAN 1 IN. = 40 FT.
PROFILE HOR. 1 IN. = 40 FT. VERT. 1 IN. = 4 FT.
CROSS SECTIONS 1 IN. = 10 FT.



LOCATION PLAN
SCALE IN MILES



STATE WORK ORDER NO. 316-08

1955 SPECIFICATIONS, FORM NO. 808 GOVERN

ALL ELEVATIONS ON THIS PROJECT BASED ON U.S.C. & G.S. DATUM

DESIGN CLASSIFICATION—E (URBAN)
ANTICIPATED DAILY TRAFFIC FOR 1975—20,400

PROPOSED CONSTRUCTION ON CONTRACT NO. 1

ROADWAY	STA. TO STA.		LENGTH		DESCRIPTION
Greenwich-Killingly Expressway	[illegible]	[illegible]	[illegible]		Grubbing
"	[illegible]	[illegible]	[illegible]		Building Removal, Complete
"	[illegible]	[illegible]	[illegible]		Earth Excavation
"	[illegible]	[illegible]	[illegible]		Borrow
"	[illegible]	[illegible]	[illegible]		Subbase
"	[illegible]	[illegible]	[illegible]		8" Plain Concrete Base Bridge
"	[illegible]	[illegible]	[illegible]		Subbase
"	[illegible]	[illegible]		[illegible]	Finishing & Grading
"	[illegible]	[illegible]		[illegible]	Finishing & Grading Bituminous Surface Bridge
Kimberly Avenue	[illegible]	[illegible]		[illegible]	Pulverizing of Bituminous
Kimberly Avenue Detour	[illegible]	[illegible]		[illegible]	Finishing & Grading
Relocated Boulevard	[illegible]	[illegible]		[illegible]	Grubbing
		TOTALS	[illegible]	[illegible]	

Construction Started	April 23, 1956
Construction Completed	Dec. 7, 1957
Total Cost	$3,019,435.47
Final Length	1900'

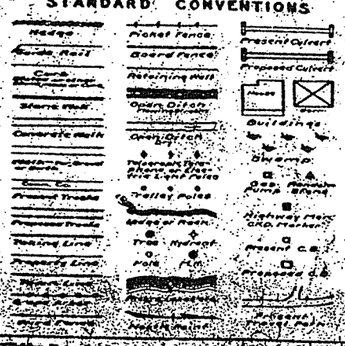
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

REVISED IN ACCORDANCE WITH THE MANUAL OF ADMINISTRATION AND CONSTRUCTION, STATE OF CONNECTICUT, 1954

KING & GAVARIS
CONSULTING ENGINEERS

Peter T. Gavaris — PARTNER — 3436
PETER T. GAVARIS — TITLE — P.E. NO.

STANDARD CONVENTIONS



LIST OF DRAWINGS

SHEET NO.	TITLE	DWG. NO.	TITLE
1.	Title Sheet		STANDARD SHEETS
2.	Index Plan and Notes	2115	Hedge Rails
3.	Detailed Estimate	2117	Standard Culvert
4.	Typical Cross Sections	2116	Bituminous Concrete Pipe
5-14.	Plan and Profile Sheets	2005	Concrete Cradle, Concrete Saddle, Rock Ditch
15.	Plan and Profile Kimberly Ave. Detour	2114	Removal of Structures
16.	Construction Diagram	2006	Typical Check Dams
17-49.	Bridge Shoes	2007	Reinforcing Bars for Typical Shear Keys
50.	N.H.P. Trail Bridge Abutments	2113	Highway Plan Stone Guide Posts
51.	Lower Mill Pond Bridge Abutments	2112	Concrete Bituminous Surface on Bridge Decks
52.	New Haven Water Company Bridge Cover	2108	Concrete Bituminous Surface on Bridge Decks
53-78.	Concrete Bridges		

DESIGNED BY KING AND GAVARIS

PHILIP CINAT
Asst. Sanitary Engineer

DATE JANUARY 1, 1954

APPROVED
ENGINEER OF BRIDGES

ENGINEER OF HIGHWAYS

APPROVED
ENGINEER OF ROADWAY

APPROVED
ENGINEER OF TRAFFIC

APPROVED
PROJECT ENGINEER

316 01

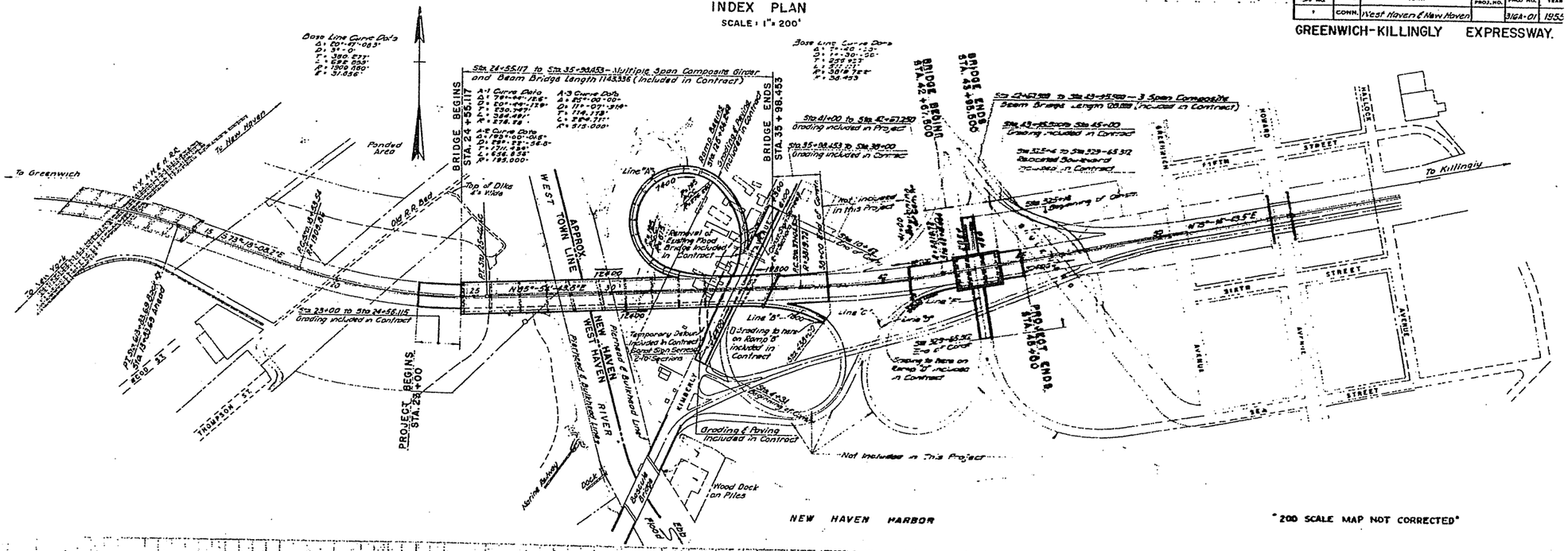
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

FED. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR
1	CONN.	West Haven & New Haven		316A-01	1955

GREENWICH-KILLINGLY EXPRESSWAY.

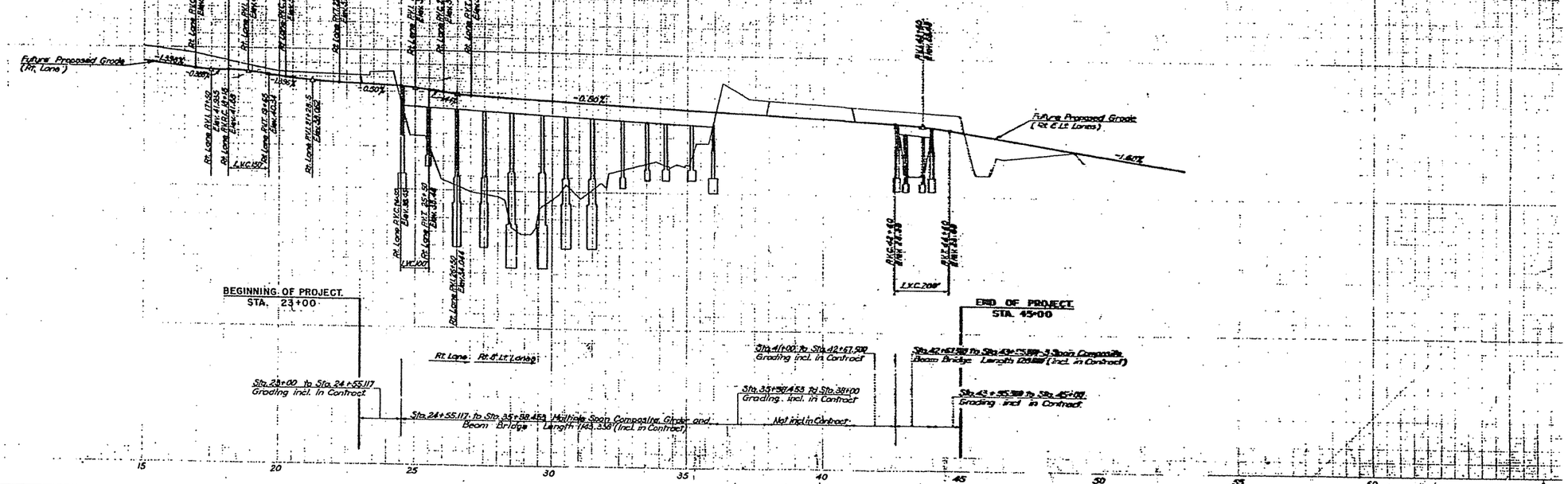
INDEX PLAN

SCALE: 1" = 200'



INDEX PROFILES

SCALES: HOR. 1" = 200' VERT. 1" = 20'



316A 01

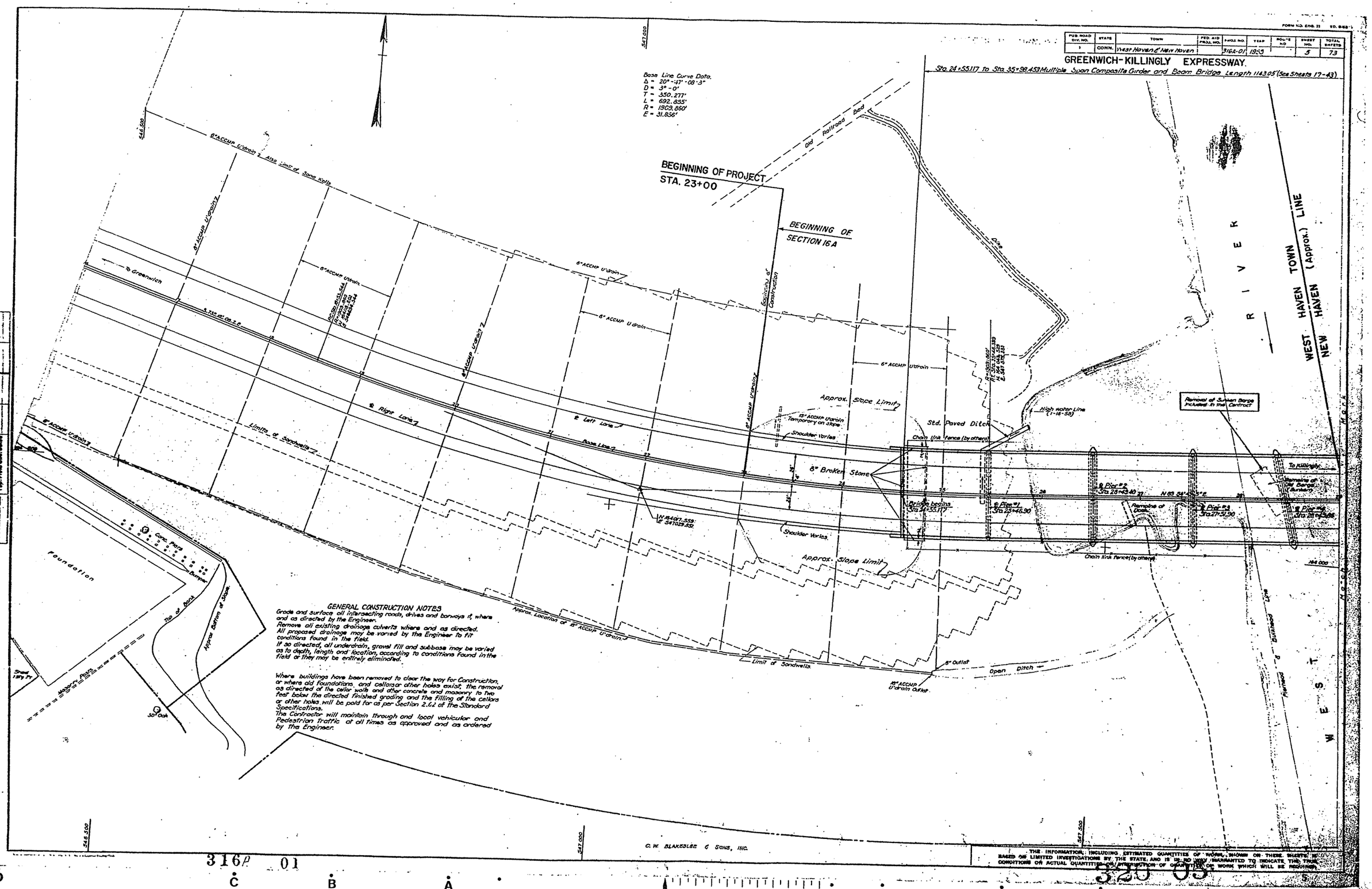
320 05

FORM NO. ENG. 33 ED. 8-63

PUB. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		316A-01	1963		5	73

GREENWICH-KILLINGLY EXPRESSWAY.

Sta. 24+55.117 to Sta. 35+98.453 Multiple Span Composite Girder and Beam Bridge Length 1143.05' (See Sheets 17-43)



GENERAL CONSTRUCTION NOTES

Grade and surface all intersecting roads, drives and barnyards if, where and as directed by the Engineer.

Remove all existing drainage culverts where and as directed.

All proposed drainage may be varied by the Engineer to fit conditions found in the field.

If so directed, all underdrain, gravel fill and subbase may be varied as to depth, length and location, according to conditions found in the field or they may be entirely eliminated.

Where buildings have been removed to clear the way for Construction, or where old foundations, and cellarage or other holes exist, the removal as directed of the cellar walls and other concrete and masonry to two feet below the directed finished grading and the filling of the cellars or other holes will be paid for as per Section 2.6.2 of the Standard Specifications.

The Contractor will maintain through and local vehicular and Pedestrian Traffic at all times as approved and as ordered by the Engineer.

C. W. BLAKESLEE & SONS, INC.

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316P 01

320 03

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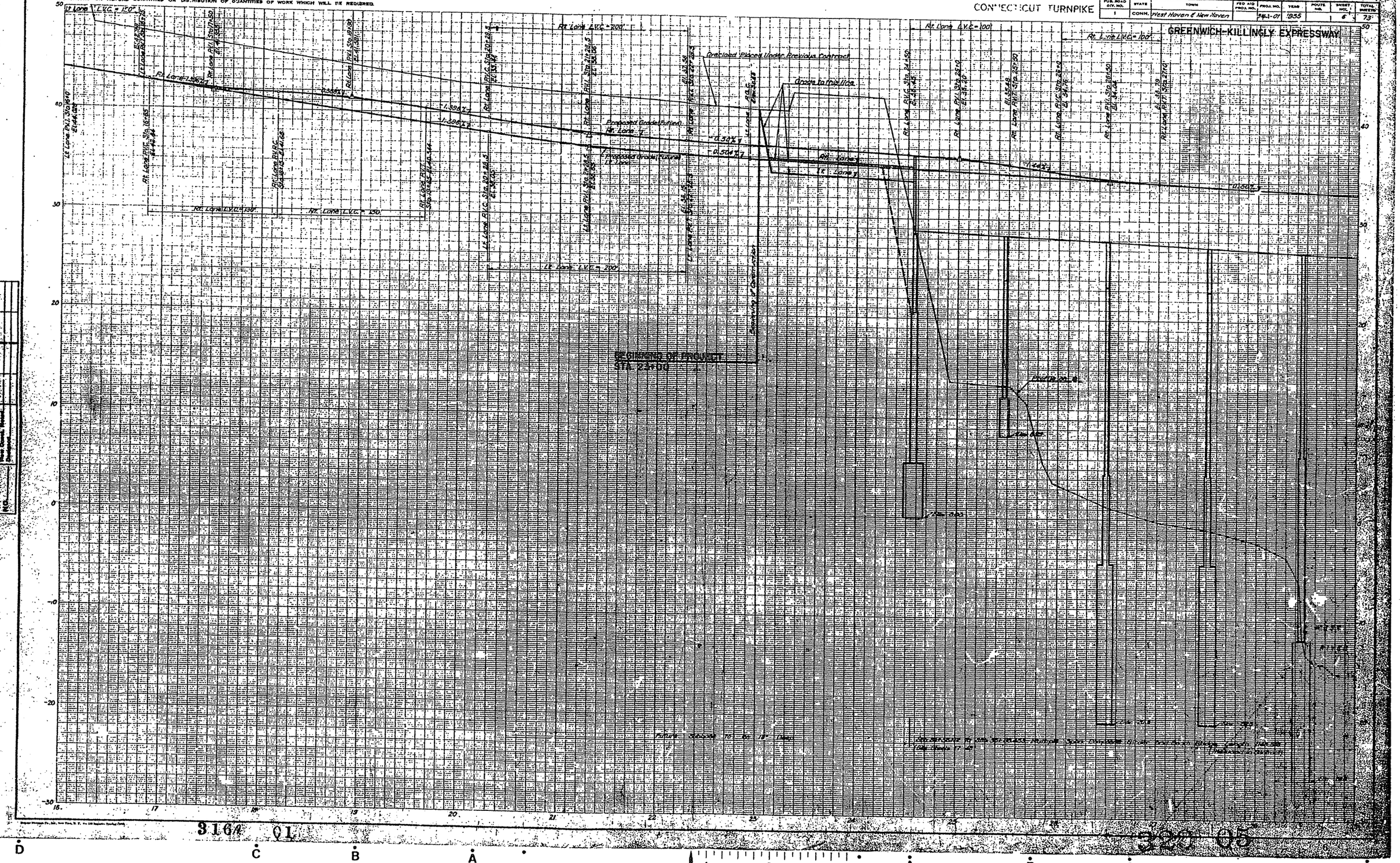
CONNECTICUT TURNPIKE

FORM NO. ENG. 13 ED 2-58

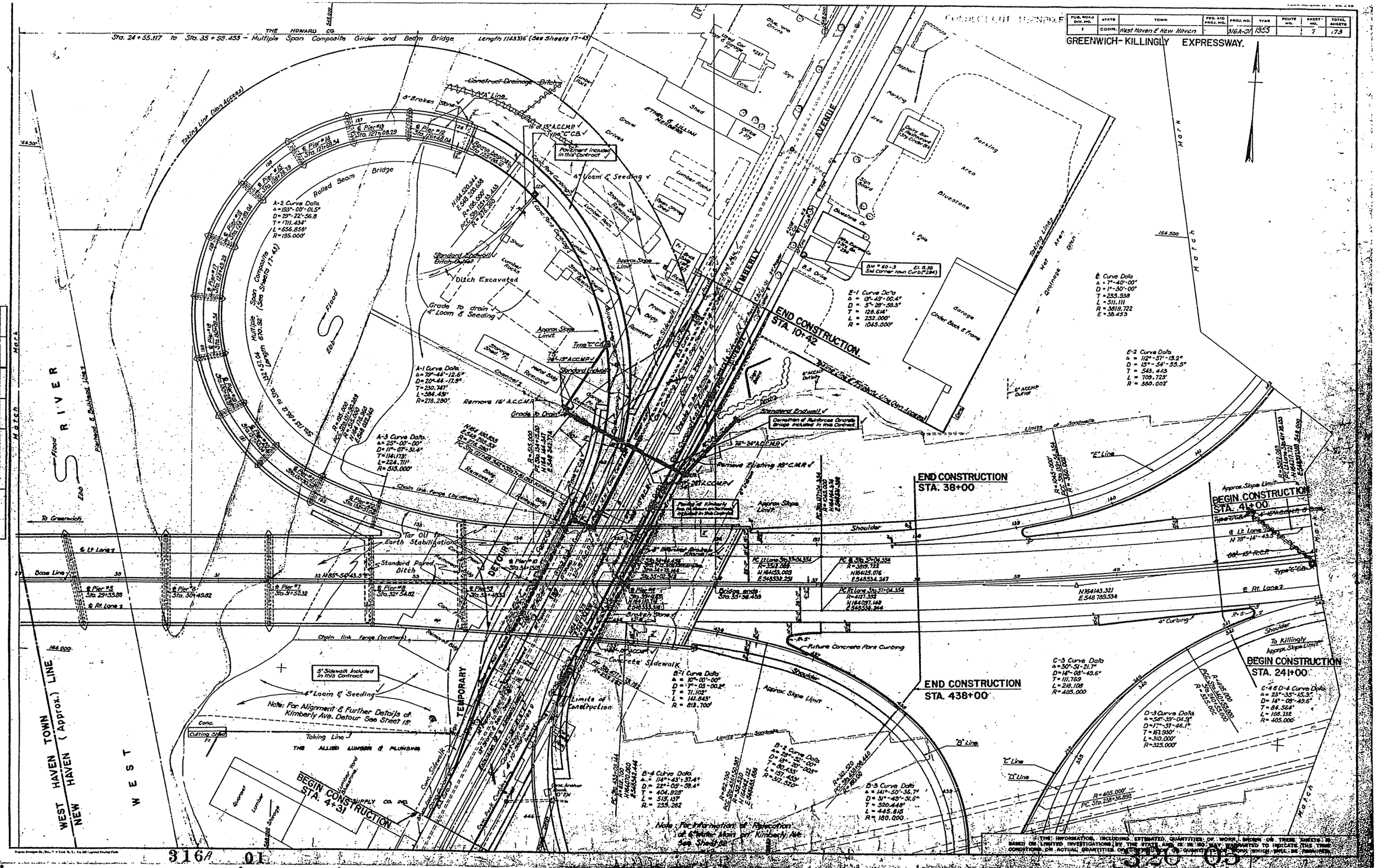
PUB. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		74-1-01	1955		6	73

GREENWICH-KILLINGLY EXPRESSWAY


Rt. Lane L.V.C. = 150'
Rt. Lane L.V.C. = 200'
Rt. Lane L.V.C. = 100'
Rt. Lane L.V.C. = 100'
Rt. Lane L.V.C. = 150'
Lt. Lane L.V.C. = 200'
Rt. Lane L.V.C. = 100'
Overload Placed Under Previous Contract
Grade to this line
Proposed Grade (Future)
Rt. Lane
Lt. Lane
Proposed Grade (Future) (Lt. Lane)
Beginning of Construction
BEGINNING OF PROJECT
STA. 23+00
Rt. Lane P.V.I. Sta. 19+40
El. 44.00
Rt. Lane P.V.I. Sta. 18+85
El. 42.85
Rt. Lane P.V.C. Sta. 18+40
El. 42.40
Rt. Lane P.V.I. Sta. 17+50
El. 41.50
Rt. Lane P.V.I. Sta. 16+30
El. 41.30
Rt. Lane P.V.C. Sta. 16+10
El. 41.40
Rt. Lane P.V.I. Sta. 15+70
El. 41.70
Rt. Lane P.V.I. Sta. 14+50
El. 42.50
Rt. Lane P.V.I. Sta. 13+50
El. 43.50
Rt. Lane P.V.I. Sta. 12+50
El. 44.50
Rt. Lane P.V.I. Sta. 11+50
El. 45.50
Rt. Lane P.V.I. Sta. 10+50
El. 46.50
Rt. Lane P.V.I. Sta. 9+50
El. 47.50
Rt. Lane P.V.I. Sta. 8+50
El. 48.50
Rt. Lane P.V.I. Sta. 7+50
El. 49.50
Rt. Lane P.V.I. Sta. 6+50
El. 50.50
Rt. Lane P.V.I. Sta. 5+50
El. 51.50
Rt. Lane P.V.I. Sta. 4+50
El. 52.50
Rt. Lane P.V.I. Sta. 3+50
El. 53.50
Rt. Lane P.V.I. Sta. 2+50
El. 54.50
Rt. Lane P.V.I. Sta. 1+50
El. 55.50
Rt. Lane P.V.I. Sta. 0+50
El. 56.50
Rt. Lane P.V.I. Sta. 2+14
El. 56.19
Rt. Lane P.V.C. Sta. 2+40
El. 56.15
Rt. Lane P.V.I. Sta. 3+50
El. 56.50
Rt. Lane P.V.I. Sta. 4+50
El. 57.50
Rt. Lane P.V.I. Sta. 5+50
El. 58.50
Rt. Lane P.V.I. Sta. 6+50
El. 59.50
Rt. Lane P.V.I. Sta. 7+50
El. 60.50
Rt. Lane P.V.I. Sta.

PUB. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		316A-01	1955		7	173

GREENWICH-KILLINGLY EXPRESSWAY.



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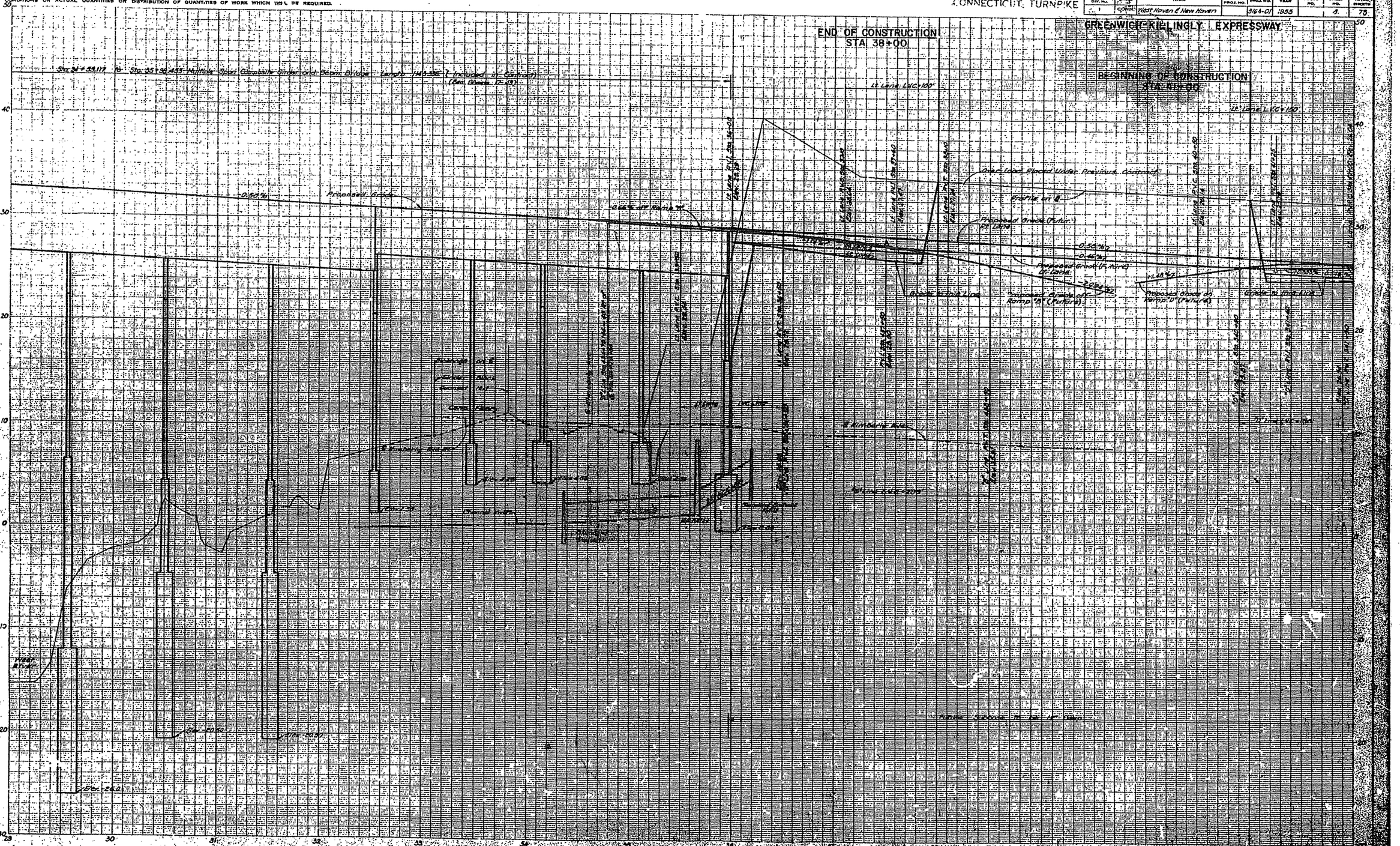
FORM NO. ENG. 18 BD 3-49

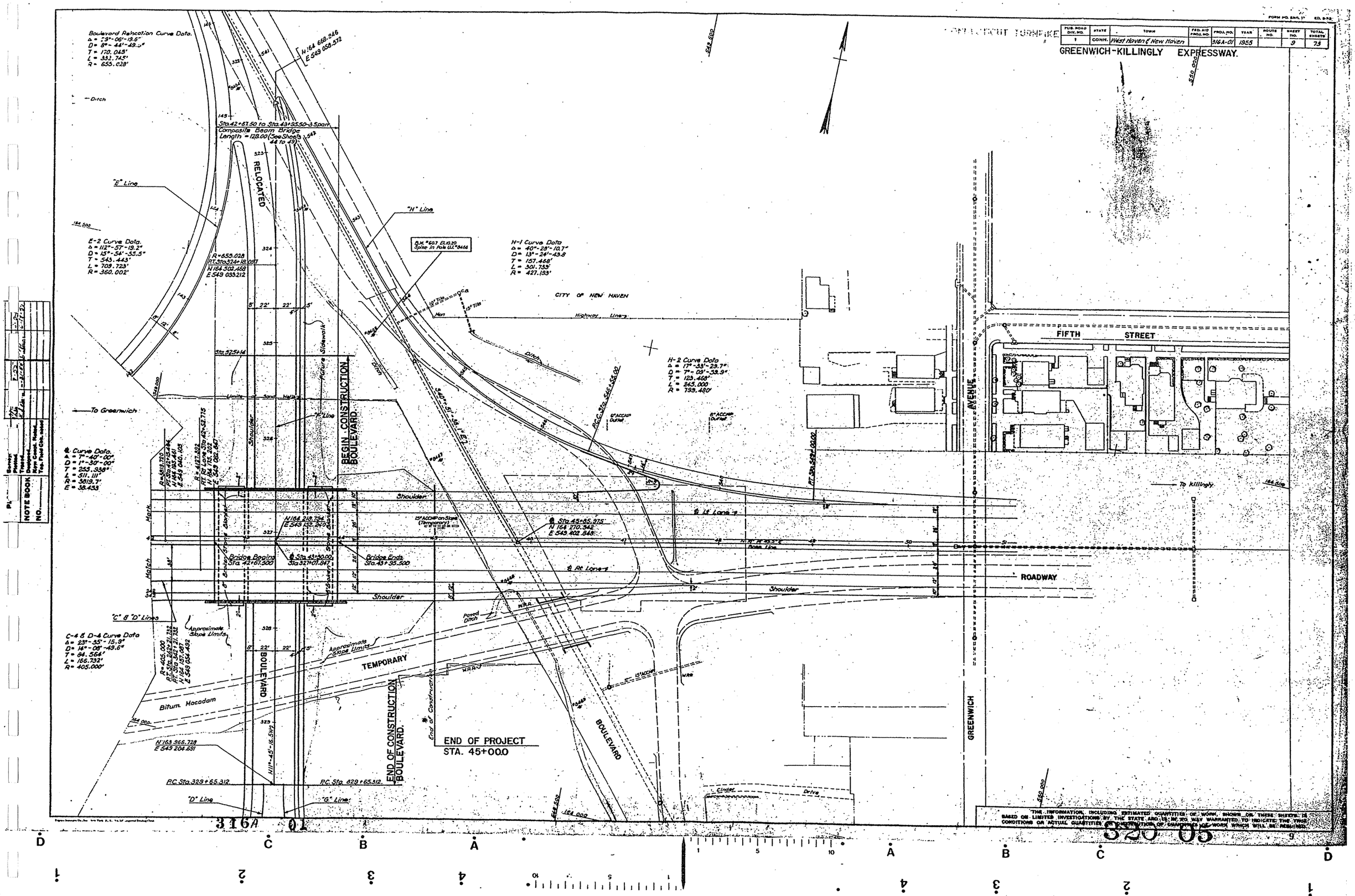
CONNECTICUT TURNPIKE

PUB. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven		3164-01	1955		8	73



3164 01

320 05



CONNECTICUT TURNPIKE
PUB. ROAD DIV. NO. 1
STATE CONN.
TOWN West Haven & New Haven
FED. AID PROJ. NO.
PROJ. NO. 316A-01
YEAR 1955
ROUTE NO.
SHEET NO. 9
TOTAL SHEETS 73
GREENWICH-KILLINGLY EXPRESSWAY.
Boulevard Relocation Curve Data.
Δ = 29°-06'-19.6"
D = 8°-44'-49.5"
T = 170.045'
L = 332.745'
R = 655.028'
Ditch
Sta.42+67.50 to Sta.43+95.50-3 Span
Composite Beam Bridge
Length = 128.00 (See Sheets 44 to 49)
RELOCATED
"E" Line
"H" Line
E-2 Curve Data.
Δ = 112°-57'-19.2"
D = 15°-54'-55.5"
T = 543.443'
L = 709.723'
R = 360.002'
R = 655.028
P.T. Sta. 324+18.097
N 164 502.468
E 549 093.212
B.M. #607 El. 10.20
Spike in Pole U.I. #8466
H-1 Curve Data
Δ = 40°-28'-10.7"
D = 13°-24'-43.8"
T = 157.468'
L = 301.733'
R = 427.193'
CITY OF NEW HAVEN
Highway Line
Ditch
H-2 Curve Data
Δ = 17°-33'-29.7"
D = 7°-09'-59.9"
T = 123.468'
L = 245.000
R = 799.480'
FIFTH STREET
AVENUE
To Greenwich
Future Sidewalk
Limits of Sand Wells
"F" Line
BEGIN CONSTRUCTION BOULEVARD.
Shoulder
Curve Data.
Δ = 7°-40'-00"
D = 1°-30'-00"
T = 255.938'
L = 511.111'
R = 3819.7'
E = 38.453
Match Mark
Bridge Begins Sta. 42+67.500
Sta. 43+30.00 Sta. 327+01.847
Bridge Ends Sta. 43+95.500
Sta. 45+85.975
N 164 270.342
E 549 402.848
Lt. Lane
Rt. Lane
To Killingly
ROADWAY
"C" & "D" Lines
Approximate Slope Limits
C-4 & D-4 Curve Data
Δ = 23°-35'-15.9"
D = 14°-08'-49.6"
T = 84.564'
L = 166.732'
R = 405.000'
R = 405.000
P.T. Sta. 242+21.732
P.T. Sta. 342+21.732
N 164 157.087
E 549 054.492
TEMPORARY
BOULEVARD
Bitum. Macadam
END OF CONSTRUCTION BOULEVARD.
End of Construction
END OF PROJECT
STA. 45+00.0
GREENWICH
N 163 966.728
E 549 204.691
P.C. Sta. 329+65.312
P.C. Sta. 629+65.312
"D" Line
"G" Line
Cinder Drive
NOTE BOOK NO.
316A 01
320 05
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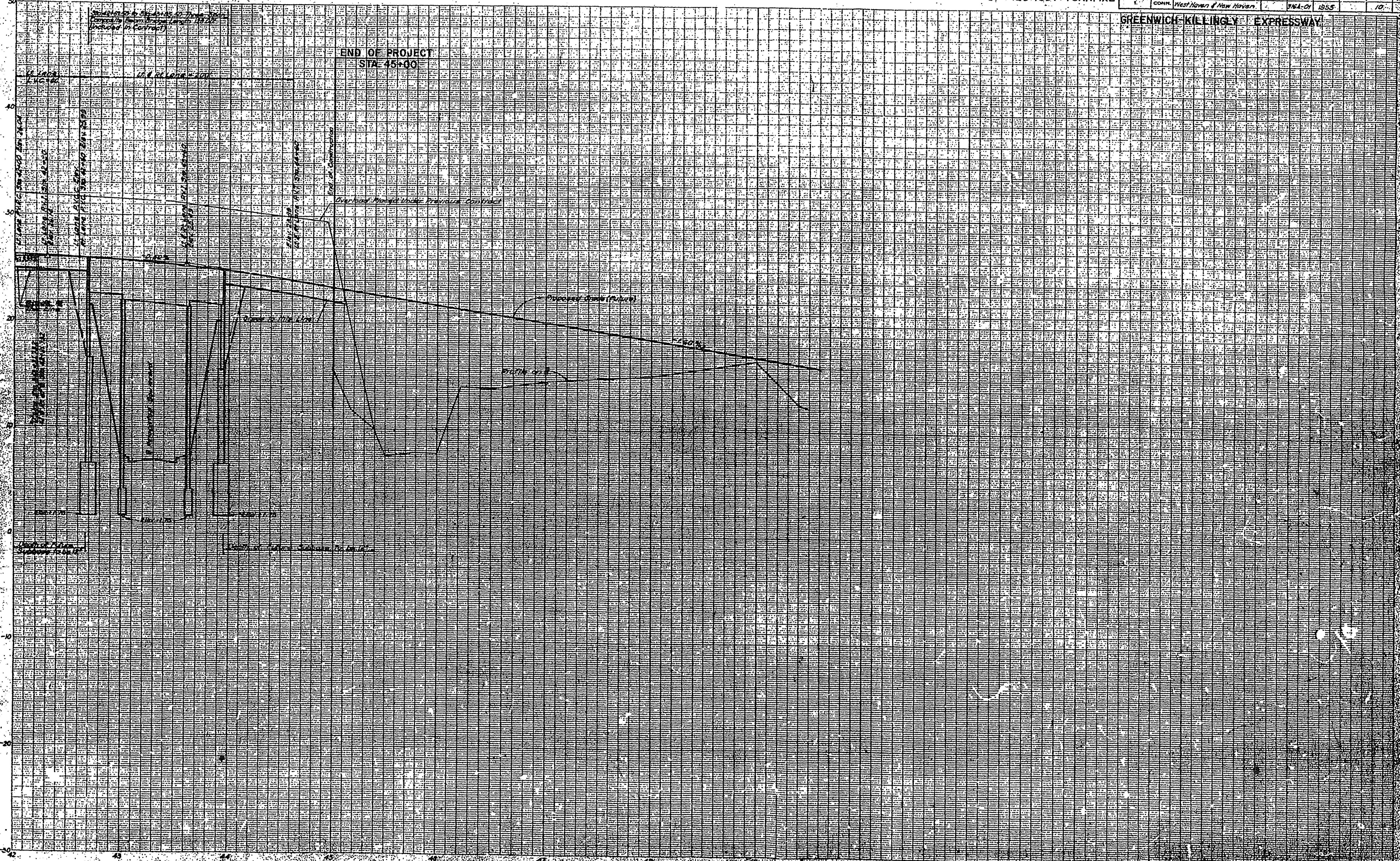
PUB. ROAD DIV. NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	West Haven & New Haven	-	3164-01	1955		10	78

CONNECTICUT TURNPIKE

GREENWICH-KILLINGLY EXPRESSWAY



APPENDIX C

Test Boring Logs

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-1
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+576.4
E. Guven	DEPARTMENT OF TRANSPORTATION	Offset 29.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202401.7
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288600.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 6.05		Utilized			X			X	X	X	X				
Date Started: 07/22/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/22/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.30	D	10	16	17	21		Light brown f SAND, little f gravel, trace silt, trace roots, dry.
		1.52 - 2.12	2	0.60	0.48	D	10	12	13	15		Red brown f SAND, trace c sand, little silt, trace f gravel, dry.
		3.05 - 3.65	3	0.60	0.25	D	8	10	11	11		Light brown f-c SAND, trace silt, moist.
5		4.57 - 5.17	4	0.60	0.20	D	7	7	11	13		Red brown f-c SAND, trace silt, trace f gravel, trace shells, gray silty sand lenses.
											5.64	
											0.41	
		6.10 - 6.70	5	0.60	0.56	D	2	3	3	5		Gray organic SILT interlayered with black PEAT, trace shells, trace f-c sand, wet.
		7.01 - 7.61	1	0.60	0.51	UP						Piston
		7.62 - 8.22	6	0.60	0.30	D	1	2	1	2		Gray organic SILT, trace shells.
		9.14 - 9.74	7	0.60	0.60	D	2	1	1	1		Gray organic SILT, trace shells.
10												
		10.06 - 10.66	2	0.60	0.60	UP						Piston
		10.67 - 11.27	8	0.60	0.51	D	2	3	4	6	10.82	Top 0.15m: Gray organic SILT.
											-4.77	Bottom 0.36m: Gray f SAND, little silt, trace shells, wet.
		12.19 - 12.79	9	0.60	0.30	D	3	4	6	8		Gray f SAND, trace c sand, little silt, saturated.
											12.79	
											-6.75	Bottom of Boring 12.79m.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	12.79	
			No. of Samples	
			9D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-1

Sheet 1 of 1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+632.5
E. Guven/E. Fulton/R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	27.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202388.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288657.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 5.45	Utilized			X			X	X	X	X				
Date Started: 07/22/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/24/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.30	D	3	8	11	14		Light brown f SAND, trace f gravel, some silt, dry.
		1.52 - 2.12	2	0.60	0.15	D	6	8	9	11		Brown f SAND, trace c sand, trace silt, dry.
		3.05 - 3.65	3	0.60	4.57	D	8	18	30	26		Light brown f SAND, trace silt, gray silt lenses, moist.
5		4.57 - 5.17	4	0.60	0.30	D	6	8	10	13		Light brown f SAND, trace silt, trace f gravel, moist.
		6.10 - 6.70	5	0.60	0.25	D	3	1	2	2		Top 0.20m: Light brown f SAND, trace silt, trace c sand, trace f gravel, trace shells. Bottom 0.05m: Gray/black silty PEAT, little f sand.
		7.01 - 7.61	1	0.60	0.00	UP						Piston, no recovery - too much sand.
		7.62 - 8.22	6	0.60	0.60	D	3	4	5	7	8.12	Top 0.35m: Brown gray f SAND, trace silt.
											-2.67	Bottom 0.25m: Gray organic SILT, trace fibers, trace shells, trace f sand.
10		9.14 - 9.74	7	0.60	0.60	D	1	2	2	3		Top 0.07m: Gray f SAND, little silt, trace shells. Bottom 0.53m: Gray organic SILT, trace f sand, trace shells.
		9.75 - 10.35	2	0.60	0.45	UP						Piston
		10.36 - 10.96	8	0.60	0.60	D	2	2	2	3		Gray organic SILT, trace shells, trace fibers.
		12.19 - 12.79	9	0.60	0.60	D	1	2	2	2		Gray organic SILT, trace shells, trace fibers.
		12.80 - 13.40	3	0.60	0.55	UP						Piston
		13.41 - 14.01	10	0.60	0.60	D	2	3	4	5		Gray organic SILT, little f sand, trace shells.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	17.36	
			No. of Samples	
			12D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-2

Sheet 1 of 2

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+632.5
E. Guven/E. Fulton/R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset 27.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202388.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288657.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 5.45		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/22/02	Utilized			X			X	X	X					
Date Finished: 07/24/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS		B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~5.64 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	3	3	5	6	15.24	Gray organic SILT, some f sand, with f sand lenses (thin, ~1mm).
											-9.79	Bottom 0.05m: Gray SILT and f SAND, trace shells.
		16.76 - 17.36	12	0.60	0.27	D	7	10	12	13		Red brown f-c SAND, trace to little silt, trace f gravel.
											17.36	
											-11.91	Bottom of Boring 17.36m.
20												
25												
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	17.36m	
			No. of Samples	
			12D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-2

Sheet 2 of 2

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+692.5
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	27.7 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202378.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288719.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 4.98		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/24/02	Utilized			X			X	X	X	X				
Date Finished: 07/24/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~4.11 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.28	D	3	7	14	18		Light brown f SAND and SILT, trace f gravel, roots, dry.
		1.52 - 2.12	2	0.60	0.41	D	10	10	12	12		Top 0.08m: Light brown f SAND and SILT, trace f gravel, roots, dry. Bottom 0.33m: Light brown f SAND, trace c sand, trace shells, trace silt, dry.
		3.05 - 3.65	3	0.60	0.30	D	6	11	9	7		Light brown f SAND, trace c sand, trace shells, trace silt, moist.
5		4.57 - 5.17	4	0.60	0.51	D	13	30	32	35		Top 0.46m: Light brown f-c SAND, trace silt, trace shells. Bottom 0.10m: Brown gray f-c SAND, little silt, trace f gravel.
											6.10	
		6.10 - 6.70	5	0.60	0.60	D	2	1	1	1	-1.08	Gray black silty PEAT, some fibers, trace f sand, trace shells.
		7.62 - 8.22	6	0.60	0.51	D	2	3	3	4		Top 0.41m: Brown PEAT and gray SILT, strong odor. Bottom 0.10m: Gray organic SILT, some fibers, trace f sand.
		9.14 - 9.74	1	0.60	0.60	UP						Piston.
10		9.75 - 10.35	7	0.60	0.60	D	2	2	2	3		Top 0.25m: Gray f-c SAND, trace silt, trace shells, trace fibers. Bottom 0.36m: Gray organic SILT, trace shells, trace fibers, trace f sand.
		10.67 - 11.27	8	0.60	0.43	D	1	1	1	1		Gray organic SILT, trace f sand, trace shells.
		12.19 - 12.79	9	0.60	0.46	D	1	1	2	2		Gray organic SILT, trace f sand, trace shells.
		12.80 - 13.40	2	0.60	0.00	UP						No Recovery, too much sand, hole collapsed, drillers mixing more mud.
		13.72 - 14.32	10	0.60	0.46	D	2	1	2	2		Gray organic SILT, trace shells.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	9.75	17.36	
			No. of Samples	
			12D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+692.5
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	27.7 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202378.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288719.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 4.98		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/24/02	Utilized			X			X	X	X	X				
Date Finished: 07/24/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~4.11 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	2	2	3	6	15.54	Top 0.46m: Gray organic silt, trace f sand lenses (~1mm),
											-10.52	Bottom 0.15m: Gray f SAND, some silt.
		16.76 - 17.36	12	0.60	0.25	D	12	12	11	16		Red brown f SAND, trace silt.
											17.36	
											-12.34	Bottom of Boring 17.36m.
20												
25												
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	9.75	17.36	
			No. of Samples	
			12D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-3

Sheet 2 of 2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-4
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+126.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	29.7 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202399.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289158.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 7.07		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/21/02	Utilized			X			X	X	X	X				
Date Finished: 08/21/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~4.11 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.37	1	0.37	0.25	D	6	34	50/0.07m			Top 0.07m: Topsoil
												Bottom 0.17m: Brown f SAND, some silt, little c sand, trace
												f gravel, trace roots, dry. Piece of gravel wedged in tip.
		1.52 - 2.12	2	0.60	0.15	D	24	23	26	23		Light brown / brown f SAND and SILT, little c sand, trace f
												gravel, dry. Piece of f gravel wedged in tip.
		3.05 - 3.65	3	0.60	0.48	D	16	16	16	16		Top 0.05m: Same as above.
												Bottom 0.43m: Brown gray f SAND, trace c sand, trace f
												gravel, trace shells, trace silt, moist.
5		4.57 - 5.17	4	0.60	0.15	D	6	6	6	3		Red brown f SAND, little silt, trace shells.
		6.10 - 6.70	5	0.60	0.20	D	12	12	13	14		Top 0.15m: Brown gray f SAND, trace c sand, trace silt.
												Bottom 0.05m: Gray f SAND, little silt.
											7.16	
		7.62 - 8.22	6	0.60	0.17	D	9	7	5	4	-0.09	Top 0.05m: Gray organic SILT, little f sand, trace clay, trace
												shells.
												Bottom 0.12m: Brown gray f SAND, little c sand, little silt.
		9.14 - 9.74	7	0.60	0.20	D	10	10	11	12		Brown gray f SAND, trace c sand, trace f gravel, trace
10												shells, little silt.
		10.67-11.27	8	0.60	0.22	D	2	2	2	2		Dark gray organic SILT, trace clay, trace f sand, trace shells.
												pp=0.75, 0.75, 0.5 tons / ft^2
		11.58 - 12.18	1	0.60	0.55	UP						Piston
		12.19 - 12.79	9	0.60	0.60	D	3	2	3	3		Gray organic SILT, trace to little clay, trace f sand, trace
												shells, few f sand lenses (very thin). pp=0.5, 0.5, 0.5 tons / ft^2
		13.72 - 14.32	10	0.60	0.60	D	1	1	1	1		Gray organic SILT, trace to little clay, trace f sand, trace
												shells, few f sand lenses (very thin). pp=0.5, 0.5, 0.5 tons / ft^2
15		14.63 - 15.23	2	0.60	0.00	UP						Piston - 0.12m of Brown gray f sand, some organic silt, trace

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			14D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No.

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-4
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+126.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	29.7 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202399.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289158.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 7.07														
Date Started: 08/21/02	Utilized			X			X	X	X	X				
Date Finished: 08/21/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~4.11 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												clay, trace shells.
		15.24 - 15.84	11	0.60	0.60	D	2	2	3	4		Gray organic SILT, trace to little clay, trace shells, trace f sand.
												pp=0.75, 0.75, 0.75 tons / ft^2
		16.76 - 17.36	3	0.60	0.60	UP						Piston
		17.37 - 17.97	12	0.60	0.30	D	2	2	4	4		Gray organic SILT, trace f sand, little clay, trace shells.
											18.14	
		18.29 - 18.89	13	0.60	0.15	D	7	2	9	14	-11.07	Gray brown f SAND, little silt, trace shells, wet.
20		19.81 - 20.41	14	0.60	0.30	D	10	13	17	10		Red brown f SAND, some f-c gravel, trace to little silt, wet.
											20.41	
											-13.34	Bottom of Boring 20.41m.
25												
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100.mm	0	4.57	20.41	
			No. of Samples	
			14D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-4

Sheet 2 of 2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-5
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+130.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	11.2 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202440.2
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289157.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 8.24		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/08/02	Utilized			X			X	X	X	X				
Date Finished: 08/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~4.11 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												0-0.46: Asphalt
		0.60 - 1.22	1	0.60	0.36	D	27	36	42	31		Top 0.20m: Brown f SAND, little silt, trace c sand, trace f gravel, dry.
		1.52 - 2.12	2	0.60	0.30	D	52	22	22	32		Light brown f SAND, little silt, trace c sand, trace f gravel, dry.
		3.05 - 3.65	3	0.60	0.46	D	6	11	17	21		Light brown f SAND, mostly f, trace silt, trace shells, moist.
5		4.57 - 5.17	4	0.60	0.30	D	17	15	12	15		Brown f SAND, little silt, wet.
		6.10 - 6.70	5	0.60	0.30	D	10	16	19	21		Light brown f SAND, trace c sand, trace silt, wet.
		7.62 - 8.22	6	0.60	0.25	D	13	17	15	18		Light brown f SAND, trace c sand, little silt, wet.
		9.14 - 9.74	7	0.60	0.18	D	7	17	12	19		Gray f SAND, trace silt.
10												
		10.67 - 11.27	8	0.60	0.20	D	10	14	14	14		Brown gray f SAND, trace c sand, trace silt, one (~0.64cm) organic silt lense.
											11.73	
		12.19 - 12.79	9	0.60	0.60	D	4	6	6	10	-3.49	Gray organic SILT, trace shells, trace fibers. pp= 1.25, 1.25, 1.25 tons / ft^2
		13.11 - 13.71	1	0.60	0.15	UP						Piston
		13.72 - 14.32	10	0.60	0.51	D	WOR	WOR	2	4		Gray organic SILT, trace shells, trace fibers, very high plasticity.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	21.94	
			No. of Samples	
			15D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-5

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-5
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+130.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	11.2 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202440.2
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289157.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 8.24	Utilized			X			X	X	X	X				
Date Started: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/09/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~4.11 m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	3	4	5	7		Gray organic SILT, trace clay, trace shells, trace fibers.
												pp=0.5, 0.5, 0.5 tons / ft^2
		16.15 - 16.75	2	0.60	0.00	UP						Piston - (Lost sample after it was pulled up.)
		16.76 - 17.36	3	0.60	0.00	UP						Piston - No recovery.
		17.37 - 17.97	12	0.60	0.41	D	1	2	2	4		Top 0.20m: Gray organic SILT, trace shells.
												Bottom 0.20m: Gray organic SILT, trace clay, trace shells.
		18.29 - 18.89	13	0.60	0.36	D	3	5	7	7		Gray organic SILT, some f sand, trace shells.
												pp=1.5, 1.25, 1.25 tons / ft^2
											19.20	
20		19.81 - 20.41	14	0.60	0.36	D	7	9	21	25	-10.96	Light brown f SAND, trace silt.
		21.34 - 21.94	15	0.60	0.56	D	16	10	19	21		Red brown f SAND, little silt.
											21.94	
											-13.70	Bottom of Boring 21.94m.
25												
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	21.94	
			No. of Samples	
			15D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-5

Sheet 2 of 2

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-6
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+178.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 24.9 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202410.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289210.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 6.37		Utilized			X			X	X	X	X				
Date Started: 07/31/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/31/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~3.35 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.25	D	3	2	11	8		Top 0.10m: Topsoil. Bottom 0.15m: Brown f SAND, some silt, trace c sand, trace f gravel, dry.
		1.52 - 2.12	2	0.60	0.50	D	10	14	17	17		Light brown f SAND, trace c sand, trace silt, dry.
		3.05 - 3.65	3	0.60	0.50	D	6	3	3	4		Top 0.15m: Gray/brown f-c SAND, trace silt, trace clay. Bottom 0.35m: Red brown f SAND, little to some silt, wet.
5		4.57 - 5.17	4	0.60	0.30	D	7	9	9	10		Gray brown f-c SAND, mostly f, trace silt, trace f gravel, moist.
		6.10- 6.70	5	0.60	0.20	D	3	2	2	3		Gray brown f-c SAND, mostly f, little silt, trace clay, trace shells, wet.
											7.16	
		7.62 - 8.22	6	0.60	0.30	D	10	13	19	17	-0.79	Top 0.05m: Gray organic SILT, little f sand, trace shells. Bottom 0.25m: Gray brown f-c SAND, mostly f, little (gray) silt, trace clay.
		9.14 - 9.74	7	0.60	0.50	D	2	2	3	2		Gray organic SILT, trace to little clay, trace to little shells, trace f sand, stiff. pp=0.75, 1.0, 1.0 tons / ft^2
10												
		10.06 - 10.66	1	0.60	0.45	UP						Piston
		10.67 - 11.27	8	0.60	0.60	D	1	2	2	1		Gray organic SILT, trace shells, trace f sand, trace clay, soft. pp= 0, 0.25, 0.25 tons / ft^2
		12.19 - 12.79	9	0.60	0.60	D	1	1	2	1		Gray organic SILT, trace shells, trace f sand, trace clay, soft.
		13.11 - 13.71	2	0.60	0.00	UP						Piston - No Recovery.
		13.72 - 14.32	10	0.60	0.60	D	1	2	3	2		Gray organic SILT, little clay, trace shells.
15												

Casing				
Size	From	To	Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			14D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-6

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-6
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+178.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 24.9 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202410.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289210.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 6.37		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/31/02	Utilized			X			X	X	X	X				
Date Finished: 07/31/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~3.35 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	1	2	2	3		Gray organic SILT, trace shells, very high plasticity. pp=0.00, 0.00, 0.00 tons / ft^2
		16.76 - 17.36	12	0.60	0.60	D	3	3	4	4		Gray organic SILT, trace shells. pp=0.00, 0.00, 0.00 tons / ft^2
											17.67	
		18.29 - 18.89	13	0.60	0.50	D	10	13	13	15	-11.30	Red brown f SAND, trace to little silt.
20		19.81 - 20.41	14	0.60	0.55	D	19	26	28	31		Top 0.20m: Gray f SAND, little silt. Bottom 0.35m: Red brown f SAND, little silt.
											20.41	
											-14.04	Bottom of Boring 20.41.
25												
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			14D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-6

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-7
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+202.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset 42.2 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202480.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289223.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 3.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/25/02	Utilized			X			X	X	X	X				
Date Finished: 07/25/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0 - 0.60	1	0.60	0.30	D	10	10	11	12		Top 0.05m: Brown f SAND and SILT, roots (topsoil) Bottom 0.25m: Light brown f-c SAND, some silt, trace f-c gravel, dry.
		1.52 - 2.12	2	0.60	0.30	D	5	5	5	11		Brown f SAND, trace c sand, trace shells, ~1.27 cm silt seam (brown gray), moist.
		3.05 - 3.65	3	0.60	0.30	D	2	14	17	17		Top 0.15m: Brown f SAND, trace c sand, trace silt, trace shells. Bottom 0.15m: Gray f SAND, wet.
5		4.57 - 5.17	4	0.60	0.36	D	7	17	17	19		Gray f SAND, trace shells, with ~1.27 cm black f-m sand lense, trace silt.
		6.10 - 6.70	5		0.00	D						5.94m - 6.40m: Hit boulder.
											7.01	
		7.62 - 8.22	6	0.60	0.60	D	1	2	1	1	3.07	Gray organic SILT, trace f sand, trace shells.
		8.53 - 9.13	1	0.60	0.60	UP						Piston.
		9.14 - 9.74	7	0.60	0.41	D	1	1	1	2		Gray organic SILT, trace f sand.
10												
		10.67 - 11.27	8	0.60	0.46	D	1	1	1	1		Gray organic SILT, trace f sand, trace shells.
		11.58 - 12.18	2	0.60	0.00	UP						Piston - No Recovery.
		12.19 - 12.79	9	0.60	0.51	D	1	1	1	2		Gray organic SILT, trace f sand, trace shells, very high plasticity.
		13.72 - 14.32	10	0.60	0.53	D	2	1	2	2		Gray organic SILT, trace f sand, trace shells.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	15.84	
			No. of Samples	
			11D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-7

Sheet 1 of 2

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-7
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+202.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset 42.2 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202480.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289223.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 3.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/25/02	Utilized			X			X	X	X	X				
Date Finished: 07/25/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	3	4	8	8	15.70	Top 0.46m: Gray organic SILT, trace f sand, trace shells.
											-11.76	Bottom 0.15m: Gray f SAND, some silt, trace shells.
											15.84	
											-11.90	Bottom of Boring 15.84m.
20												
25												
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	15.84	
			No. of Samples	
			11D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-7

Sheet 2 of 2

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-8
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+217.0
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	8.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202449.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289243.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 7.86		Utilized			X			X	X	X	X				
Date Started: 08/08/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/08/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												0-0.30m: Asphalt
		0.30 - 0.70	1	0.40	0.10	D	22	31	50/0.10m			Brown f-c SAND, trace f gravel, trace silt, c gravel wedged in tip, dry.
		1.52 - 2.12	2	0.60	0.40	D	15	17	21	22		Light brown f SAND, trace c sand, trace silt, dry.
		3.05 - 3.65	3	0.60	0.15	D	14	16	16	19		Red brown / brown f SAND, trace to little silt, trace c sand, trace f gravel, moist.
5		4.57 - 5.17	4	0.60	0.25	D	4	6	8	8		Light brown f SAND, trace to little silt, trace f gravel, moist.
		6.10 - 6.70	5	0.60	0.15	D	9	12	14	15		Brown / gray f SAND, trace silt, wet.
		7.62 - 8.22	6	0.60	0.20	D	5	3	10	11		Gray f SAND, some silt, wet, 0.02m organic silt lense, with trace shells.
		9.14 - 9.74	7	0.60	0.20	D	14	14	16	15		Gray f SAND, little silt, trace shells.
10											10.21	
											-2.35	
		10.67 - 11.27	8	0.60	4.57	D	5	8	3	3		Top 0.27m: Black organic SILT and f SAND, trace f gravel, little wood. Bottom 0.10m: Gray organic SILT, little clay, trace f sand, trace shells, trace fibers.
		11.58 - 12.18	1	0.60	0.00	UP						Piston - No Recovery
		12.19 - 12.79	9	0.60	0.60	D	3	4	4	4		Gray orgainc SILT, little clay, trace shells. pp= 0.75, 0.75, 0.75 tons / ft^2
		13.10 - 13.70	2	0.60	0.60	UP						Piston
15		13.71 - 14:31	10	0.60	0.60	D	1	1	2	2		Gray orgainc SILT, little clay, trace shell, trace fibers.

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			14D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-8

Sheet 1 of 2

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-8
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+217.0
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 8.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202449.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289243.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 7.86														
Date Started: 08/08/02	Utilized			X			X	X	X	X				
Date Finished: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~5.64 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.45	D	2	3	2	6		Gray orgainc SILT, little clay, trace shell, trace fibers.
		16.15 - 16.75	3	0.60	0.60	UP						Piston
		16.76 - 17.36	12	0.60	0.50	D	4	3	6	6		Gray organic SILT, little f sand, trace clay, trace shells.
											17.83	
											-9.97	
		18.29 - 18.89	13	0.60	0.07	D	11	13	15	18		Gray f SAND, some silt.
20		19.81 - 20.41	14	0.60	0.30	D	12	18	19	22		Red brown SILT and f SAND, trace clayey silt seams (very thin), saturated, rapid dilatancy.
											20.41	
											-12.55	Bottom of Boring 20.41m.
25												
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			14D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-8

Sheet 2 of 2

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-9
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+260.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 27.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202423.3
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289292.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 6.08		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/29/02	Utilized			X			X	X	X	X				
Date Finished: 07/29/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.74 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												Top 0.10m: Topsoil.
		0.00 - 0.60	1	0.60	0.30	D	3	5	6	6		Light brown f SAND, little silt, trace m-c sand, trace f gravel, dry.
		1.52 - 2.12	2	0.60	0.36	D	7	10	11	11		Red brown f SAND, trace silt, dry.
		3.05 - 3.65	3	0.60	0.30	D	4	13	16	17		Top 0.03m: Red brown f SAND, little silt, wet. Middle 0.10m: Gray SILT, little f sand, wet. Bottom 0.18m: Light brown f SAND, trace silt, wet.
5		4.57 - 5.17	4	0.60	0.46	D	7	11	10	12		Light brown f-c SAND, trace silt, wet.
		6.10 - 6.70	5	0.60	0.20	D	9	13	14	15		Brown gray f-c SAND, trace silt, wet.
		7.62 - 8.22	6	0.60	0.15	D	6	6	6	6		Brown gray f-c SAND, trace silt, interlayered with gray organic SILT, little shells, trace f sand, wet.
											8.69	
		9.14 - 9.74	7	0.60	0.60	D	1	1	1	1	-2.61	Gray organic SILT, little clay, little shells, trace f sand. pp=0.75, 0.75, 1.0 tons / ft^2
10												
		10.67 - 11.27	8	0.60	0.60	D	1	2	1	1		Gray orgainic SILT, little clay, trace shells, trace f sand.
		12.19 - 12.79	9	0.60	0.60	D	1	2	2	1		Gray organic SILT, trace clay, trace f sand, trace shells. pp=0.5, 0.75, 0.5 tons / ft^2
		13.11 - 13.71	2	0.60	0.60	UP						Piston
		13.72 - 14.32	10	0.60	0.56	D	1	1	2	1		Gray organic SILT, trace clay, trace f sand, trace shells. pp=0.5, 0.75, 0.5 tons / ft^2
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			14D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-9
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+260.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	27.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202423.3
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289292.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 6.08		Utilized			X			X	X	X	X				
Date Started: 07/29/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/29/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.74 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	2	3	4	7		Gray orgainic SILT, little clay, trace f sand, trace shells, few f sand lenses in tip. pp=0.75, 1.0, 1.0 tons / ft^2
		16.76 - 17.36	12	0.60	0.25	D	4	4	4	5		Gray orgainic SILT, little clay, trace f sand, trace shells. pp=1.0, 1.0, 0.5 tons / ft^2
											17.67 / -11.59	
		18.29 - 18.89	13	0.60	0.38	D	14	15	17	23		Red brown SILT, some f sand.
20		19.81 - 20.41	14	0.60	0.25	D	13	16	21	26		Top 0.10m: Gray SILT, trace shells. Bottom 0.15m: Red brown f SAND, some silt.
											20.41 / -14.33	Bottom of Boring 20.41m.
25												
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	20.41	
			No. of Samples	
			3A/11D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-9

Sheet 2 of 2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-10
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+399.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.5 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202485.4
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289422.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 6.14	Utilized			X			X	X	X	X				
Date Started: 08/06/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/07/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												Top 0.56m: Asphalt.
		0.60 - 1.20	1	0.60	0.15	D	15	7	8	28		Brown f-c SAND, mostly f, little silt, trace f-c gravel, dry.
		1.52 - 2.12	2	0.60	0.36	D	17	36	50	54		Brown f-c SAND, mostly f, little silt, trace f-c gravel, moist.
		3.05 - 3.65	3	0.60	0.46	D	8	26	29	31		Top 0.20m: Red brown f SAND, little silt, moist. Bottom 0.25m: Brown gray f SAND, little silt, trace c sand, trace f gravel.
5		4.57 - 5.17	4	0.60	0.46	D	12	13	12	21		Top 0.10m: Brown f SAND, mostly f, little silt, trace f gravel. Bottom 0.36m: Brown gray f SAND, trace silt, moist.
												(Drove 6.10m of casing, used 300 lb. hammer for bottom 1.22m)
		6.10 - 6.70	5	0.60	0.05	D	7	10	15	19		Red brown f SAND, little silt, trace c sand, wet.
											7.16	
		7.62 - 8.22	6	0.60	0.60	D	4	4	5	6	-1.02	Black/Dark gray organic SILT, trace clay interlayered with black/olive brown fiberous PEAT, trace to little silt.
		9.14 - 9.74	1	0.60	0.60	UP						Piston
10												
		10.67 - 11.27	7	0.60	0.60	D	2	1	1	2		Gray organic SILT, little clay, trace shells, trace f sand.
		11.58 - 12.18	2	0.60		UP						Piston
		12.19 - 12.79	8	0.60	0.46	D	4	1	2	2		Gray organic SILT, little clay, trace shells, trace f sand.
											13.72	
		13.72 - 14.32	9	0.60	0.60	D	4	4	2	2	-7.58	Gray SILT and f SAND, trace shells.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	6.10	20.41	
			No. of Samples	
			13D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-10

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-10
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+399.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.5 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202485.4
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289422.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 6.14	Utilized			X			X	X	X	X				
Date Started: 08/06/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/07/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	10	0.60	0.60	D	4	6	9	9		Top 0.10m: Gray SILT, some f sand, trace shells. Bottom 0.51m: Black silty PEAT interlayered with olive brown silty PEAT.
		16.76 - 17.36	11	0.60	0.51	D	WOR	WOR	WOR	6		Top 0.10m: Red brown f-c SAND, trace silt. Bottom 0.41m: Red brown f SAND, some silt, saturated, rapid dilatancy.
		18.29 - 18.89	12	0.60	0.25	D	10	10	13	14		Red brown f SAND and SILT, saturated, rapid dilatancy.
20		19.81 - 20.41	13	0.60	0.46	D	9	12	16	16		Red brown f SAND and SILT, few clayey silt seams (very thin), one silt lense (~0.16cm).
											20.41	
											-14.27	Bottom of Boring 20.41m.
25												
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	6.10	20.41	
			No. of Samples	
			13D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-10

Sheet 2 of 2

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-11
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+424.5
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 21.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202463.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289452.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 3.41		Utilized			X			X	X	X	X				
Date Started: 08/01/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/01/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												0.15m: Asphalt, 0.45m: Gray f gravel.
		0.60 - 0.83	1	0.23	0.15	D	60	50/0.08m				Top 0.08m: Red brown f-c SAND, little silt, trace c gravel.
												Bottom 0.08m: Light brown f-c SAND, little silt, trace f-c gravel.
												Gravel wedged in tip.
		1.52 - 2.12	2	0.60	0.30	D	27	25	19	27		Red brown f SAND, trace c sand, trace silt, trace c gravel.
		3.05 - 3.65	3	0.60	0.51	D	2	1	1	1	3.20	Top 0.15m: Brown gray f SAND, trace c sand, trace to little silt.
											-0.21	Bottom 0.36m: Black gray organic SILT, some f sand inter-
												layered with black PEAT, trace wood.
5		3.96 - 4.56	1	0.60		UP						Piston
		4.57 - 5.17	4	0.60	0.46	D	2	3	3	3		Top 0.10m: Black f SAND and SILT, little shells, trace wood,
												covered in black creosote.
												Bottom 0.36m: Gray organic SILT, some fibers, little clay.
		6.10 - 6.70	5	0.60	0.60	D	1/0.30m		1/0.3m			Gray organic SILT, trace shells, trace clay, trace f sand, soft.
		7.01 - 7.61	2	0.60		UP						Piston
		7.62 - 8.22	6	0.60	0.51	D	2	3	2	2		Gray organic SILT, trace clay, trace f sand, trace shells, soft.
		9.14 - 9.74	7	0.60	0.56	D	3	2	2	2		Gray organic SILT, little clay, trace f sand, trace shells, soft.
10											10.21	
											-6.80	
		10.67 - 11.27	8	0.60	0.60	D	1	7	15	18		Top 0.15m: Gray / dark brown f SAND, some silt, wet.
												Bottom 0.46m: Red brown f SAND, some silt, moist.
		12.19 - 12.79	9	0.60	0.46	D	7	9	15	26		Red brown f SAND, some silt.
											12.79	
											-9.38	Bottom of Boring 12.79m.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	12.79	
			No. of Samples	
			9D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-11

Sheet 1 of 1

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	R-12
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+460.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	5.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202498.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289480.8
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 5.38	Utilized			X			X	X	X	X				
Date Started: 08/06/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/07/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~4.11 m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												0-0.56m: Asphalt
		0.60 - 1.20	1	0.23	0.13	D	26	50/0.08m				Brown f-c SAND, mostly f, little silt, trace f-c gravel, dry.
		1.52 - 2.12	2	0.60	0.36	D	13	17	17	17		Top 0.05: Brown f SAND, trace c sand, little silt, trace f gravel, dry. Bottom 0.30: Light brown f SAND, trace silt.
		3.05 - 3.65	3	0.60	0.46	D	12	12	18	20		Top 0.08: Brown f SAND, trace c sand, little silt, trace f-c gravel, ~0.64cm layer of shells. Bottom 0.30: Red brown f SAND, trace silt, dry.
5		4.57 - 5.17	4	0.60	0.36	D	11	12	10	8		Gray brown f SAND, trace c sand, trace silt, wet.
											5.49	
											-0.11	
		6.10 - 6.70	5	0.60	0.51	D	3	2	1	2		Top 0.25m: Red brown f SAND, some silt. Bottom 0.25m: Olive brown fiberous PEAT, little (gray) silt, trace f sand.
		6.71 - 7.31	1	0.60	0.60	UP						Piston
		7.32 - 7.92	6	0.60	0.46	D	1/0.30m		1	2		Gray organic SILT, trace shells, trace fibers, trace clay.
		9.14 - 9.74	7	0.60	0.46	D	1	2	2	3	9.45	Top 0.30m: Same as above. (Sample jar S-6A)
10											-4.07	Bottom 0.15m: Gray f SAND, some silt. (Sample jar S-6B)
		10.67 - 11.27	8	0.60	0.36	D	9	7	13	13		Red brown f SAND, little silt.
		12.19 - 12.79	9	0.60	0.30	D	7	7	8	8		Red brown f SAND, some silt.
		13.72 - 14.32	10	0.60	0.30	D	8	8	10	10		Red brown f SAND, little to some silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	18.90	
			No. of Samples	
			4A/9D/1UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-12

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-12
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+460.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 5.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202498.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289480.8
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 5.38	Utilized			X			X	X	X	X				
Date Started: 08/06/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/07/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~4.11 m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.30	D	17	17	17	14		Red brown f SAND, little silt.
		16.76 - 17.36	12	0.60	0.46	D	15	10	10	10		Red brown f SAND, little silt.
		18.29 - 18.89	13	0.60	0.41	D	11	14	13	11		Red brown f SAND, some silt.
											18.89	
											-13.51	Bottom of Boring 18.89m.
20												
25												
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	18.89	
			No. of Samples	
			13D/1UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-12

Sheet 2 of 2

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-13
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+474.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset 35.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202530.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289488.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 2.36		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/26/02	Utilized			X			X	X	X					
Date Finished: 07/26/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.13 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.20	D	2	4	6	7		Brown f SAND, some silt, roots.
		1.52 - 2.12	2	0.60	0.25	D	3	4	5	3	2.12	Gray f SAND, some silt, trace fibers.
											0.24	(Gray organic SILT between samples 2 and 3.)
											3.05	
		3.05 - 3.65	3	0.60	0.56	D	2	2	9	7	-0.69	Gray f SAND, some silt, trace fibers.
5		4.57 - 5.17	4	0.60	0.60	D	3	5	7	10		Red brown f SAND, little silt.
		6.10 - 6.70	5	0.60	0.36	D	5	7	9	8		Red brown f SAND, little silt.
		7.62 - 8.22	6	0.60	0.41	D	6	8	8	10		Red brown f SAND, little silt.
		9.14 - 9.74	7	0.60	0.30	D	9	13	17	18		Red brown f SAND, some silt.
10												
		10.67 - 11.27	8	0.60	0.30	D	10	14	16	20		Red brown f SAND, some silt.
		12.19 - 12.79	9	0.60	0.25	D	7	8	11	13		Red brown f SAND, some silt, trace f gravel.
		13.72 - 14.32	10	0.60	0.25	D	8	9	12	12		Red brown f SAND, some silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	15.84	
			No. of Samples	
			11D	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-13

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-13
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+474.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset 35.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202530.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289488.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.36		Utilized			X			X	X	X					
Date Started: 07/26/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/26/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.13 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.33	D	7	6	9	11		Red brown f SAND, little to some silt.
											15.84	
											-13.48	Bottom of Boring 15.84 m.
20												
25												
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	15.84	
			No. of Samples	
			11D	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-13

Sheet 2 of 2

J. Muccino	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. R-14
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+505.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 23.0 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202480.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289531.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 2.90		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/02/02	Utilized			X			X	X	X	4				
Date Finished: 08/02/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~4.11 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.30	D	5	6	5	7		Top 0.10m: Topsoil
												Bottom 0.20m: Red brown f SAND, trace c sand, few f gravel, trace silt, dry.
		1.52 - 2.12	2	0.60	0.30	D	9	5	8	8		Red brown f SAND, little silt, dry.
											2.59	
											0.31	
		3.05 - 3.65	3	0.60	0.48	D	4	5	5	5		Olive brown very fiberous PEAT, little (gray) silt, trace f sand, trace clay, dry.
5		4.57 - 5.17	4	0.60	0.41	D	1	1	2	2		Top 0.15m: Gray organic SILT, some f sand, trace fibers.
												Bottom 0.25m: Gray organic SILT interlayered with PEAT, little f sand.
											5.64	
		6.10 - 6.70	5	0.60	0.51	D	5	7	15	19	-2.74	Red brown / brown SILT and f SAND, saturated.
		7.62 - 8.22	6	0.60	0.46	D	9	13	16	19		Red brown SILT, little to some f sand, trace clayey silt seams (very thin).
		9.14 - 9.74	7	0.60	0.51	D	11	15	18	23		Red brown SILT, little to some f sand, trace clayey silt seams (very thin).
10											9.74	
											-6.84	Bottom of Boring 9.74m.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	9.74	
			No. of Samples	
			7D	

NOTES: Backhoe Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a rope and pulley system.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. R-14

Sheet 1 of 1

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.8
E. Fulton / E. Guven	DEPARTMENT OF TRANSPORTATION	Offset	20.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202382.7
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288781.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 4.63		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/17/02	Utilized			X			X	X	X	X				
Date Finished: 07/19/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.36	D	5	10	14	15		Top 0.10m: Topsoil.
												Bottom 0.25m: Brown f SAND, trace c sand, trace f gravel,
												trace silt, trace roots, dry.
		1.52 - 2.12	2	0.60	0.36	D	10	10	9	10		Light brown f-c SAND, trace f gravel, trace silt, moist.
		3.05 - 3.65	3	0.60	0.30	D	6	9	10	11		Light brown f-c SAND, trace f gravel, trace silt, wet.
5		4.57 - 5.17	4	0.60	0.25	D	9	10	9	10		Red brown f SAND, trace c sand, trace silt, trace shells.
												(5.49m: Rollerbit through obstruction - possibly metal.)
											5.79	
		6.10 - 6.70	5	0.60	0.56	D	1	2	2	3	-1.16	Black organic SILT, trace fibers, trace clay.
		7.62 - 8.22	6	0.60	0.60	D	1	2	1	2		Gray organic SILT interlayered with (olive brown) PEAT, little
												clay.
		9.14 - 9.74	1	0.60	0.60	UP						Piston.
10		9.75 - 10.35	7	0.60	0.46	D	WOR	1	1	2		Gray organic SILT, trace f sand, trace clay, trace shells, stiff.
		10.67 - 11.27	8	0.60	0.51	D	1	2	2	2		Gray organic SILT, trace f sand, trace clay, trace shells, stiff.
		12.19 - 12.79	2	0.60	0.60	UP						Piston.
		12.80 - 13.40	9	0.60	0.60	D	1/0.30m		1	2		Gray organic SILT, trace clay, trace shells, trace f sand lenses,
												(very thin).
		13.72 - 14.32	10	0.60	0.60	D	WOR	WOR	5	6		Gray organic SILT, trace clay, trace shells, trace f sand lenses
												(very thin).
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A1-2

Sheet 1 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. A1-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+751.8
E. Fulton / E. Guven	DEPARTMENT OF TRANSPORTATION	Offset 20.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202382.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288781.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 4.63		Utilized			X			X	X	X	X				
Date Started: 07/17/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/19/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	3	3	4	4		Gray organic SILT, trace clay, little f sand, trace shell fragments, trace fibers.
											16.31	
		16.76 - 17.36	12	0.60	0.36	D	8	4	7	12	-11.68	Red brown f SAND, trace silt.
		18.29 - 18.89	13	0.60	0.25	D	8	11	11	8		Red brown f SAND, little silt.
20		19.81 - 20.41	14	0.60	0.15	D	10	11	15	19		Red brown f SAND, some silt, trace shells.
		21.34 - 21.94	15	0.60	0.36	D	15	20	15	17		Red brown f SAND and SILT.
		22.86 - 23.46	16	0.60	0.46	D	10	14	17	21		Red brown f SAND and SILT.
		24.38 - 24.98	17	0.60	0.30	D	14	18	21	27		Red brown f SAND, some silt.
25												
		25.91 - 26.51	18	0.60	0.36	D	14	20	21	24		Red brown f SAND, some silt, trace shells.
		27.43 - 28.03	19	0.60	0.05	D	2	3	3	4		Red brown f SAND, some silt.
		28.96 - 29.56	20	0.60	0.30	D	4	14	9	11		Red brown f SAND and SILT, trace clay.
30											30.02	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. A1-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+751.8
E. Fulton / E. Guven	DEPARTMENT OF TRANSPORTATION	Offset 20.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202382.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288781.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 4.63		Utilized			X			X	X	X	X				
Date Started: 07/17/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/19/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	12	15	23	23	-25.39	Red brown SILT, little clay, trace to little f sand.
		32.00 - 32.60	22	0.60	0.46	D	6	10	18	25		Red brown SILT, some f sand, trace clay.
		33.53 - 34.13	23	0.60	0.60	D	6	9	14	26		Red brown SILT and f SAND, trace clay.
35												
		35.05 - 35.65	24	0.60	0.53	D	15	6	4	22		Red brown SILT and f SAND, trace clay.
											35.65	
											-31.02	Bottom of boring 35.65 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A1-2

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+069.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202430.5
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289097.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.92		Utilized			X			X	X	X	X				
Date Started: 08/22/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/23/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.44 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.30	D	5	7	9	13		Brown gray f SAND, little silt, trace c sand, moist.
		1.52 - 2.12	2	0.60	0.36	D	11	13	13	12		Brown gray, trace silt, trace c sand.
		2.44 - 3.04	3	0.60	0.46	D	2	15	10	14		Top 0.08m: Brown f SAND, little silt. Bottom 0.38m: Black f SAND, little silt, trace c sand, trace f gravel, trace glass shards, trace metal, covered in creosote, wet.
5		4.57 - 5.17	4	0.60	0.05	D	14	4	3	5	5.64	Black / dark gray c SAND and f GRAVEL, trace silt, trace f sand, wet.
		6.10 - 6.70	5	0.60	0.13	D	1	1	1	2	-2.72	Dark gray organic SILT, trace f sand, trace clay, trace shells, soft. pp = 0.00, 0.00, 0.00 tons / ft^2
		7.62 - 8.22	6	0.60	0.41	D	1	2	1	1		Dark gray organic SILT, trace clay, trace shells, soft. pp = 0.00, 0.00, 0.00 tons / ft^2
		8.23 - 8.83	1	0.60	0.60	UP						Piston
		9.14 - 9.74	7	0.60	0.46	D	1	2	2	2		Gray organic SILT, trace clay, little shells, very soft. pp = 0.00, 0.00, 0.00 tons / ft^2
10												
		10.67 - 11.27	8	0.60	0.51	D	1/0.30m		1	1		Gray organic SILT, trace clay, little shells, very soft.
		11.28 - 11.88	2	0.60	0.60	UP						Piston
		12.19 - 12.79	9	0.60	0.51	D	1	2	2	2		Gray organic SILT, trace clay, little shells, very soft.
		13.72 - 14.32	10	0.60	0.38	D	1	2	2	3		Gray organic SILT, trace to little clay, little shells. pp = 0.25, 0.25, 0.25 tons / ft^2
15											14.78	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+069.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202430.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289097.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	2.92														
Date Started:	08/22/02	Utilized			X			X	X	X	X				
Date Finished:	08/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.44 m after	hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after	hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.25	D	WOR	WOR	6	7	-11.86	Gray brown f SAND, trace silt, trace f gravel.
		16.76 - 17.36	12	0.60	0.00	D	11	10	12	13		No Recovery.
		18.29 - 18.89	13	0.60	0.08	D	3	7	4	8	19.35	Red brown f SAND and SILT, saturated. (Sample slipped out of spoon and on to ground. None of sample made it to jar.)
20		19.81 - 20.41	14	0.60	0.51	D	4	5	6	9	-16.43	Red brown SILT, little to some f sand, saturated, rapid dilatancy.
		21.34 - 21.94	15	0.60	0.43	D	6	9	11	11		Red brown SILT, little to some f sand, saturated, rapid dilatancy.
		22.86 - 23.46	16	0.60	0.30	D	5	5	7	9		Red brown SILT and f SAND, saturated.
		24.38 - 24.98	17	0.60	0.36	D	13	9	18	15		Red brown SILT, some f sand.
25												
		25.91 - 26.51	18	0.60	0.41	D	12	11	12	19		Red brown SILT, some f sand.
		27.43 - 28.03	19	0.60	0.30	D	6	3	5	8		Red brown SILT, little to some f sand, saturated.
		28.96 - 29.56	20	0.60	0.38	D	7	6	7	7		Red brown SILT, some f sand.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+069.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202430.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289097.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.92		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 08/22/02	Utilized			X			X	X	X	X				
Date Finished: 08/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.44 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	4	3	2	8		Red brown SILT, trace f sand, saturated, rapid dilatancy.
		32.00 - 32.60	22	0.60	0.41	D	14	14	18	29		Red brown SILT, little f sand, trace clayey silt seams (~0.79 mm).
		33.53 - 34.13	23	0.60	0.36	D	15	17	16	21		Red brown SILT, little f sand, trace clayey silt seams (~0.79 mm).
35												
		35.05 - 35.65	24	0.60	0.05	D	5	2	5	5		Red brown SILT, trace f sand, saturated.
											35.65	
											-32.73	Bottom of Boring 35.65 m.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+058.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289088.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.94		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 07/08/02	Utilized			X			X	X	X						
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)	
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55	
@ ~2.29 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond		
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide		

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.41	D	6	9	10	11		Top 0.20m: Brown SILT, some to little f sand, trace f-c gravel. Bottom 0.20m: Light brown f SAND, trace c sand.
		1.52 - 2.12	2	0.60	0.20	D	3	4	7	20		Top 0.05m: Light brown f SAND, trace c sand. Middle 0.08m: Light brown f SAND, trace c sand. Bottom 0.08m: Dark brown / black, ASH / CINDERS, trace f-c gravel.
		2.44 - 3.04	3	0.60	0.08	D	6	8	8	12		Brown f SAND, trace f-c gravel, trace c sand, trace silt, wet.
5		4.57 - 5.17	4	0.30	0.15	D	34	17	50			Gray f-c SAND, little f-c gravel, trace silt, gravel lodged in tip.
		6.10 - 6.70	5	0.30	0.15	D	27	10				Black f-c SAND, trace to little f-c gravel, trace silt, wet. Note: Gravel wedged between rods and casing, while driving spoon casing was being pulled down. Driller stopped after 0.30m.
		7.62 - 8.22	6	0.60	0.15	D	9	6	9	10		Dark brown / black f SAND, little silt, trace f gravel.
10		9.14 - 9.74	7	0.60	0.03	D	13	5	5	5		Dark gray / black f SAND, little to trace silt, piece of c gravel in tip.
											10.21	
		10.67 - 11.27	8	0.60	0.51	D	3	2	3	3	-7.27	Gray organic SILT, trace shells, little f sand, trace clay.
		12.19 - 12.79	9	0.60	0.20	D	3	3	3	4		Gray organic SILT, trace shells, little f sand, trace clay.
											13.26	
		13.72 - 14.32	10	0.60	0.46	D	2	3	2	7	-10.32	Gray f SAND, little silt, trace organics.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	34.13	
			No. of Samples	
			23D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+058.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289088.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.94		Utilized			X			X	X	X	X				
Date Started: 07/08/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/09/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~2.29 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.25	D	9	11	12	7		Red brown f SAND, little silt.
												Bottom 0.05m: Brown f-c SAND, f-m gravel, trace silt.
												hole, running out of water and betonite.
		16.76 - 17.36	12	0.60	0.23	D	7	10	11	15		Red brown f SAND, little silt.
		18.29 - 18.89	13	0.60	0.51	D	2	2	3	5		Red brown f SAND, little silt, saturated.
20		19.81 - 20.41	14	0.60	0.25	D	3	5	7	9		Red brown f SAND, some silt.
		21.34 - 21.94	15	0.60	0.51	D	1	1	2	8		Top 0.41m: Red brown f SAND, some silt.
												Bottom 0.10m: Red brown f SAND, little silt.
											22.40	
		22.86 - 23.46	16	0.60	0.30	D	12	15	17	17	-19.46	Red brown SILT, little to some f sand.
		24.38 - 24.98	17	0.60	0.25	D	6	12	16	19		Red brown SILT, some f sand.
25												
		25.91 - 26.51	18	0.60	0.30	D	11	18	19	20		Red brown SILT and f SAND, saturated.
		27.43 - 28.03	19	0.60	0.60	D	6	2	2	8		Top 0.20m: Red brown SILT and f SAND, rapid dilatancy.
												Middle 0.15m: Red brown f SAND, some silt.
												Bottom 0.25m: Red brown SILT and f SAND, rapid dilatancy.
		28.96 - 29.56	20	0.60	0.00	D	3	3	5	9		No Recovery - lost mud.
30												

Casing Size	From	To	Meters of Earth	Rock
			34.13	
			No. of Samples	
			23D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+058.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289088.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.94		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 07/08/02	Utilized			X			X	X	X						
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)	
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55	
@ ~2.29 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond		
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide		

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.51	D	6	3	9	14		Red brown SILT and f SAND, rapid dilatancy. Note: From 24.38m - 30.48m drillers lost 4 tubs of mud down hole, running out of water and bentonite.
		32.00 - 32.60	22	0.60	0.51	D	7	2	3	9		Red brown SILT and f SAND, trace clayey silt seams (very thin), saturated, rapid dilatancy.
		33.53 - 34.13	23	0.60	0.61	D	8	2	1	13		Red brown SILT and f SAND, trace clayey silt seams (very thin), saturated, rapid dilatancy.
35											34.13	Drillers out of mud and water, unable to continue to 35.66m.
											-31.19	Bottom of Boring 34.13 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
			34.13	
			No. of Samples	
			23D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-3

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B164-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+292.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	7.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202463.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289317.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 7.58		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/07/02	Utilized			X			X	X	X	X				
Date Finished: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
@ ~4.11 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.30 - 0.90	1	0.60	0.36	D	8	16	27	30		Brown f-c SAND, mostly f, little silt, trace f-c gravel.
		1.52 - 2.12	2	0.60	0.20	D	22	34	33	34		Light brown f SAND, trace to little silt, trace f gravel.
		3.05 - 3.65	3	0.60	0.51	D	10	8	9	19		Red brown / brown f SAND, trace to little silt.
5		4.57 - 5.17	4	0.60	0.20	D	4	5	7	37		Top 0.13m: Brown SILT, some f sand, wet. Bottom 0.08m: Red brown / brown f SAND, little silt. (Piece of gravel wedged in tip.)
		6.10 - 6.70	5	0.60	0.25	D	12	20	28	34		Brown f SAND, trace silt, trace c sand, wet.
		7.62 - 8.22	6	0.60	0.20	D	12	14	12	12		Brown gray f SAND, trace silt, trace c sand, wet.
10		9.14 - 9.74	7	0.60	0.36	D	5	10	13	17		Top 0.20m: Gray SILT, some f sand, little clayey silt seams (very thin).
											10.21	Bottom 0.15m: Red brown f SAND, little silt, wet.
		10.67 - 11.27	8	0.60	0.46	D	9	6	7	6	-2.63	Black organic SILT and f SAND, little shells, trace fibers. (Sample soaked in black creosote.)
		12.19 - 1 2.79	9	0.60	0.46	D	3	4	5	5		Gray organic SILT, little to some clay, trace f sand, trace shells, stiff. pp= 1.25, 1.25, 1.25 tons / ft^2
		13.72 - 14.32	10	0.38	0.60	D	4	3	3	5		Gray organic SILT, trace to little clay, trace f sand, trace shells. pp= 0.25, 0.25, 0.25 tons / ft^2
15		14.63 - 15.23	1	0.60	0.00	UP						Piston - no recovery.

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			23D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. B164-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+292.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 7.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202463.8
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289317.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 7.58		Utilized			X			X	X	X	X				
Date Started: 08/07/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/08/02		Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~4.11 m after hours		Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	4	3	4	7		Gray organic SILT, trace f sand, stiff.
		16.76 - 17.36	2	0.60	0.00	UP						Piston - No recovery.
		17.37 - 17.97	12	0.60	0.60	D	4	5	7	9		Gray organic SILT, little f sand, trace clay, trace shells, stiff.
											17.97	pp = 1.5, 1.5, 1.25 tons / ft^2
											-10.39	
20		19.81 - 20.41	13	0.60	0.30	D	7	12	13	17		Top 0.13m: Red brown f SAND and SILT, saturated. Bottom 0.18m: Red brown f SAND, some silt, saturated, rapid dilatancy.
		21.34 - 21.94	14	0.60	0.51	D	12	20	21	20		Red brown f SAND and SILT, saturated, rapid dilatancy.
		22.86 - 23.46	15	0.60	0.46	D	10	16	19	23		Red brown f SAND, some silt, saturated, rapid dilatancy.
		24.38 - 24.98	16	0.60	0.30	D	15	24	25	27		Red brown f SAND and SILT.
25												
		25.91 - 26.51	17	0.60	0.51	D	14	20	24	25		Red brown f SAND and SILT, saturated, rapid dilatancy.
		27.43 - 28.03	18	0.60	0.36	D	16	20	23	22		Red brown SILT and f SAND.
		28.96 - 29.56	19	0.60	0.43	D	17	19	20	24		Red brown f SAND and SILT.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			23D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. B164-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+292.8
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 7.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202463.8
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289317.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 7.58		Utilized			X			X	X	X	X				
Date Started: 08/07/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/08/02		Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~4.11 m after hours		Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	20	0.60	0.41	D	22	26	30	27		Top 0.10m: Red brown f SAND, little to some silt. Bottom 0.30m: Red brown f SAND and SILT, trace clayey silt seams (very thin).
		32.00 - 32.60	21	0.60	0.36	D	8	14	23	21		Red brown SILT, some f sand, saturated, rapid dilatancy.
		33.53 - 34.13	22	0.60	0.46	D	15	22	27	34		Red brown SILT, some f sand, trace clayey silt seams (very thin).
35												
		35.05 - 35.65	23	0.60	0.51	D	17	23	25	29		Red brown SILT, some f sand, trace clayey silt seams (very thin).
											35.65 -28.07	Bottom of Boring 35.65 6m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			23D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B164-2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. B164-3
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+296.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 22.0 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202435.9
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289326.8
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 5.49		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 07/29/02	Utilized			X			X	X	X						
Date Finished: 07/30/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)	
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55	
@ ~5.64 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond		
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide		

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.36	D	2	3	3	3		Top 0.10m: Topsoil Bottom 0.25m: Brown / red brown f SAND, little f-c sand, little silt, dry.
		1.52 - 2.12	2	0.60	0.46	D	11	12	14	10		Red brown f SAND, little silt, dry.
		3.05 - 3.65	3	0.60	0.36	D	6	6	8	5		Top 0.10m: Red brown f SAND, little silt, moist. Bottom 0.25m: Light brown F SAND, trace silt, wet.
5		4.57 - 5.17	4	0.60	0.23	D	2	1	1	4		Top 0.05m: Brown f-c SAND, wet. Middle 0.15m: Gray SILT, little clay, trace f sand, wet. Bottom 0.03m: Gray f SAND, trace silt, wet.
		6.10 - 6.70	5	0.60	0.25	D	9	15	16	17		Brown gray f-c SAND, trace silt, wet.
		7.62 - 8.22	6	0.60	0.51	D	7	8	9	11		Red brown f SAND, little silt, trace c sand, few f-c gravel, wet.
		9.14 - 9.74	7	0.60	0.30	D	7	7	4	3	9.30	Top 0.15m: Same as above.
10											-3.81	Bottom 0.15m: Gray organic SILT, trace shells, trace f sand, little clay.
		10.67 - 11.27	8	0.60	0.36	D	2	3	5	7		Gray organic SILT, trace shells, trace clay, trace f sand.
		12.19 - 1 2.79	9	0.60	0.60	D	2	2	2	3		Gray organic SILT, trace shells, little clay, trace f sand, stiff. pp = 1.0, 1.25, 1.0 tons / ft^2
		13.72 - 14.32	10	0.60	0.60	D	2	2	3	4		Gray organic SILT, trace shells, trace f sand, little to some clay, very stiff. pp = 1.25, 1.25, 1.25 tons / ft^2
15												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B164-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+296.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	22.0 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202435.9
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289326.8
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 5.49		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started:	Utilized			X			X	X	X					
Date Finished: 07/29/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
@ ~5.64 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	2	2	3	4		Gray organic SILT, little f sand, little clay, trace shells.
											16.31	pp = 0.75, 0.75, 0.75 tons / ft^2
											-10.82	
		16.76 - 17.36	12	0.60	0.46	D	WOR	WOR	7	11		Brown gray f-c SAND, trace silt.
		18.29 - 18.89	13	0.60	0.36	D	11	13	15	16		Red brown f SAND, little silt, saturated, medium dilatancy.
20		19.81 - 20.41	14	0.60	0.51	D	WOR	WOR	WOR	3		Red brown f SAND, little silt, saturated, medium dilatancy.
		21.34 - 21.94	15	0.60	0.41	D	11	17	18	18		Red brown f SAND, some silt, saturated, rapid dilatancy.
		22.86 - 23.46	16	0.60	0.23	D	10	1	4	10		Red brown f SAND, some silt, saturated, rapid dilatancy.
		24.38 - 24.98	17	0.60	0.25	D	10	17	18	23		Red brown f SAND and SILT, trace clayey silt seams (~1.59mm),
25												saturated, rapid dilatancy.
		25.91 - 26.51	18	0.60	0.30	D	11	16	19	20		Red brown f SAND and SILT, saturated, rapid dilatancy.
		27.43 - 28.03	19	0.60	0.30	D	14	15	16	19		Red brown f SAND and SILT, saturated, rapid dilatancy.
		28.96 - 29.56	20	0.60	0.51	D	11	17	23	20		Red brown f SAND, some silt, wet.
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. B164-3
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+296.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 22.0 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202435.9
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289326.8
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 5.49		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started:	Utilized			X			X	X	X					
Date Finished: 07/29/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
@ ~5.64 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.36	D	10	15	16	21		Red brown f SAND, some silt, wet.
		32.00 - 32.60	22	0.60	0.25	D	10	14	20	22		Red brown SILT, little to some f sand, little clayey silt seams (~0.79-1.59mm).
		33.53 - 34.13	23	0.60	0.51	D	17	15	17	16		Red brown f SAND and SILT.
35												
		35.05 - 35.65	24	0.60	0.36	D	16	19	19	23		Red brown SILT, some f sand.
											35.65 -30.16	Bottom of Boring 35.65.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B164-3

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B164-5
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+340.2
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.9 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202473.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289363.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 7.18		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 08/07/02	Utilized			X			X	X	X	X				
Date Finished: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
@ ~5.64 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												0-0.30: Asphalt.
		0.30 - 0.68	1	0.38	0.23	D	28	36	50/0.08m			Top 0.08m: Dark brown f-c SAND, mostly f, trace f gravel, trace silt.
												Middle 0.08m: Brown f-c SAND, mostly f, trace f-c gravel, trace silt.
												Bottom 0.08m: Crushed c gravel.
		1.52 - 2.12	2	0.60	0.15	D	28	26	24	24		Brown f-c SAND, mostly f, little silt, trace f-c gravel.
		3.05 - 3.65	3	0.60	0.00	D	15	15	16	17		No Recovery.
		3.66 - 4.26	4	0.60	0.03	D	13	17	24	20		Brown f SAND, little silt, moist.
5		4.57 - 5.17	5	0.60	0.30	D	11	13	5	3		Top 0.08m: Brown f SAND, trace silt, moist.
												Bottom 0.23m: Light brown f SAND, moist.
		6.10 - 6.70	6	0.60	0.20	D	2	6	10	13		Brown gray f SAND, trace c sand, trace silt, wet.
		7.62 - 8.22	7		0.15	D	11	13	7	7		Brown gray f SAND, trace c sand, trace silt, wet.
												(7.92m: Black creosote came out of hole, while rollerbitting.)
		9.14 - 9.74	8	0.60	0.20	D	12	10	9	9		Black f SAND, trace c sand, little silt, little shells.
10											10.06	
											-2.88	
		10.67 - 11.27	9	0.60	0.41	D	3	5	5	5		Gray organic SILT, trace clay, trace f sand, trace shells.
		11.58 - 12.18	1	0.60	0.60	UP						Piston.
		12.19 - 1 2.79	10	0.60	0.51	D	3	3	5	5		Gray organic SILT, some clay, trace f sand, trace shells.
												pp = 1.75, 1.5, 1.5 tons / ft^2
		13.72 - 14.32	11	0.60	0.60	D	1/0.30m		3	4		Gray organic SILT, some clay, little f sand, trace shells.
												pp = 1.0, 1.25, 1.0 tons / ft^2
15		14.63 - 15.23	2	0.60	0.00	UP						Piston - No Recovery.

Casing Size	From	To	Meters of Earth	Rock
100mm	0	20.00	36.55	
			No. of Samples	
			25D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B164-5
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+340.2
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.9 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202473.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289363.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	7.18	Utilized			X			X	X	X	X				
Date Started:	08/07/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	08/08/02	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~5.64 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	12	0.60	0.60	D	13	14	15	15	15.39	Top 0.15m: Gray organic SILT, little clay, little f sand, trace shells.
											-8.21	Middle 0.15m: Gray f SAND and SILT.
												Bottom 0.30m: Red brown f SAND, little silt.
		16.76 - 17.36	13	0.60	0.25	D	9	12	13	15		Red brown f SAND, little silt.
		18.29 - 18.89	14	0.60	0.51	D	10	11	14	16		Red brown f SAND, some silt.
20		19.81 - 20.41	15	0.60	0.25	D	9	8	10	10		Red brown f SAND, some silt.
		21.34 - 21.94	16	0.60	0.36	D	14	18	23	26		Red brown f SAND, some silt.
		22.86 - 23.46	17	0.60	0.30	D	12	15	21	25		Red brown f SAND and SILT.
		24.38 - 24.98	18	0.60	0.46	D	11	10	13	15		Red brown f SAND and SILT.
25												
		25.91 - 26.51	19	0.60	0.36	D	13	15	14	14		Red brown SILT and f SAND, trace clayey silt seams.
		27.43 - 28.03	20	0.60	0.20	D	15	15	17	19		Red brown SILT and f SAND.
		28.96 - 29.56	21	0.60	0.30	D	15	14	16	18		Red brown f SAND, some silt.
30												

Casing Size	From	To	Meters of Earth	Rock
100mm	0	20.00	36.55	
			No. of Samples	
			25D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. B164-5
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+340.2
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 6.9 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202473.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289363.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 7.18		Utilized			X			X	X	X	X				
Date Started: 08/07/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/08/02		Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	22	0.60	0.25	D	14	16	16	19		Red brown f SAND, some silt.
		32.00 - 32.60	23	0.60	0.20	D	18	24	24	24		Red brown SILT and f SAND.
		33.53 - 34.13	24	0.60	0.30	D	22	18	19	22		Red brown SILT and f SAND.
35												
		35.05 - 35.65	25	0.60	0.25	D	28	23	24	26	35.65	Red brown SILT and f SAND.
											-28.47	Bottom of Boring 35.65 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100mm	0	20.00	36.55	
			No. of Samples	
			25D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B164-5

Sheet 3 of 3

M Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. B164-6
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+337.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 22.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202443.8
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289367.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 6.38		Utilized			X			X	X	X					
Date Started: 07/30/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/02/02		Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~5.64 m after hours		Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.51	A	2	3	3	3		Brown f SAND, little silt.
		1.52 - 2.12	2	0.60	0.15	A	10	14	19	29		Red brown f SAND, tr c sand, trace silt, moist.
		3.05 - 3.65	3	0.60	0.36	A	4	5	5	6		Light brown f SAND, trace silt, moist.
5		4.57 - 5.17	4	0.60	0.41	A	3	2	10	16		Top 0.25m: Gray SILT, some f sand, moist. Bottom 0.15m: Light brown f SAND, trace c sand, trace silt, moist.
		6.10 - 6.70	5	0.60	0.20	D	23	22	20	17		Brown gray c SAND, little f sand, trace c gravel, trace silt, wet.
		7.62 - 8.22	6	0.60	0.20	D	12	12	10	8		Gray f SAND, trace silt.
											8.69	
											-2.31	
		9.14 - 9.74	7	0.60	0.51	D	3	2	3	3		Gray organic SILT, some clay, trace f sand, trace shells, stiff.
10												
		10.67 - 11.27	8	0.60	0.60	D	2	2	3	3		Gray organic SILT, some clay, trace f sand, trace shells, stiff.
		12.19 - 1 2.79	9	0.60	0.51	D	1	1	2	3		Gray organic SILT, trace clay, trace shells.
		13.72 - 14.32	10	0.60	0.60	D	2	2	2	2		Gray organic SILT, trace clay, trace f sand, trace shells.
											14.78	
15											-8.40	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B164-6

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B164-6
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+337.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	22.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202443.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289367.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	6.38	Utilized			X			X	X	X					
Date Started:	07/30/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	08/02/02	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~5.64 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.56	D	10	12	13	15		Brown f SAND, trace silt, trace c sand, few f gravel.
		16.76 - 17.36	12	0.60	0.46	D	12	23	28	32		Top 0.41m: Red brown f SAND, some silt. Bottom 0.05m: Red brown f SAND, little silt.
		18.29 - 18.89	13	0.60	0.36	D	8	10	15	15		Red brown f SAND, some silt, saturated, rapid dilatancy.
20		19.81 - 20.41	14	0.60	0.56	D	8	7	15	20		Red brown f SAND, some silt, saturated, rapid dilatancy.
		21.34 - 21.94	15	0.60	0.46	D	12	12	12	16		Red brown f SAND, some silt, saturated.
		22.86 - 23.46	16	0.60	0.51	D	8	5	8	16		Red brown SILT and f SAND, wet.
25		24.38 - 24.98	17	0.60	0.51	D	WOR	WOR	11	11		Red brown SILT and f SAND, wet.
		25.91 - 26.51	18	0.60	0.10	D	WOR	WOR	WOR	WOR		Red brown f SAND and SILT, saturated, rapid dilatancy.
		27.43 - 28.03	19	0.60	0.60	D	WOR	3	14	29		Red brown f SAND and SILT, trace clayey silt seams (very thin).
		28.96 - 29.56	20	0.60	0.51	D	14	17	21	27		Red brown f SAND and SILT, trace clayey silt seams (very thin).
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B164-6
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+337.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	22.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202443.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289367.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 6.38		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/30/02	Utilized			X			X	X	X					
Date Finished: 08/02/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	Piston	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36	76	35	35	55	55
@ ~5.64 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.51	D	14	18	22	29		Red brown f SAND and SILT.
		32.00 - 32.60	22	0.60	0.46	D	18	27	32	38		Red brown f SAND and SILT, few clayey silt seams (very thin), few f sand lenses (very thin).
		33.53 - 34.13	23	0.60	0.30	D	2	4	5	7		Red brown f SAND and SILT, saturated, rapid dilatancy.
35												
		35.05 - 35.65	24	0.60	0.41	D	18	26	37	43		Red brown f SAND and SILT, saturated, rapid dilatancy.
											35.65	
											-29.27	Bottom of Boring 35.65 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.00	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B164-6

Sheet 3 of 3

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B165-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+639.2
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	2.0 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202,533.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289,656.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	2.62														
Date Started:	08/05/02	Utilized			X			X	X	X					
Date Finished:	08/06/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
												0-0.46m: Asphalt
		0.46 - 1.06	1	0.60	0.30	D	15	27	22	19		Top 0.15m: Brown f-c SAND, mostly f, little silt, trace f-c gravel, dry. Bottom 0.15m: Red brown f SAND, little silt, dry.
		1.52 - 2.12	2	0.60	0.48	D	5	5	8	5		Red brown f SAND, little silt, moist.
		3.05 - 3.65	3	0.60	0.56	D	2	2	4	7		Red brown f SAND, trace silt, wet.
5		4.57 - 5.17	4	0.60	0.46	D	9	13	13	8		Red brown f-c SAND, trace silt, wet.
		6.10 - 6.70	5	0.60	0.20	D	3	5	5	7		Red brown f-c SAND, trace silt, few f gravel, wet.
		7.62 - 8.22	6	0.60	0.18	D	5	8	8	12		Top 0.10m: Red brown f-c SAND, trace silt, wet. Bottom 0.08m: Red brown f SAND, little silt.
		9.14 - 9.74	7	0.60	0.00	D	7	9	11	14		No Recovery.
10												
		10.67 - 11.27	8	0.60	0.08	D	9	10	10	12		Red brown f SAND, little silt, moist.
		12.19 - 12.79	9	0.60	0.46	D	10	17	25	38		Red brown f SAND and SILT.
		13.72 - 14.10	10	0.38	0.10	D	36	46	50/0.08m			Red brown f SAND, some silt.
											14.78	
15											-12.16	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	31.08	
			No. of Samples	
			21D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B165-2

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B165-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+639.2
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	2.0 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202,533.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289,656.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	2.62														
Date Started:	08/05/02	Utilized			X			X	X	X					
Date Finished:	08/06/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.46	D	7	11	13	15		Red brown SILT, some f sand, trace clay, saturated, rapid dilatancy.
		16.76 - 17.36	12	0.60	0.60	D	9	11	14	17		Red brown SILT, little clay, trace f sand, medium to rapid dilatancy.
		18.29 - 18.89	13	0.60	0.00	D	7	9	11	16		No Recovery.
20		19.81 - 20.41	14	0.60	0.30	D	6	8	13	15		Red brown SILT, little clay, trace f sand.
		21.34 - 21.94	15	0.60	0.46	D	10	15	17	16		Red brown SILT, little clay, trace f sand.
		22.86 - 23.46	16	0.60	0.51	D	7	10	12	16		Red brown SILT, little to trace clay, trace f sand.
25		24.38 - 24.98	17	0.60	0.30	D	7	11	19	17		Red brown SILT, trace f sand, little to trace clay, with clayey silt seams (very thin).
		25.91 - 26.51	18	0.60	0.36	D	5	8	10	17		Red brown SILT, trace f sand, little clay, with clayey silt seams (very thin).
		27.43 - 28.03	19	0.60	0.46	D	7	7	12	18		Red brown SILT, little clay, trace clayey silt seams (very thin).
		28.96 - 29.56	20	0.60	0.51	D	6	9	14	19		Red brown SILT, little clay, trace clayey silt seams (very thin).
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	31.08	
			No. of Samples	
			21D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B165-2

W. Conroy	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	B165-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+639.2
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	2.0 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202,533.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289,656.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.62		Utilized			X			X	X	X					
Date Started: 08/05/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/06/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.46	D	7	11	13	18		Red brown SILT, little clay, trace clayey silt seams (very thin).
											31.08	
											-28.49	Bottom of Boring 31.08 m.
35												
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	31.08	
			No. of Samples	
			21D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. B165-2

Sheet 3 of 3

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	W101-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+436.4
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	43.0 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202529.1
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289449.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.47		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/23/02	Utilized			X			X	X	X	X				
Date Finished: 07/24/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.05	D	2	2	3	2		Brown f SAND, little silt, trace f-c gravel, trace roots, trace wood, dry.
											1.07	
		1.52 - 2.12	2	0.60	0.05	D	1	1	1	2	0.40	Gray organic SILT, trace f sand.
		3.05 - 3.65	3	0.60	0.58	D	WOH	WOH	WOH	WOH		Gray organic SILT.
		3.96 - 4.56	1	0.60	0.60	UP						Piston.
5		4.57 - 5.17	4	0.60	0.41	D	3	5	13	17		Gray organic SILT, little f sand, trace shells.
											5.64	
		6.10 - 6.70	5	0.60	0.60	D	7	5	5	6	-4.17	Brown gray f SAND, trace silt, wet.
		7.62 - 8.22	6	0.60	0.60	D	2	2	7	8		Brown / red brown, little silt, saturated.
		9.14 - 9.74	7	0.60	0.30	D	6	10	13	17		Red brown / orange brown f SAND, trace silt, trace c sand, wet.
10												
		10.67 - 11.27	8	0.60	0.51	D	7	10	10	13		Orange brown f SAND, trace silt, trace c sand, wet.
		12.19 - 12.79	9	0.60	0.51	D	6	11	13	15		Red brown f SAND, little silt.
		13.72 - 14.32	10	0.60	0.46	D	5	7	8	10		Red brown f SAND, some silt, saturated, medium dilatancy.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	31.08	
			No. of Samples	
			21D/1UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	W101-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+436.4
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	43.0 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202529.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289449.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.47		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/23/02	Utilized			X			X	X	X	X				
Date Finished: 07/24/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.51	D	6	8	9	12		Red brown f SAND, some silt, rapid dilatancy.
		16.76 - 17.36	12	0.60	0.51	D	10	14	14	16		Red brown f SAND, trace to little silt, wet.
		18.29 - 18.89	13	0.60	0.51	D	9	14	15	19		Red brown f SAND, trace to little silt, wet.
20		19.81 - 20.41	14	0.60	0.41	D	16	15	16	21		Red brown f SAND, little silt, wet.
		21.34 - 21.94	15	0.60	0.46	D	14	17	17	22		Red brown f SAND, little silt, wet.
		22.86 - 23.46	16	0.60	0.25	D	21	23	24	32		Red brown f SAND, some silt, wet.
											23.93	
		24.38 - 24.98	17	0.60	0.41	D	14	23	28	33	-22.46	Red brown SILT and f SAND, trace clayey silt seams (~0.79 - 1.59 mm).
25												
		25.91 - 26.51	18	0.60	0.51	D	37	36	33	35		Red brown f SAND, some silt, wet.
		27.43 - 28.03	19	0.60	0.41	D	17	24	27	32		Red brown SILT and f SAND, wet.
		28.96 - 29.56	20	0.60	0.46	D	16	23	23	33		Red brown SILT and f SAND, wet.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	31.08	
			No. of Samples	
			21D/1UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. W101-1
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+436.4
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 43.0 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202529.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289449.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 1.47		Utilized			X			X	X	X	X				
Date Started: 07/23/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/24/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.41	D	18	24	25	32		Red brown SILT and f SAND, wet.
											31.08	
											-29.61	Bottom of Boring 31.08 m.
35												
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	31.08	
			No. of Samples	
			21D/1UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. W101-1

Sheet 3 of 3

APPENDIX D

Laboratory Data

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
R-1	UP-1	23-25	15		Average Total Unit Weight (23.0-25.0') = 86.7 Pcf															Grey Organic SILT of very high plasticity, stiff consistency, trace fibers
		23.3		92.1										Tv= 0.70 tsf						
		23.3-23.8		Save																
		23.8		96.3										Tv= 0.68 tsf						
		24.0-24.1		101							44.2								0.30	
		24.1-24.3		91.8	120	57														
		24.4		99.6																

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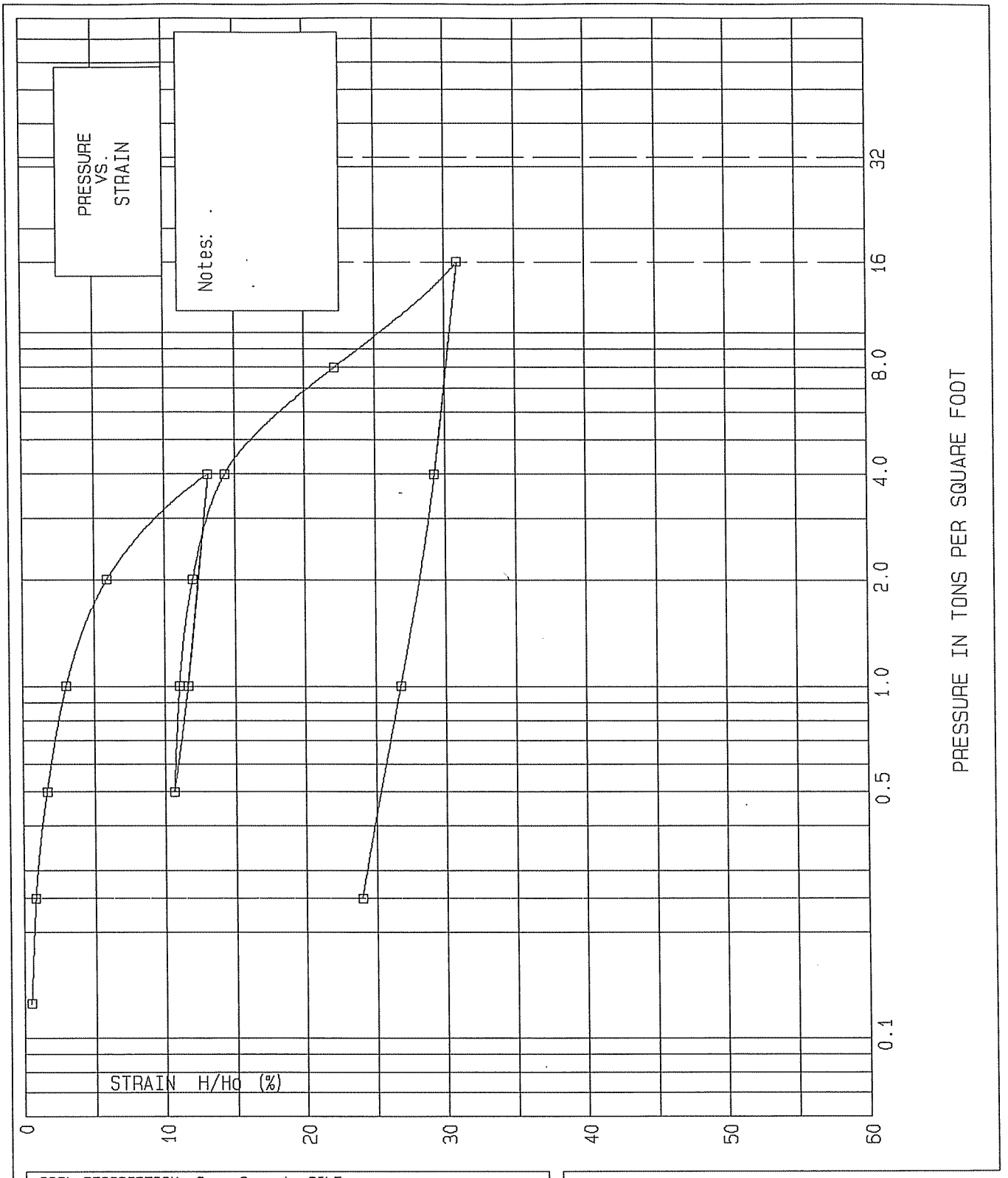
labform1.xls



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	120 %	57 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURA-TION, %	SAMPLE HEIGHT, INCH
INITIAL	101.00	44.15			0.80
FINAL	73.30	58.09			0.61

RECONSTRUCTION OVER I-95

CONSOLIDATION TEST

FIGURE

BORING NO.	B-1	TEST SERIES NO.	c15.1
SAMPLE	UP-1	DATE	8/23/02
DEPTH	24.0-24.1		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

Job Number L17371
Project Name ..... RECONSTRUCTION OVER I-95
Test Number c15.1
Sample Description .. Grey Organic SILT
Boring Number B-1
Sample Number UP-1
Depth 24.0-24.1

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 4.5510E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.0800E-01
Initial Water Content .... 1.0100E+02
Final Water Content ..... 7.3300E+01
Liquid Limit ..... 1.2000E+02
Plastic Limit ..... 5.7000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (Cm²/sec)	Cα
1	0.000	0.0	0.00	2.703			
2	0.125	37.0	0.46	2.686			
3	0.250	66.0	0.82	2.672	2.0	72.01	
4	0.500	133.0	1.66	2.641	1.7	83.70	
5	1.000	243.0	3.04	2.591	2.3	60.49	
6	2.000	475.0	5.94	2.483	2.9	45.89	
7	4.000	1048.0	13.10	2.218	6.3	18.96	.0271
8	1.000	931.0	11.64	2.272			
9	0.500	851.0	10.64	2.309			
10	1.000	883.0	11.04	2.294	1.0	115.98	
11	2.000	959.0	11.99	2.259	1.0	114.23	.0015
12	4.000	1144.0	14.30	2.174	2.0	55.03	
13	8.000	1772.0	22.15	1.883	4.8	20.33	
14	16.000	2475.0	30.94	1.557	4.8	16.40	
15	4.000	2341.0	29.26	1.619			
16	1.000	2143.0	26.79	1.711			
17	0.250	1916.0	23.95	1.816			

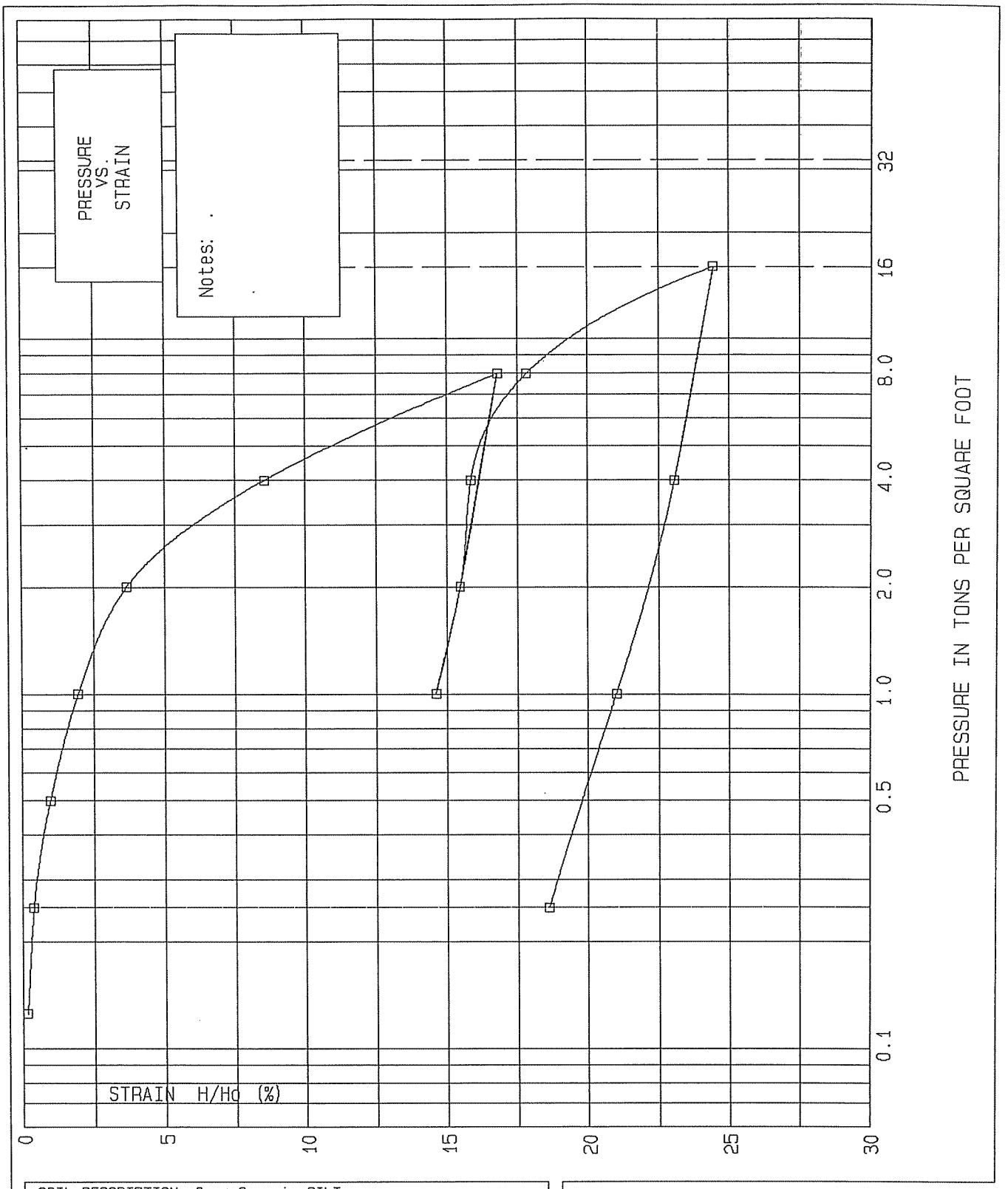
LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-1	UP-2	33-35	16		Average Total Unit Weight (33.0-34.8') = 104.5 Pcf															
		33.3		59.0										Tv= 0.55 tsf						Grey Organic SILT of very high plasticity, stiff consistency, trace Shell, trace fine Sand
		33.3-33.8		Save																
		33.8		54.6										Tv= 0.62 tsf						
		34.1-34.2		58.9							65.9								0.28	
		34.2-34.3		53.4	74	32														
		34.3		50.2										Tv= 0.64 tsf						



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	74 %	32 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	58.90	65.85			0.80
FINAL	42.80	80.92			0.65

RECONSTRUCTION OF I-95

CONSOLIDATION TEST

BORING NO.	R-1	TEST SERIES	
SAMPLE	UP-2	NO.	C16.1
DEPTH	34.1-34.2'	DATE	8/23/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

Job Number L17371
Project Name ..... RECONSTRUCTION OF I-95
Test Number C16.1
Sample Description .. Grey Organic SILT
Boring Number R-1
Sample Number UP-2
Depth ..... 34.1-34.2'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.7880E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.5100E-01
Initial Water Content .... 5.8900E+01
Final Water Content ..... 4.2800E+01
Liquid Limit ..... 7.4000E+01
Plastic Limit ..... 3.2000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.483			
2	0.125	12.0	0.15	1.479			
3	0.250	31.0	0.39	1.473	4.4	32.98	
4	0.500	78.0	0.97	1.458	3.2	44.97	
5	1.000	157.0	1.96	1.434	2.3	61.58	
6	2.000	293.0	3.66	1.392	2.4	57.42	
7	4.000	684.0	8.55	1.270	6.3	20.42	
8	8.000	1344.0	16.80	1.066	9.6	11.59	.011
9	2.000	1238.0	15.47	1.099			
10	1.000	1168.0	14.60	1.120			
11	2.000	1238.0	15.47	1.099	2.3	45.79	
12	4.000	1269.0	15.86	1.089	2.3	45.11	0.001
13	8.000	1426.0	17.82	1.040	2.6	38.80	
14	16.000	1957.0	24.46	0.875	7.3	12.43	
15	4.000	1846.0	23.07	0.910			
16	1.000	1680.0	21.00	0.961			
17	0.250	1488.0	18.60	1.021			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-2	UP-2	32-34	17		Average Total Unit Weight (32.0-33.9') = 98.0 Pcf															
		32.2		53.6										Tv= 0.40 tsf						Grey Organic SILT of high plasticity, medium consistency, trace Shell, trace fine Sand
		32.2 32.7		65.3							60.9			UU	2700	P/A MAX	1981	9.6		
		32.8		56.7										Tv= 0.40 tsf						
		33.0-33.1		65.9							61.5								0.25	
		33.1-33.3		63.9	73	36														
		33.3		65.2										Tv= 0.42 tsf						

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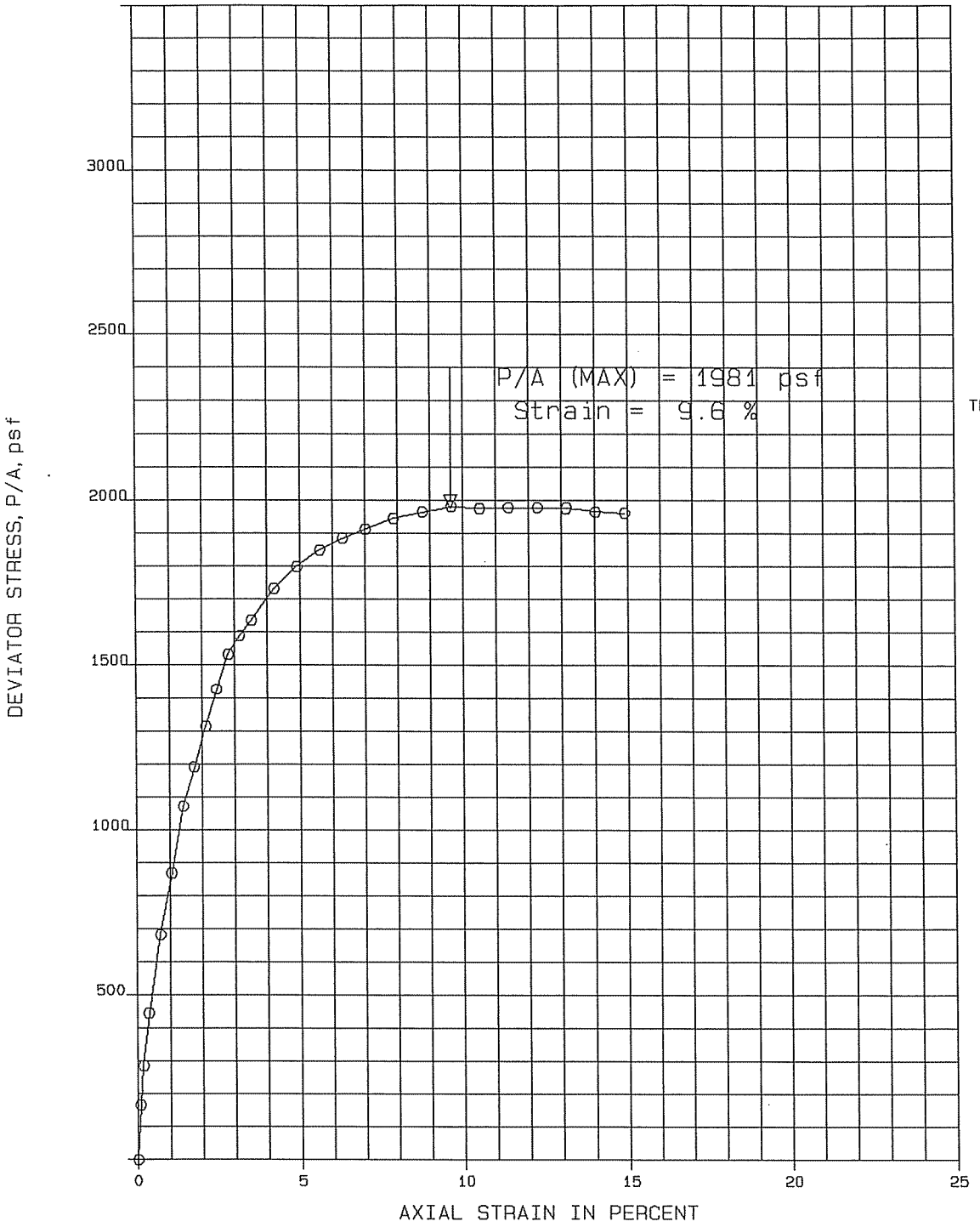
labform1.xls



SKETCH AT FAILURE

TEST NO. T17.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T17.0	65.3	60.9	5.71 2.85	2700.	–	–	–	64.5	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

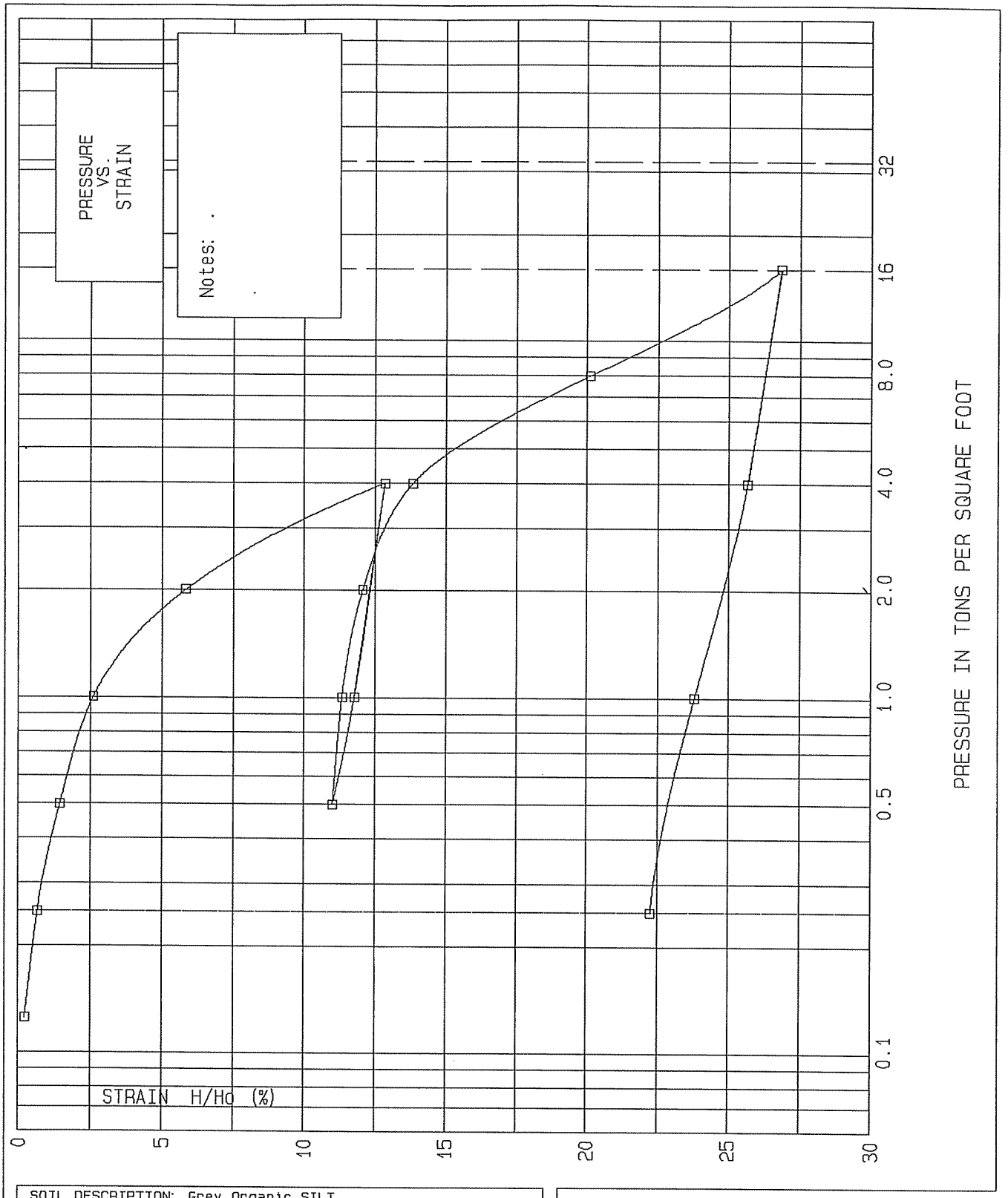
LIQUID LIMIT	73	%	PLASTIC LIMIT	36	%	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	R-2	TEST SERIES NO.	17
SAMPLE	UP-2	DATE	Aug.02
DEPTH	32.2-32.7'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	73 %	36 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	65.90	61.45			0.80
FINAL	45.00	79.03			0.62

RECONSTRUCTION OVER I-95

CONSOLIDATION TEST

BORING NO.	R-2	TEST SERIES NO.	C17.1
SAMPLE	UP-2	DATE	8/23/02
DEPTH	33.0-33.1		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17371
Project Name ..... RECONSTRUCTION OVER I-95
Test Number C17.1
Sample Description .. Grey Organic SILT
Boring Number R-2
Sample Number UP-2
Depth 33.0-33.1

Technician ..... MST
Reviewer ..... DAS

NOTES: .
.

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.3340E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.2200E-01
Initial Water Content .... 6.5900E+01
Final Water Content ..... 4.5000E+01
Liquid Limit ..... 7.3000E+01
Plastic Limit ..... 3.6000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (Cm²/sec)	Cα
1	0.000	0.0	0.00	1.661			
2	0.125	18.0	0.22	1.655			
3	0.250	54.0	0.67	1.643	2.9	49.86	
4	0.500	116.0	1.45	1.622	2.0	71.40	
5	1.000	209.0	2.61	1.591	2.0	70.01	
6	2.000	467.0	5.84	1.505	2.9	46.15	
7	4.000	1028.0	12.85	1.319	7.3	16.42	0.0136
8	1.000	942.0	11.77	1.347			
9	0.500	880.0	11.00	1.368			
10	1.000	907.0	11.34	1.359	1.7	67.72	.0009
11	2.000	966.0	12.07	1.339	1.7	66.90	
12	4.000	1108.0	13.85	1.292	2.0	55.26	
13	8.000	1609.0	20.11	1.126	4.4	22.85	
14	16.000	2147.0	26.84	0.947	4.0	21.36	
15	4.000	2053.0	25.66	0.978			
16	1.000	1905.0	23.81	1.027			
17	0.250	1781.0	22.26	1.068			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:
Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-2	UP-3	42.2-42.8	18		Average Total Unit Weight (42.0-43.8') = 80.8 Pcf															
		42.2		69.7										Tv= 0.40 tsf						Grey Organic SILT of high plasticity trace Shell, trace fine Sand
		42.2-42.8		65.9							59.7			UU	2995	P/A MAX	1848	13.1		
		42.8		66.7										Tv= 0.45 tsf						
		43.0-43.1		67.2							59.7								0.31	
		43.1-43.3		56.0	69	32														
		43.3		59.6										Tv= 0.50 tsf						
		43.3-43.8		Save																

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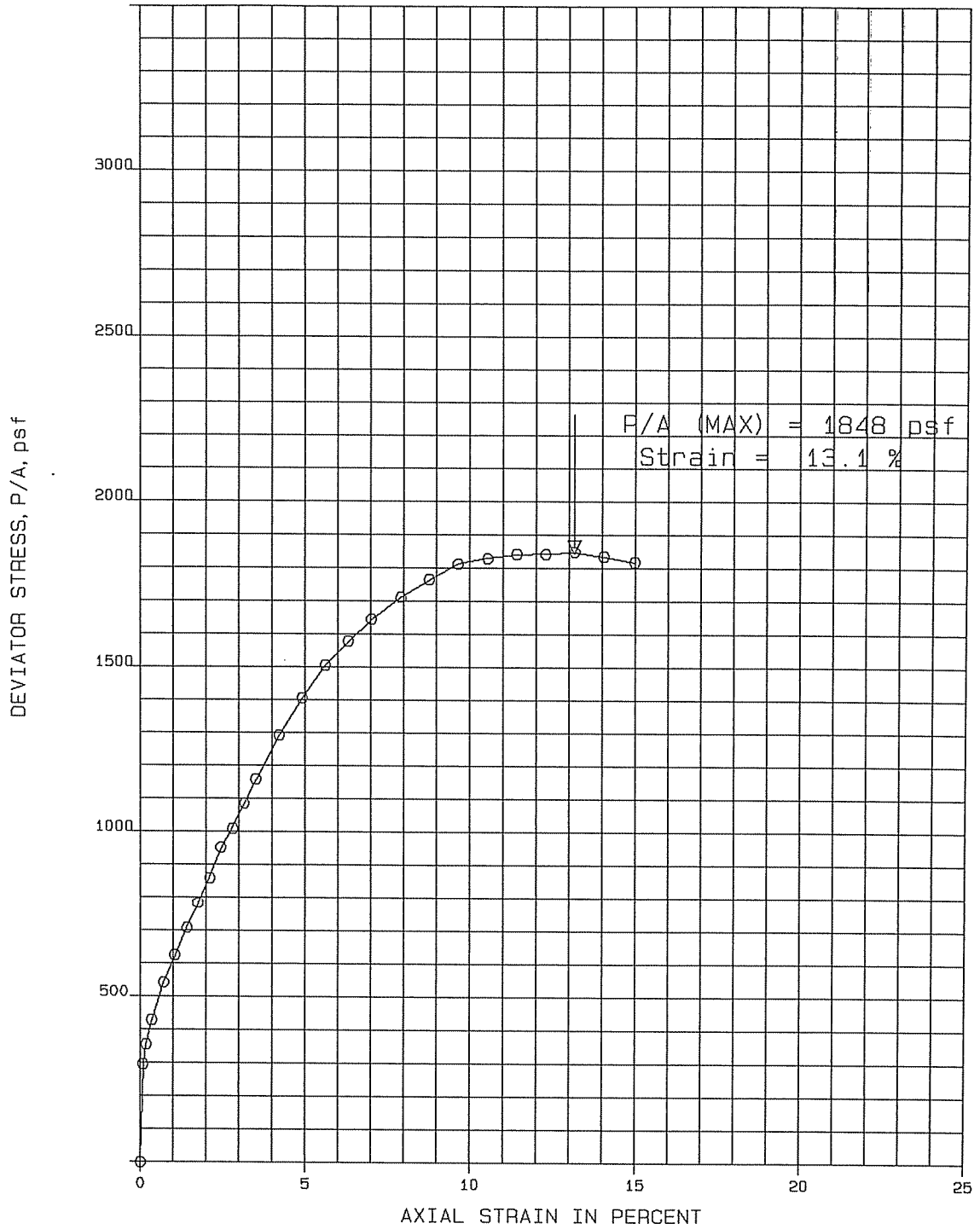


SKETCH AT FAILURE

TEST NO. T18.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T18.0	65.9	59.7	5.70 2.86	2995.	-	-	-	64.6	-	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 69 % PLASTIC LIMIT 32 % SPECIFIC GRAVITY 2.62

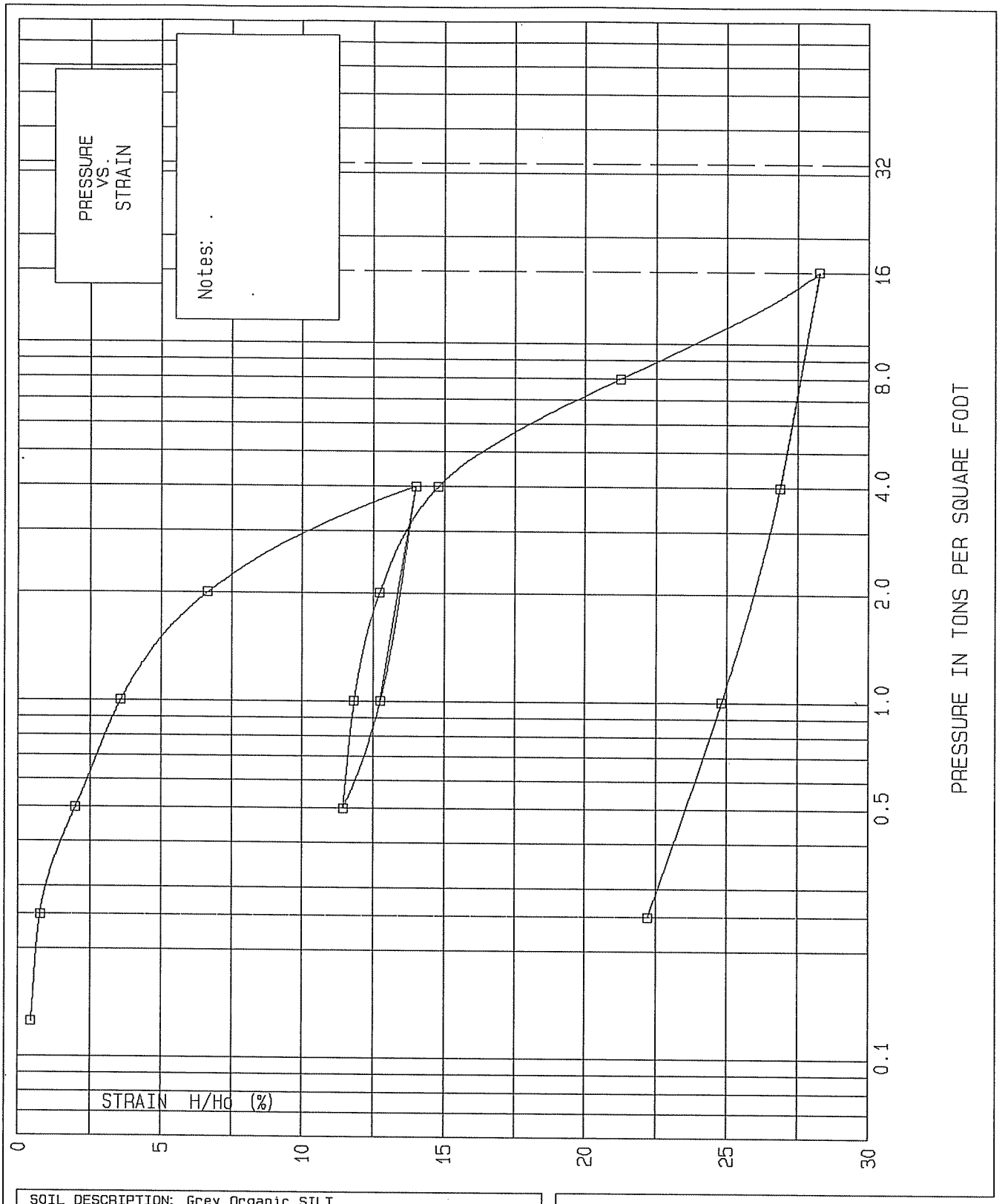
RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. R-2
SAMPLE UP-3
DEPTH 42.2-42.8'
TECH. MST
REVIEWER

TEST SERIES NO. 18
DATE Aug.02
FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	69 %	32 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURA-TION, %	SAMPLE HEIGHT, INCH
INITIAL	67.20	59.71			0.80
FINAL	46.20	76.80			0.62

RECONSTRUCTION OVER I-95

CONSOLIDATION TEST

FIGURE

BORING NO.	R-2	TEST SERIES	
SAMPLE	UP-3	NO.	C18.1
DEPTH	43.0-43.1'	DATE	8/23/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17371
Project Name ..... RECONSTRUCTION OVER I-95
Test Number C18.1
Sample Description .. Grey Organic SILT
Boring Number R-2
Sample Number UP-3
Depth ..... 43.0-43.1'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.1550E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.2200E-01
Initial Water Content .... 6.7200E+01
Final Water Content ..... 4.6200E+01
Liquid Limit ..... 6.9000E+01
Plastic Limit ..... 3.2000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.738			
2	0.125	36.0	0.45	1.726			
3	0.250	61.0	0.76	1.717	6.8	21.20	
4	0.500	160.0	2.00	1.683	3.2	44.34	
5	1.000	287.0	3.59	1.640	2.6	53.02	
6	2.000	532.0	6.65	1.556	3.2	41.04	
7	4.000	1120.0	14.00	1.355	7.8	15.04	0.015
8	1.000	1021.0	12.76	1.389			
9	0.500	915.0	11.44	1.425			
10	1.000	947.0	11.84	1.414	2.3	49.53	
11	2.000	1019.0	12.74	1.389	2.3	48.80	0.001
12	4.000	1184.0	14.80	1.333	2.0	54.24	
13	8.000	1699.0	21.24	1.157	6.3	15.56	
14	16.000	2261.0	28.26	0.964	4.8	17.21	
15	4.000	2150.0	26.87	1.002			
16	1.000	1986.0	24.82	1.058			
17	0.250	1779.0	22.24	1.129			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
R-3	UP-1	30-32	19		Average Total Unit Weight (30.0-32.0') = 93.4 Pcf															
		30.2		77.6										Tv= 0.38 tsf						Grey Organic SILt of very high plasticity, medium consistency, trace shell, trace fine Sand
		30.2-30.7		Save																
		30.7		70.1										Tv=0.42 tsf						
		30.9-31.0		77.7							54.8								0.24	
		31.0-31.2		71.0	81	40														
		31.3		65.2										Tv= 0.40 tsf						

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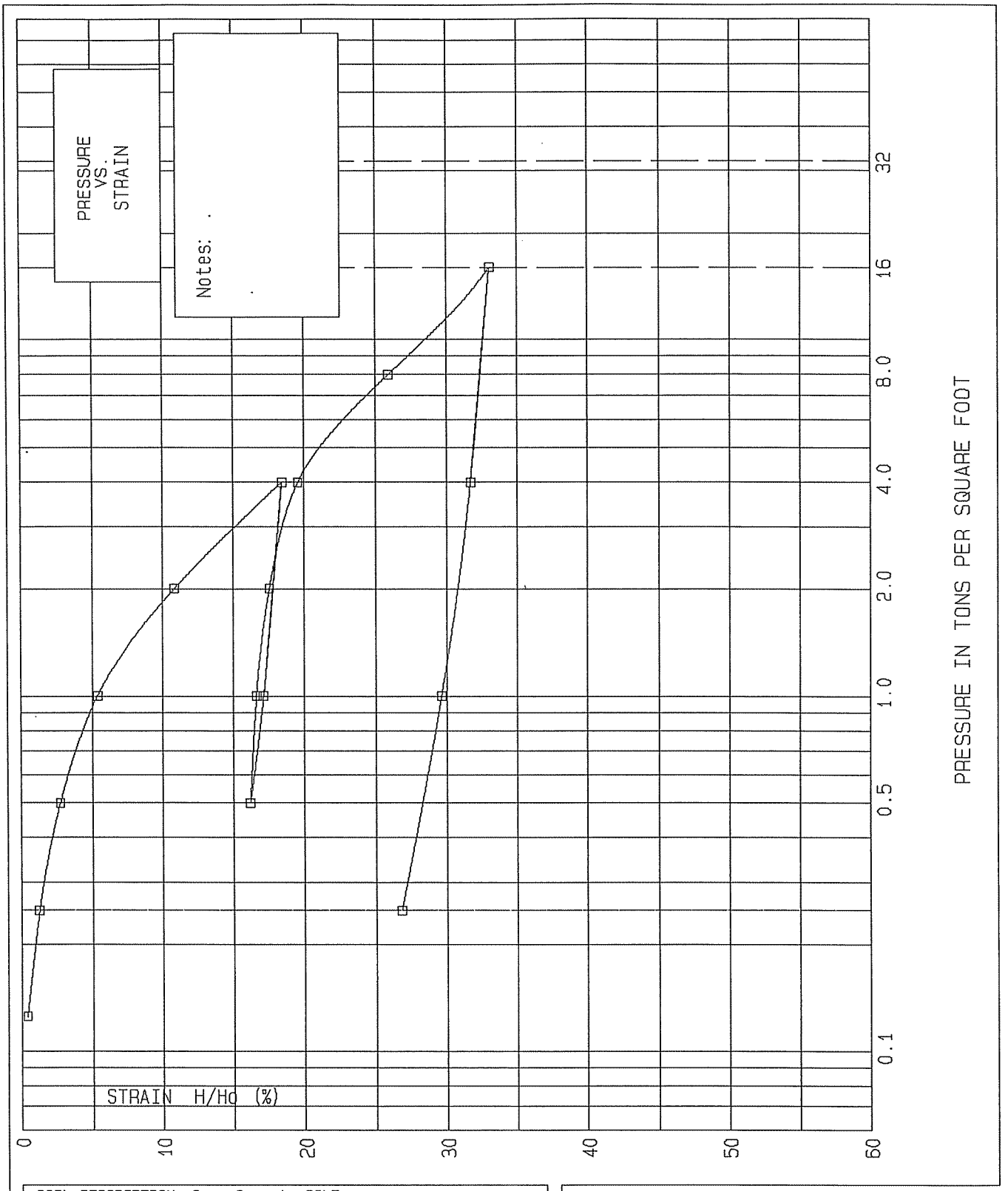

SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	81 %	40 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	77.70	54.79			0.80
FINAL	49.30	74.80			0.59

RECONSTRUCTION OVER I-95

CONSOLIDATION TEST

FIGURE

BORING NO.	R-3	TEST SERIES	
SAMPLE	UP-1	NO.	C19.1
DEPTH	30.9-31.0'	DATE	8/23/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

Job Number L17371
Project Name ..... RECONSTRUCTION OVER I-95
Test Number C19.1
Sample Description .. Grey Organic SILT
Boring Number R-3
Sample Number UP-1
Depth ..... 30.9-31.0'

Technician ..... MST
Reviewer ..... DAS

NOTES: .
.

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 5.6480E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 5.8600E-01
Initial Water Content .... 7.7700E+01
Final Water Content ..... 4.9300E+01
Liquid Limit ..... 8.1000E+01
Plastic Limit ..... 4.0000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.984			
2	0.125	30.0	0.37	1.973			
3	0.250	100.0	1.25	1.947	6.3	22.78	
4	0.500	219.0	2.74	1.902	4.0	35.03	
5	1.000	430.0	5.37	1.823	4.8	27.98	
6	2.000	867.0	10.84	1.660	6.8	18.12	
7	4.000	1475.0	18.44	1.434	9.0	11.81	.0144
8	1.000	1370.0	17.12	1.473			
9	0.500	1294.0	16.17	1.501			
10	1.000	1330.0	16.62	1.488	1.2	84.97	
11	2.000	1404.0	17.55	1.460	1.7	59.00	.0013
12	4.000	1566.0	19.57	1.400	2.0	48.38	
13	8.000	2075.0	25.94	1.210	6.3	13.82	
14	16.000	2644.0	33.05	0.998	4.0	18.13	
15	4.000	2536.0	31.70	1.038			
16	1.000	2370.0	29.62	1.100			
17	0.250	2145.0	26.81	1.184			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-4	UP-1	38 40	90		Average Total Unit Weight (38.0-40.0') = 89.8 Pcf															
		38.2		53.8										Tv= 0.22 tsf						Grey Organic SILT of high plasticity, soft to medium consistency, little Shells, trace fine Sand
		38.2-38.8		51.0							69.8			UU	2995	P/A MAX	1047	14.8		
		38.8		69.5										Tv= 0.26 tsf						
		39.0-39.1		61.1							63.4								0.22	
		39.1-39.3		55.0	66	33														
		39.4		56.9										Tv= 0.27 tsf						

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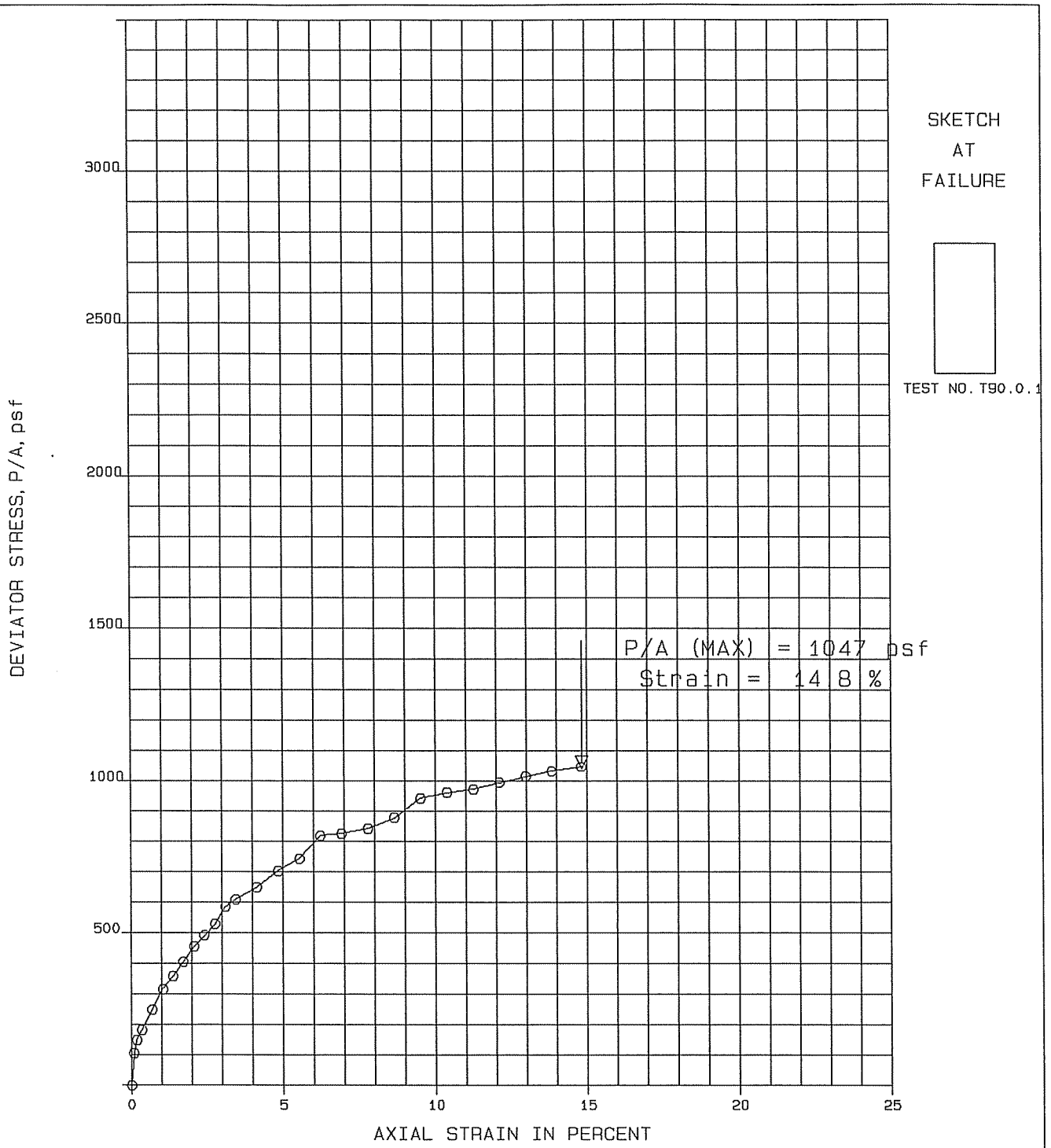


TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T90.0	51.0	69.8	5.78 2.84	2995.	-	-	-	50.4	-	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 66 % PLASTIC LIMIT 33 % SPECIFIC GRAVITY 2.62

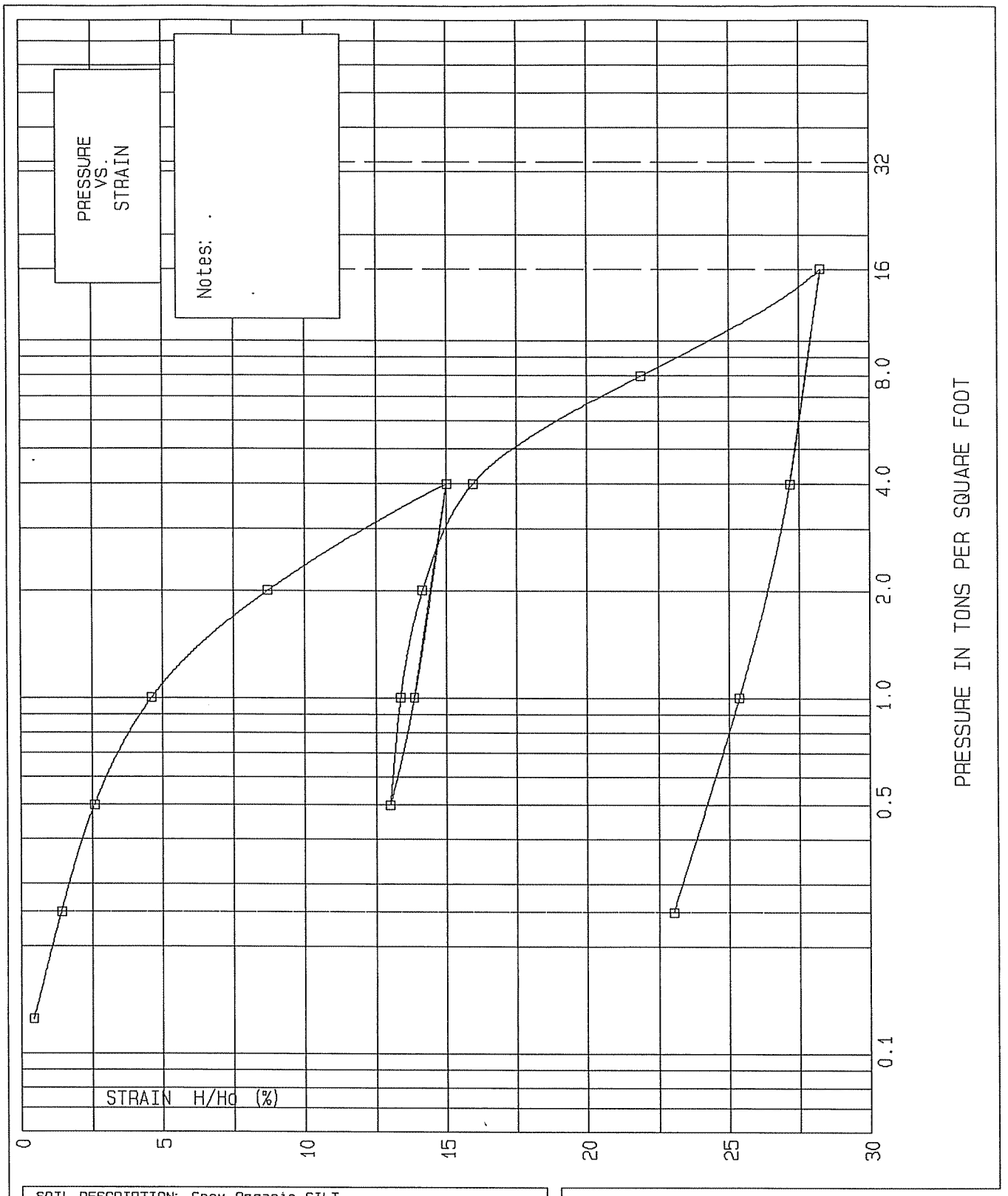
RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. R-4
SAMPLE UP-1
DEPTH 38.2-38.8'
TECH. MST
REVIEWER

TEST SERIES NO. 90
DATE Sept.02
FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	66 %	33 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURA-TION, %	SAMPLE HEIGHT, INCH
INITIAL	61.10	63.41			0.80
FINAL	39.50	82.34			0.62

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO.	R-4	TEST SERIES	
SAMPLE	UP-1	NO.	C90.1
DEPTH	39.0-39.1'	DATE	10/23/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C90.1
ample Description .. Grey Organic SILT
Boring Number R-4
Sample Number UP-1
epth ..... 39.0-39.1'

Technician ..... MST
eviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 6.5360E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 6.1600E-01
Initial Water Content .... 6.1100E+01
Final Water Content ..... 3.9500E+01
iquid Limit ..... 6.6000E+01
Plastic Limit ..... 3.3000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment mber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cx
1	0.000	0.0	0.00	1.578			
2	0.125	34.0	0.42	1.567			
3	0.250	112.0	1.40	1.542	4.0	35.81	
4	0.500	207.0	2.59	1.512	4.4	31.85	
5	1.000	370.0	4.62	1.459	4.8	28.24	
6	2.000	695.0	8.69	1.354	6.3	20.18	
7	4.000	1201.0	15.01	1.191	9.6	11.81	0.001
8	1.000	1109.0	13.86	1.221			
9	0.500	1040.0	13.00	1.243			
10	1.000	1070.0	13.37	1.234	2.0	54.98	
11	2.000	1133.0	14.16	1.213	3.2	33.90	0.0006
12	4.000	1277.0	15.96	1.167	4.0	26.31	
13	8.000	1752.0	21.90	1.014	8.4	11.41	
14	16.000	2261.0	28.26	0.850	4.8	17.06	
15	4.000	2173.0	27.16	0.878			
16	1.000	2029.0	25.36	0.924			
17	0.250	1842.0	23.02	0.985			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
R-4	UP-2	55-57	91		Average Total Unit Weight (55.0-57.0') = 102.5 Pcf															Grey Organic SILT of very high plasticity, medium to stiff consistency, little fine Sand, little Shell
		55.2		52.2										Tv= 0.35 tsf						
		55.2-55.7		Save																
		55.7		58.5										Tv= 0.50 tsf						
		55.7-56.2		51.4							70.0			UU	3499	P/A MAX	3075	6.3		
		56.3		54.5										Tv= 0.55 tsf						
		56.3-56.5		63.8	79	36														

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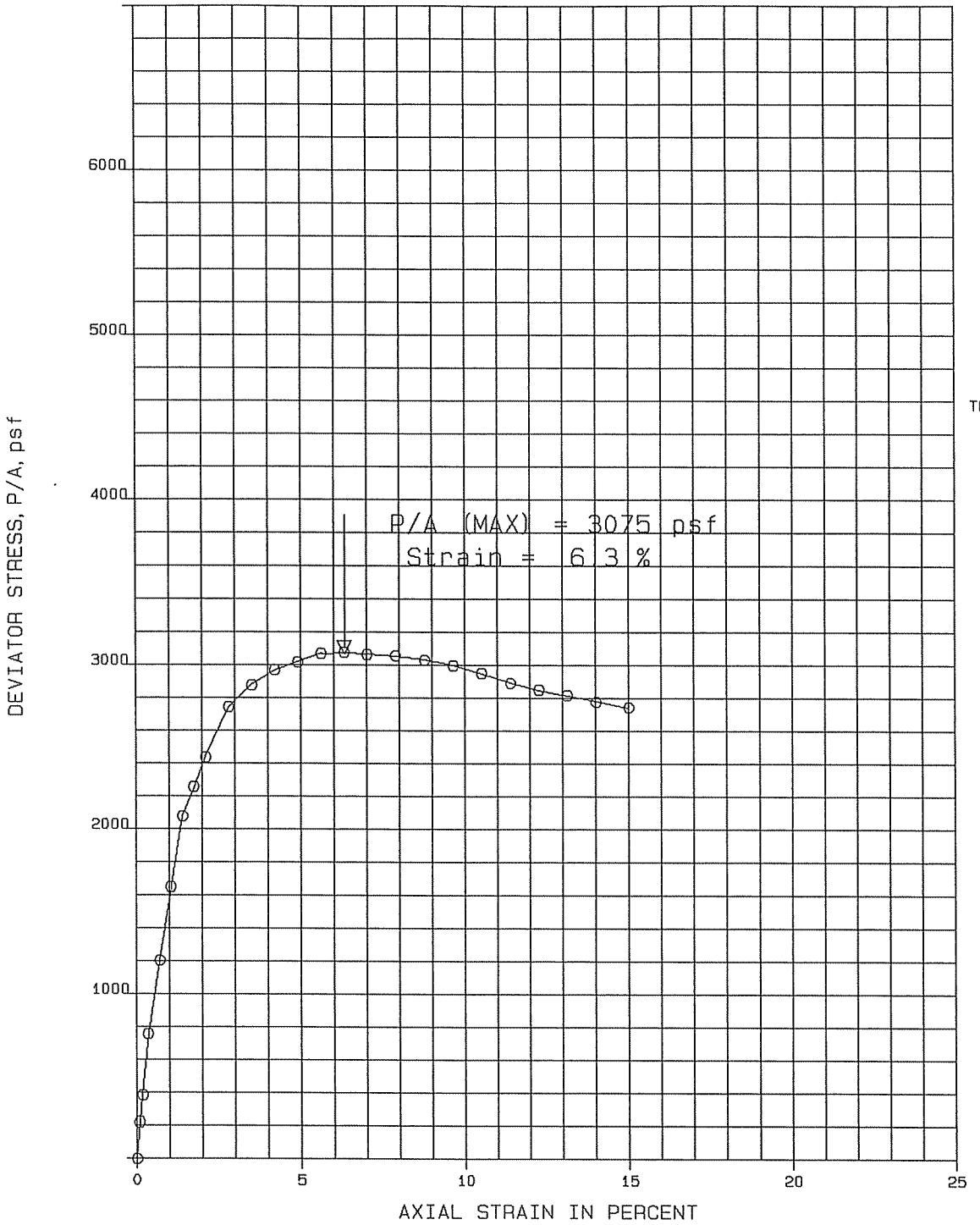

SKETCH AT FAILURE

TEST NO. T91.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T91.0	51.4	70.0	5.70 2.85	3499.	-	-	-	50.1	-	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 79 % PLASTIC LIMIT 36 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. R-4
SAMPLE UP-2
DEPTH 55.7-56.2'
TECH. MST
REVIEWER

TEST SERIES NO. 91
DATE Sept.02
FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
R-5	UP-1	43-45	141		Average Total Unit Weight (43.0-43.3') = 91.7 Pcf															
		43.1		60.5										Tv= 0.02 tsf						Grey Organic SILT of high plasticity, trace Shell
		43.1-43.3		58.8	65	32														Note: Entire Sample disturbed
		43.3		58.5										Tv= 0.02 tsf						

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LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R6	UP-1	33-35	28		Average Total Unit Weight (33.0-34.7') = 91.4 Pcf															
		33.1		92.2										Tv= 0.23 tsf						Grey Organic SILT of very high plastcicity, medium consistency, trace Shell, trace fine Sand
		33.2-33.7		Save																
		33.7		69.6										Tv= 0.22 tsf						
		33.9-34.0		67.5							59.0								0.23	
		34.0-34.2		63.2	86	39														
		34.3		58.2										Tv= 0.24 tsf						

GZA GeoEnvironmental, Inc.

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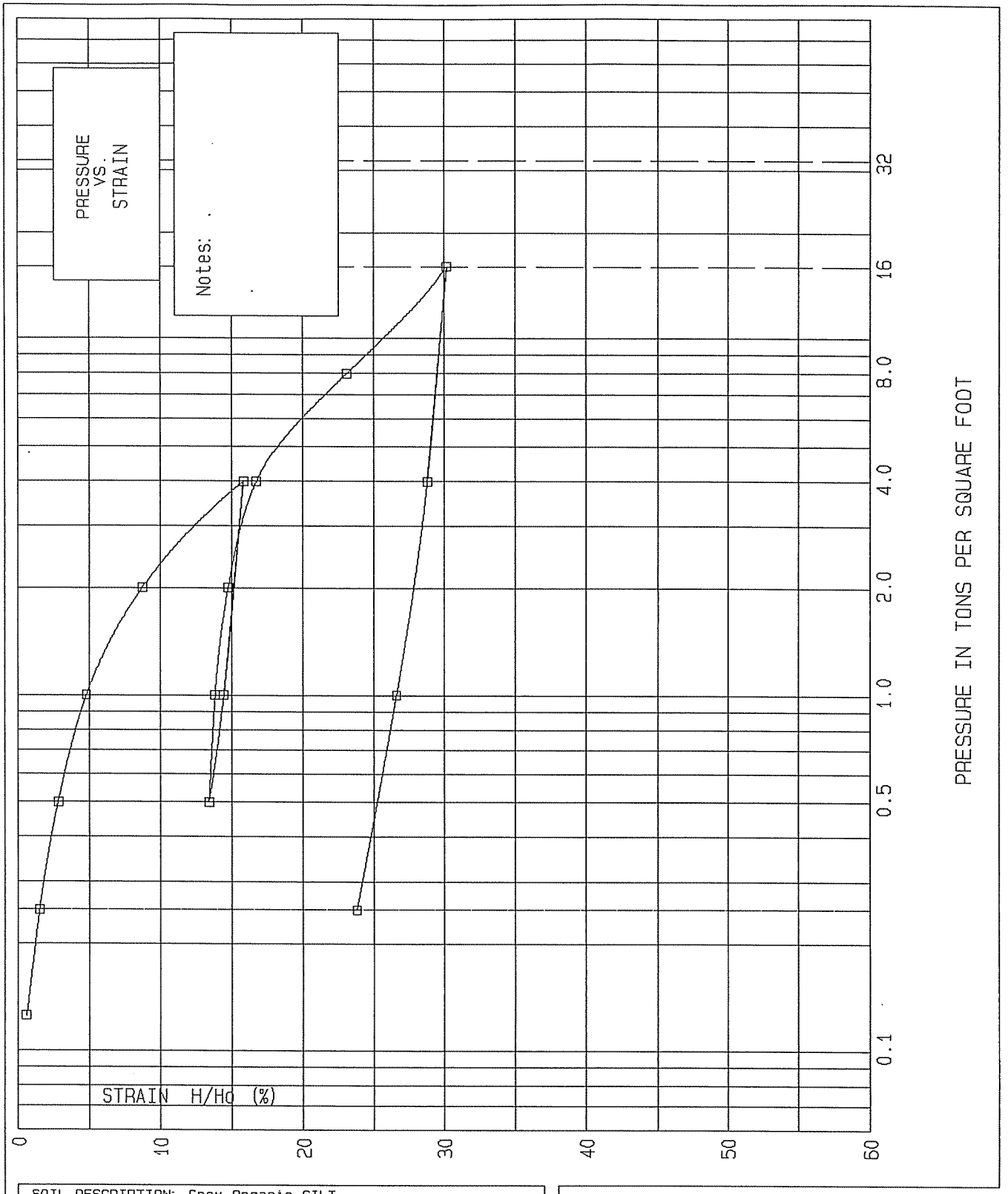

SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 86 %	PLASTIC LIMIT 47 %	SPECIFIC GRAVITY 2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURA-TION, %	SAMPLE HEIGHT, INCH
INITIAL	67.50	59.03			0.80
FINAL	45.40	77.42			0.61

I-95 RECONSTRUCTION

CONSOLIDATION TEST

FIGURE

BORING NO.	R6	TEST SERIES	
SAMPLE	UP-1	NO.	C28.1
DEPTH	33.9-34.'	DATE	10/23/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C28.1
ample Description .. Grey Organic SILT
Boring Number R6
Sample Number UP-1
epth ..... 33.9-34.'

Technician ..... MST
eviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 6.0850E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 6.1000E-01
Initial Water Content .... 6.7500E+01
Final Water Content ..... 4.5400E+01
iquid Limit ..... 8.6000E+01
Plastic Limit ..... 4.7000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	
1	0.000	0.0	0.00	1.770			
2	0.125	46.0	0.57	1.754			
3	0.250	119.0	1.49	1.728	2.6	54.96	
4	0.500	224.0	2.80	1.692	3.2	43.66	
5	1.000	386.0	4.82	1.636	2.9	46.54	
6	2.000	700.0	8.75	1.527	4.0	31.69	
7	4.000	1265.0	15.81	1.332	11.6	9.68	0.015
8	1.000	1155.0	14.44	1.370			
9	0.500	1071.0	13.39	1.399			
10	1.000	1106.0	13.82	1.387	1.7	64.05	
11	2.000	1180.0	14.75	1.361	2.0	53.59	0.002
12	4.000	1339.0	16.74	1.306	2.3	45.03	
13	8.000	1848.0	23.10	1.130	7.8	11.99	
14	16.000	2415.0	30.19	0.933	7.8	10.06	
15	4.000	2305.0	28.81	0.972			
16	1.000	2131.0	26.64	1.032			
17	0.250	1905.0	23.81	1.110			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
R-6	UP-2	43-45	29		Average Total UnitnWeight (43.0-45.0') = 93.8 Pcf															
		43.2		47.9										Tv= 0.30 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace Sand
		43.2-43.7		Save																
		43.7		70.5										Tv= 0.35 tsf						
		43.7-44.2		67.5							59.3			UU	2995	P/A MAX	1994	7.0		
		44.3		68.6										Tv= 0.38 tsf						
		44.3-44.5		70.5	80	37														

GZA GeoEnvironmental, Inc.

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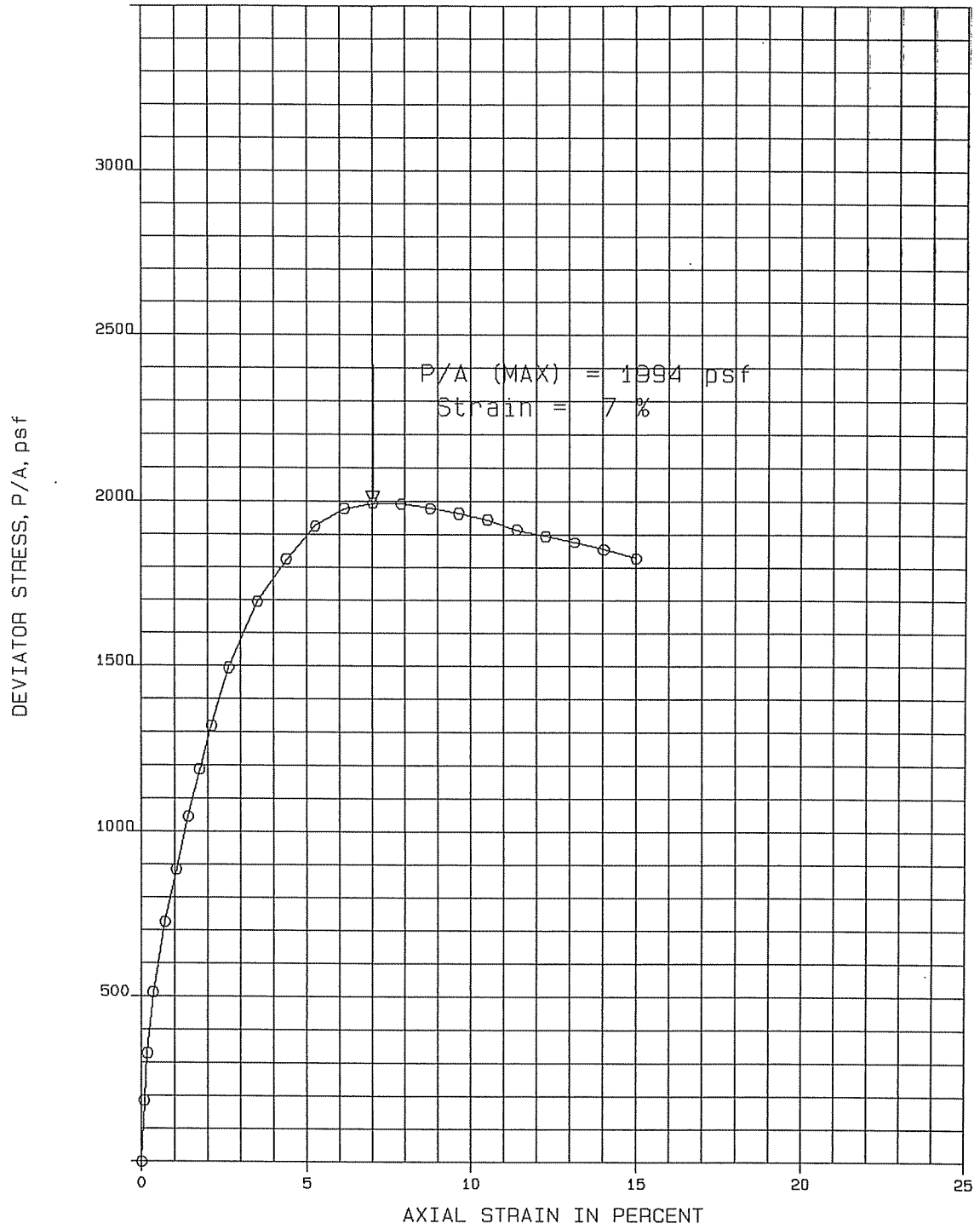
labform1.xls



SKETCH AT FAILURE

TEST NO. T29.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T29.0	67.5	59.3	5.70 2.85	2995.	-	-	-	67	-	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 80 % PLASTIC LIMIT 37 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. R-6
SAMPLE UP-2
DEPTH 43.7-44.2'
TECH. MST
REVIEWER

TEST SERIES NO. 29
DATE Aug.02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

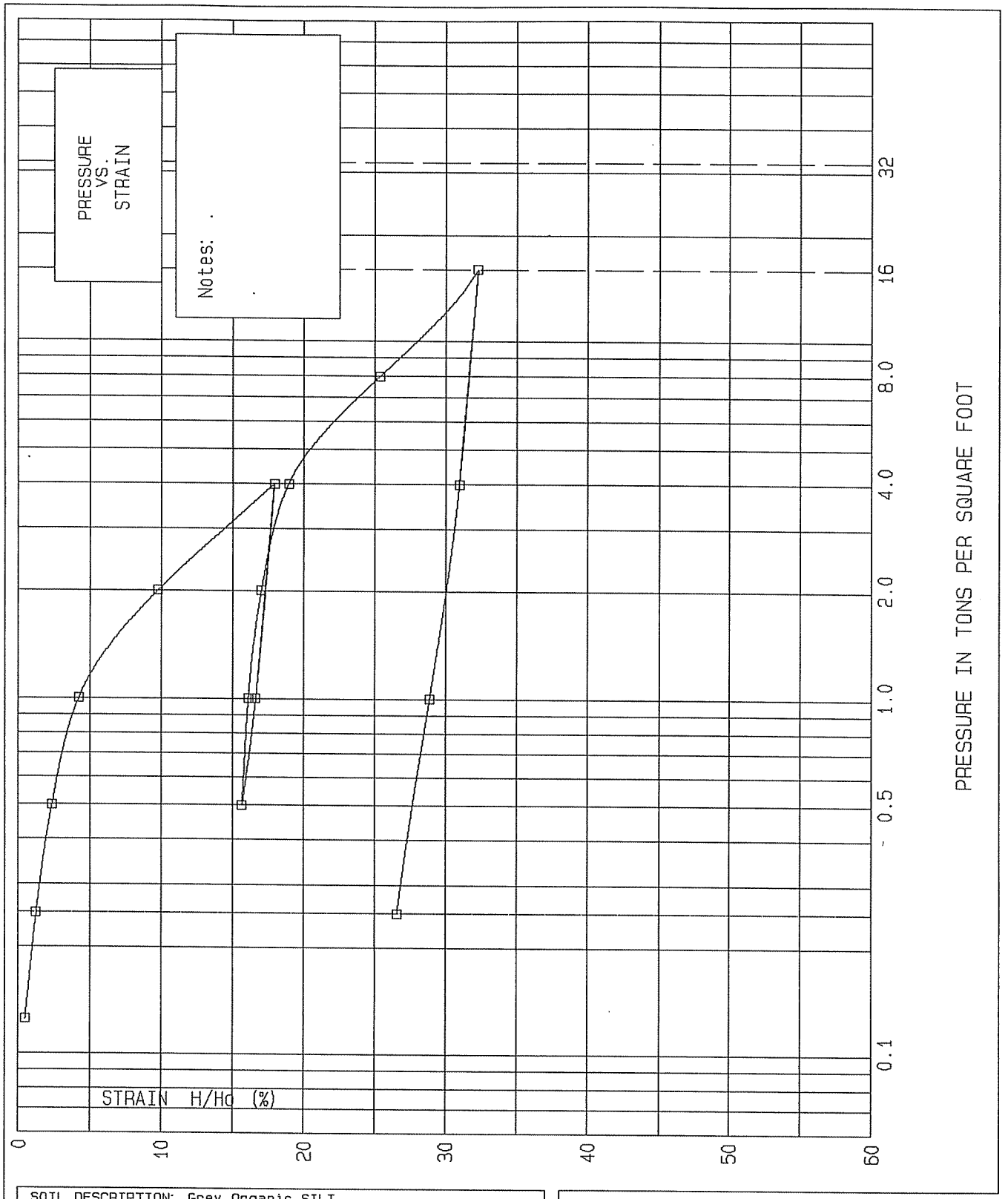
LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
R-7	UP-1	28-30	30		Average Total Unit Weight (28.0-30.0') = 94.4 Pcf															
		28.2		69.3										Tv= 0.30 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		28.3-28.8		Save																
		28.8		75.1										Tv= 0.35 tsf						
		29.0-29.1		75.3							56.2								0.27	
		29.1-29.3		72.9	79	37														
		29.4		74.3										Tv= 0.32 tsf						



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	79 %	37 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	75.30	56.17			0.80
FINAL	47.10	76.55			0.59

I-95 RECONSTRUCTION

CONSOLIDATION TEST

FIGURE

BORING NO.	R-7	TEST SERIES NO.	C30.1
SAMPLE	UP-1	DATE	10/23/02
DEPTH	29.0-29.1'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C30.1
ample Description .. Grey Organic SILT
Boring Number R-7
Sample Number UP-1
epth ..... 29.0-29.1'

Technician ..... MST
eviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 5.7900E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 5.8700E-01
Initial Water Content .... 7.5300E+01
Final Water Content ..... 4.7100E+01
iquid Limit ..... 7.9000E+01
Plastic Limit ..... 3.7000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment mber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.911			
2	0.125	38.0	0.47	1.897			
3	0.250	100.0	1.25	1.874	5.3	27.05	
4	0.500	189.0	2.36	1.842	4.8	29.31	
5	1.000	340.0	4.25	1.787	4.0	34.10	
6	2.000	783.0	9.79	1.626	8.4	15.02	
7	4.000	1433.0	17.91	1.389	10.9	9.93	0.003
8	1.000	1328.0	16.60	1.427			
9	0.500	1252.0	15.65	1.455			
10	1.000	1287.0	16.09	1.442	2.3	44.90	
11	2.000	1359.0	16.99	1.416	2.6	39.09	0.000
12	4.000	1513.0	18.91	1.360	2.6	37.78	
13	8.000	2031.0	25.39	1.172	6.3	14.03	
14	16.000	2583.0	32.29	0.971	6.3	11.73	
15	4.000	2477.0	30.96	1.009			
16	1.000	2311.0	28.89	1.070			
17	0.250	2128.0	26.60	1.136			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
R-8	UP-1	29-31	140		Average Total Unit Weight (29.0-31.0') = 96.2 Pcf															
		29.2		60.9										Tv= 0.52 tsf						Grey Organic SILT of high plasticity, trace Shell, trace fine Sand
		29.2-29.7		Save																
		29.8		58.5										Tv= 0.55 tsf						
		29.9-30.0		60.5							64.4								0.021	
		30.0-30.2		60.6	74	38														
		30.3		61.0										Tv= 0.55 tsf						

GZA GeoEnvironmental, Inc.
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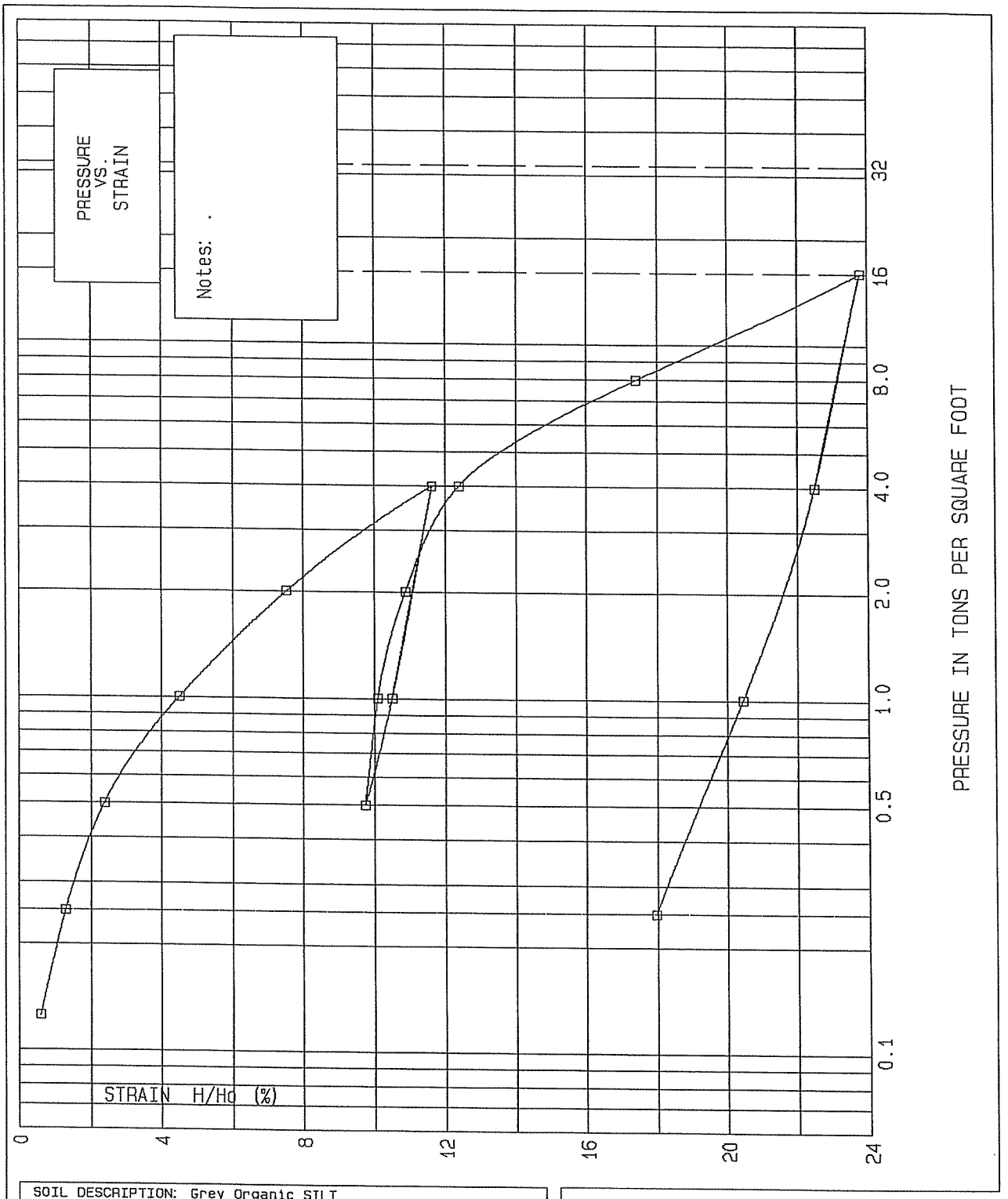
labform1.xls



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	74 %	38 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	60.50	64.40			0.80
FINAL	44.00	78.54			0.66

RECONSTRICTION OVER I-95

CONSOLIDATION TEST

BORING NO.	A-8	TEST SERIES NO.	C140.1
SAMPLE	UP-1	DATE	1/7/03
DEPTH	29.9-30.0'		
TECH.	MST		
REVIEWER	DAS	FILE	L17341

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17341
Project Name ..... RECONSTRICTION OVER I-95
Test Number C140.1
Sample Description .. Grey Organic SILT
Boring Number R-8
Sample Number UP-1
Depth ..... 29.9-30.0'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

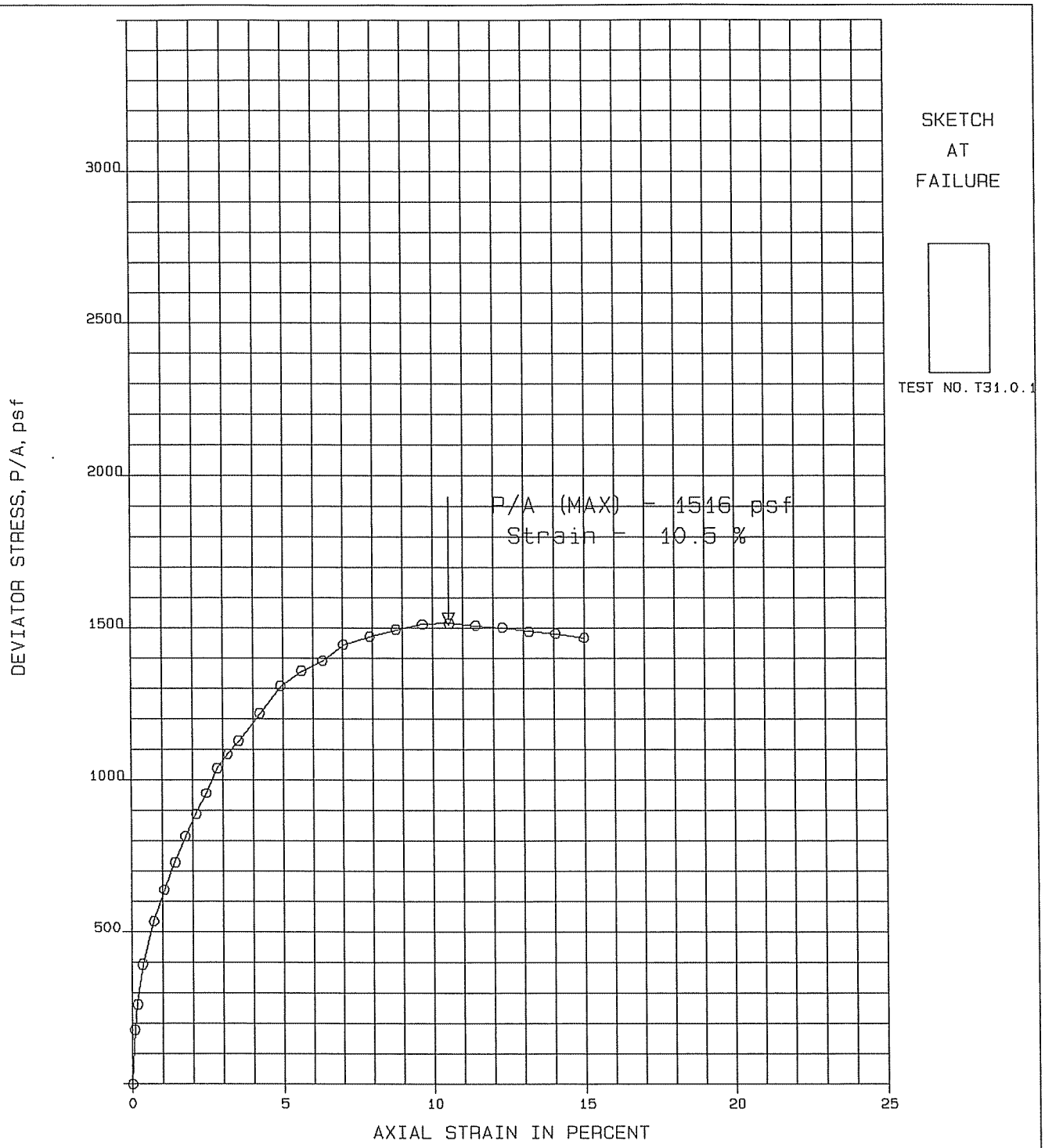
Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.6390E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.5600E-01
Initial Water Content .... 6.0500E+01
Final Water Content ..... 4.4000E+01
Liquid Limit ..... 7.4000E+01
Plastic Limit ..... 3.8000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (Cm²/sec)	Cd
1	0.000	0.0	0.00	1.538			
2	0.125	47.0	0.59	1.524			
3	0.250	104.0	1.30	1.505	8.4	17.04	
4	0.500	191.0	2.39	1.478	7.8	18.02	
5	1.000	360.0	4.50	1.424	6.3	21.59	
6	2.000	601.0	7.51	1.348	5.8	22.22	
7	4.000	930.0	11.62	1.243	6.3	18.94	0.004
8	1.000	840.0	10.50	1.272			
9	0.500	780.0	9.75	1.291			
10	1.000	808.0	10.10	1.282	2.0	59.18	
11	2.000	870.0	10.87	1.262	2.6	44.96	0.001
12	4.000	991.0	12.39	1.224	2.3	49.53	
13	8.000	1392.0	17.40	1.097	6.3	16.77	
14	16.000	1902.0	23.77	0.935	7.3	12.60	
15	4.000	1799.0	22.49	0.968			
16	1.000	1635.0	20.44	1.020			
17	0.250	1437.0	17.96	1.082			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-9	UP-1	33-35	31		Average Total Unit Weight (33.0-34.9') = 98.4 Pcf															
		33.3		62.0										Tv= 0.28 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		33.3-33.8		Save																
		33.9		66.0										Tv= 0.32 tsf						
		33.9-34.4		65.9							59.5			UU	2707	P/A MAX	1516	10.5		
		34.5		70.8										Tv= 0.30 tsf						
		34.5-34.7		73.4	81	39														



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T31.0	65.9	59.5	5.69 2.83	2707.	-	-	-	65.8	-	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 81 % PLASTIC LIMIT 39 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. R-9
SAMPLE UP-1
DEPTH 33.9-34.4'
TECH. MST
REVIEWER

TEST SERIES NO. 31
DATE Aug.02
FILE L17371

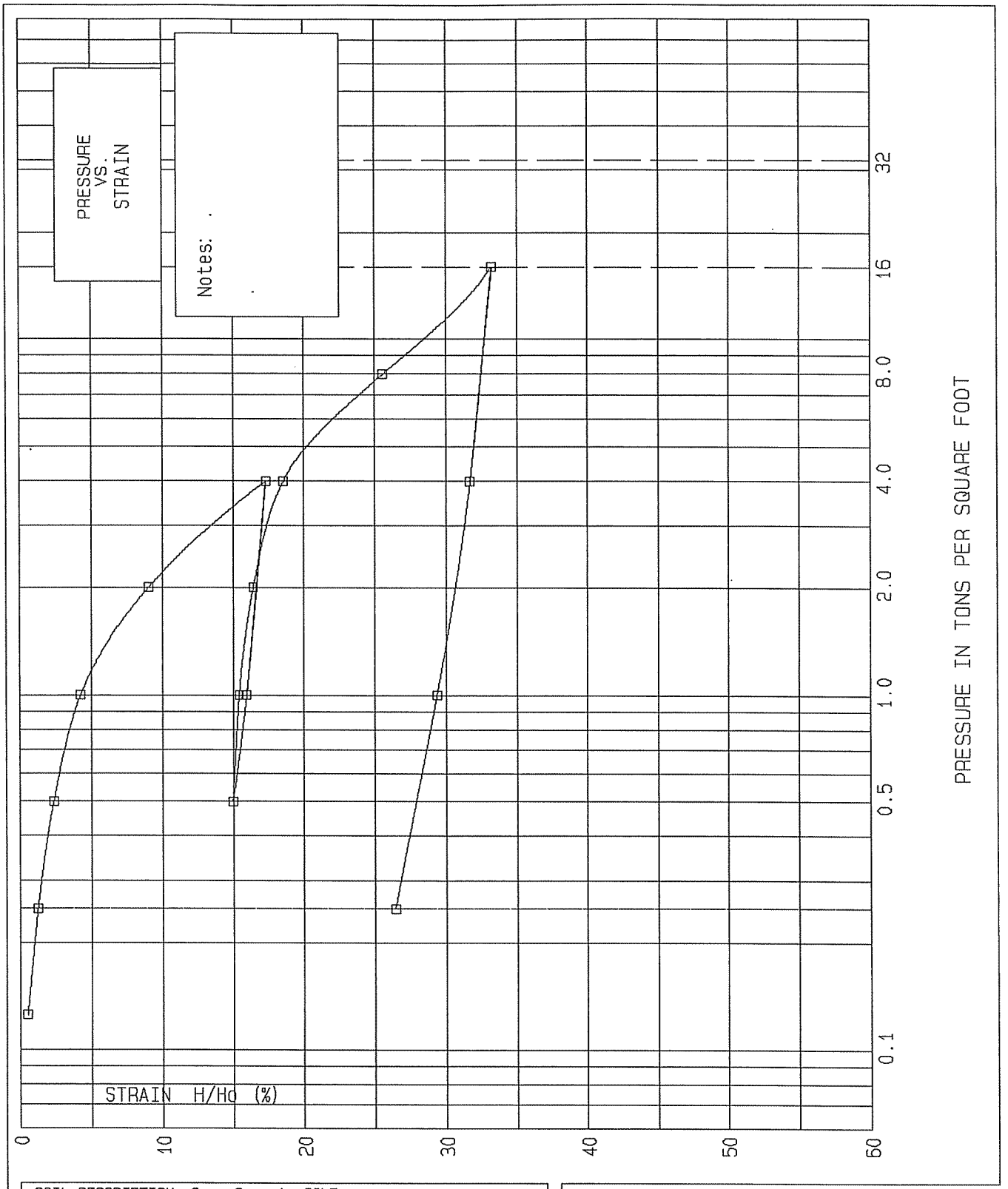
FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-9	UP-2	43-45	32		Average Total Unit Weight (43.0-45.0') = 92.4 Pcf															
		43.2		79.4										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		43.2-43.7		Save																
		43.7		78.7										Tv= 0.30 tsf						
		43.9-44.0		81.8							53.1								0.29	
		44.0-44.2		75.5	78	37														
		44.3		80.8										Tv= 0.32 tsf						



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	78 %	37 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	81.80	53.11			0.80
FINAL	52.80	72.14			0.59

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO.	R-9	TEST SERIES	
SAMPLE	UP-2	NO.	C32.1
DEPTH	43.9-44.0'	DATE	10/23/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE ____

Job Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C32.1
Sample Description .. Grey Organic SILT
Boring Number R-9
Sample Number UP-2
Depth ..... 43.9-44.0'

Technician ..... MST
Reviewer ..... DAS

NOTES: .
.

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 5.4750E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 5.8900E-01
Initial Water Content .... 8.1800E+01
Final Water Content ..... 5.2800E+01
Liquid Limit ..... 7.8000E+01
Plastic Limit ..... 3.7000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm^2/sec)	Cα
1	0.000	0.0	0.00	2.078			
2	0.125	39.0	0.49	2.063			
3	0.250	98.0	1.22	2.040	4.4	32.59	
4	0.500	188.0	2.35	2.006	2.9	48.53	
5	1.000	342.0	4.27	1.947	6.3	21.65	
6	2.000	722.0	9.02	1.800	10.9	11.66	
7	4.000	1384.0	17.30	1.546	12.3	8.94	
8	1.000	1274.0	15.92	1.588			
9	0.500	1196.0	14.95	1.618			
10	1.000	1232.0	15.40	1.604	3.2	32.80	
11	2.000	1312.0	16.40	1.573	3.2	32.25	
12	4.000	1484.0	18.55	1.507	3.6	27.60	
13	8.000	2050.0	25.62	1.289	6.8	13.02	
14	16.000	2657.0	33.21	1.056	6.8	10.69	
15	4.000	2535.0	31.69	1.103			
16	1.000	2348.0	29.35	1.175			
17	0.250	2116.0	26.45	1.264			

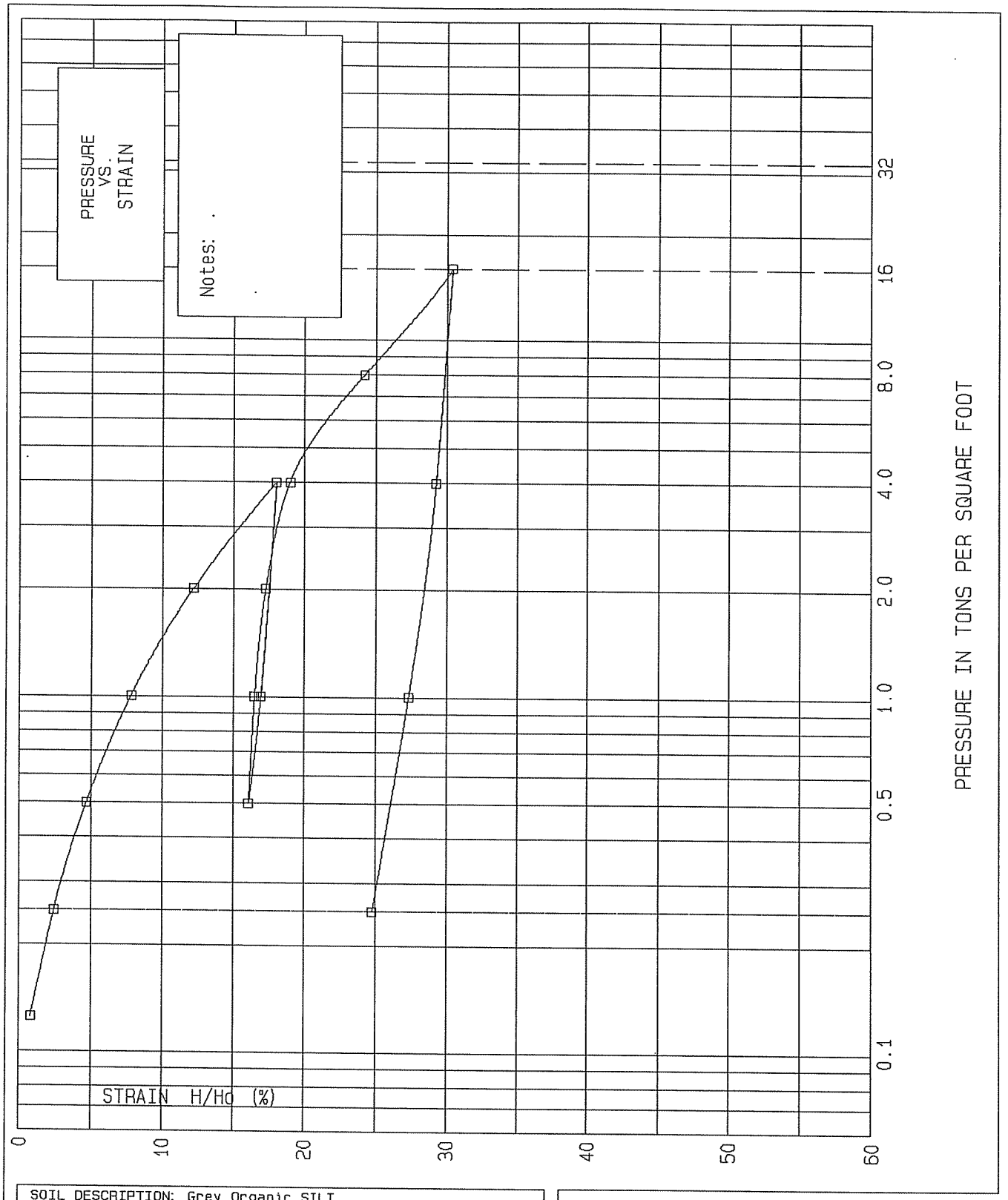
LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
R-10	UP-1	30-32	63		Average Total Unit Weight (30.0-32.0') = 92.0 Pcf															
		30.3		63.9										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		30.3-30.8		Save																
		30.9		63.8										Tv= 0.28 tsf						
		31.1-31.2		70.4							58.8								0.21	
		31.2-31.3		63.3	79	33														
		31.4		69.6										Tv= 0.25 tsf						



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	79 %	33 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	70.40	58.82			0.80
FINAL	43.80	78.16			0.60

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO.	R-10	TEST SERIES NO.	C63.1
SAMPLE	UP-1	DATE	10/23/02
DEPTH	31.1-31.2'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C63.1
Sample Description .. Grey Organic SILT
Boring Number R-10
Sample Number UP-1
Depth ..... 31.1-31.2'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.0630E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.0200E-01
Initial Water Content .... 7.0400E+01
Final Water Content ..... 4.3800E+01
Liquid Limit ..... 7.9000E+01
Plastic Limit ..... 3.3000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.780			
2	0.125	63.0	0.79	1.758			
3	0.250	194.0	2.42	1.712	3.6	39.23	
4	0.500	375.0	4.69	1.649	4.8	28.27	
5	1.000	623.0	7.79	1.563	6.3	20.36	
6	2.000	976.0	12.20	1.440	6.3	18.76	
7	4.000	1441.0	18.01	1.279	6.3	16.69	0.01
8	1.000	1353.0	16.91	1.309			
9	0.500	1284.0	16.05	1.333			
10	1.000	1317.0	16.46	1.322	1.7	60.18	0.001
11	2.000	1380.0	17.25	1.300	1.7	59.33	
12	4.000	1517.0	18.96	1.252	1.4	69.89	
13	8.000	1937.0	24.21	1.107	4.0	22.43	
14	16.000	2432.0	30.40	0.935	6.3	12.24	
15	4.000	2340.0	29.25	0.967			
16	1.000	2187.0	27.34	1.020			
17	0.250	1985.0	24.81	1.090			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
R-10	UP-2	38-40	64		Average Total Unit Weight (38.0-40.0') = 104.8 Pcf															
		38.3		54.3										Tv= 0.45 tsf						Grey Organic SILT of high plasticity, medium to stiff consistency, trace Shell, trace fine Sand
		38.3-38.8		Save																
		38.9		51.3										Tv= 0.50 tsf						
		39.1-39.2		46.6							75.4								0.18	
		39.2-39.3		46.0	61	29														
		39.4		48.1										Tv= 0.52 tsf						

GZA GeoEnvironmental, Inc.

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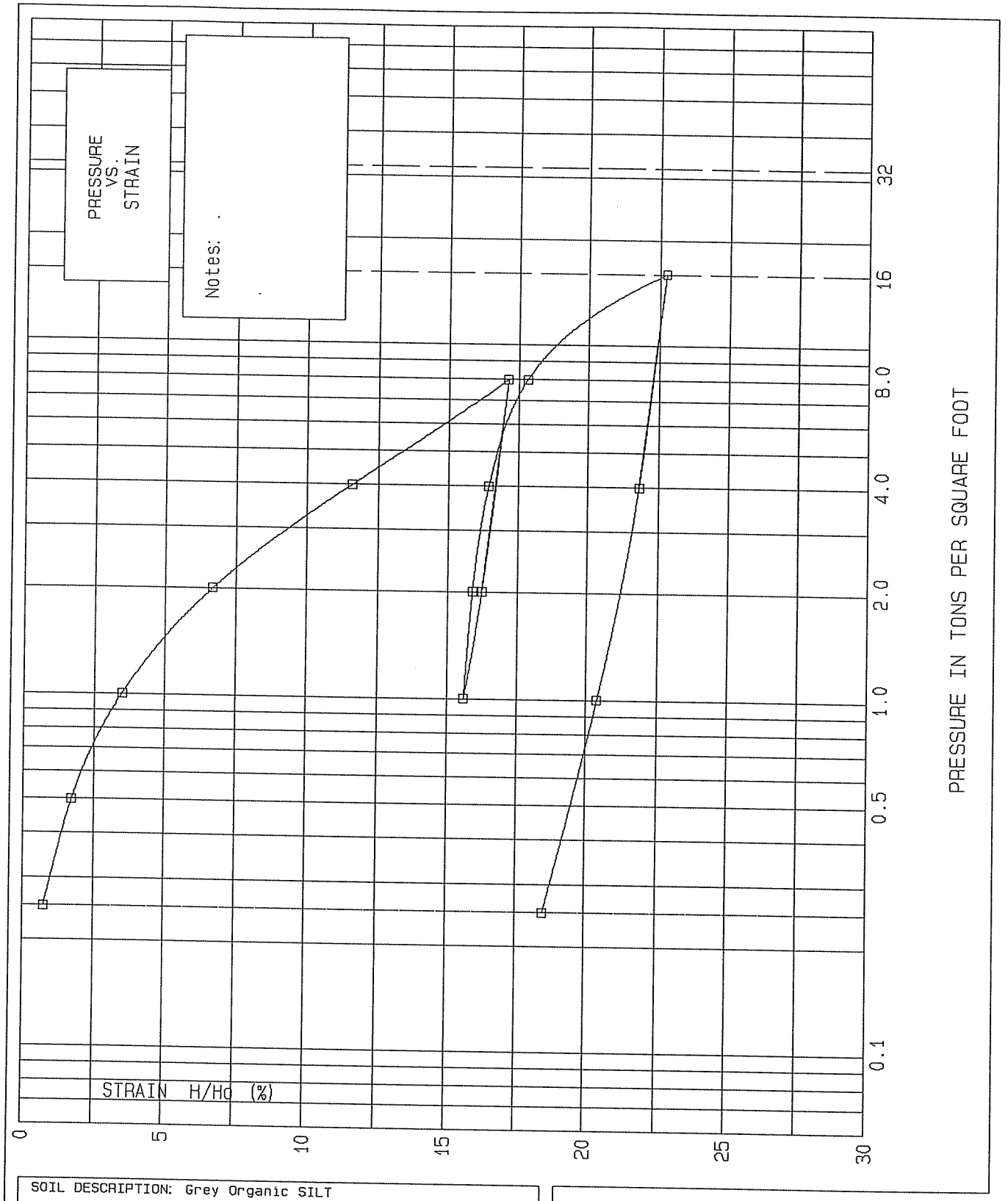
labform1.xls



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	61 %	29 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	46.60	75.42			0.80
FINAL	32.70	92.55			0.65

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO. R-10
SAMPLE UP-2
DEPTH 39.1-39.2'
TECH. MST
REVIEWER DAS

TEST SERIES NO. C64.1
DATE 10/23/02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-16

Job Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C64.1
Sample Description .. Grey Organic SILT
Boring Number R-10
Sample Number UP-1
Depth ..... 39.1-39.2'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 7.7750E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.5200E-01
Initial Water Content .... 4.6600E+01
Final Water Content ..... 3.2700E+01
Liquid Limit ..... 6.1000E+01
Plastic Limit ..... 2.9000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.168			
2	0.250	59.0	0.74	1.152			
3	0.500	138.0	1.72	1.130	2.9	49.08	
4	1.000	280.0	3.50	1.092	1.7	81.39	
5	2.000	534.0	6.67	1.023	1.4	93.88	
6	4.000	928.0	11.60	0.916	4.4	27.37	0.001
7	8.000	1370.0	17.12	0.796	4.0	26.75	
8	2.000	1298.0	16.22	0.816			
9	1.000	1248.0	15.60	0.829			
10	2.000	1271.0	15.89	0.823	0.8	129.46	0.0002
11	4.000	1316.0	16.45	0.811	0.8	128.16	
12	8.000	1425.0	17.81	0.781	1.2	83.49	
13	16.000	1820.0	22.75	0.674	2.9	31.97	
14	4.000	1745.0	21.81	0.695			
15	1.000	1631.0	20.39	0.726			
16	0.250	1480.0	18.50	0.767			

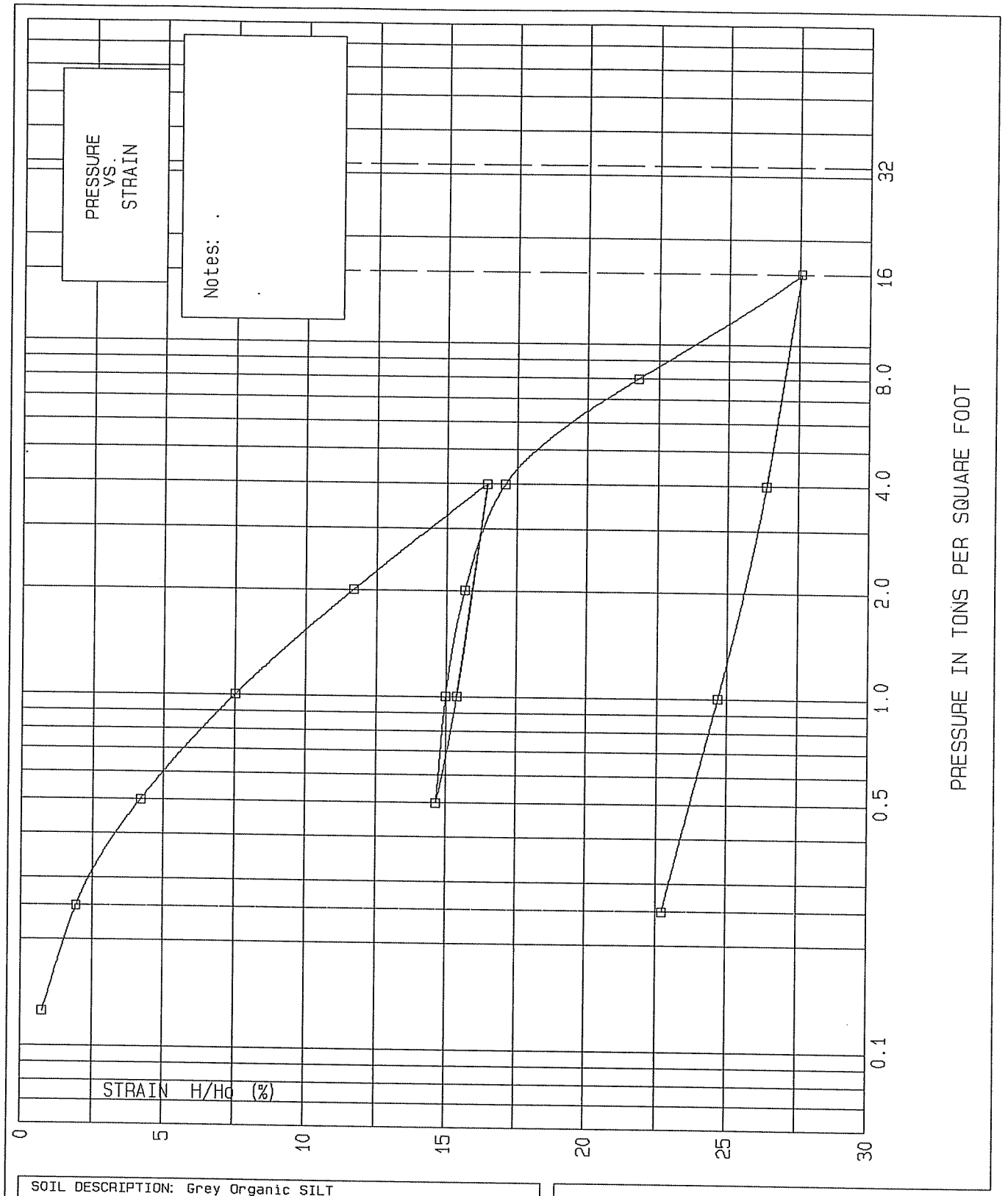
LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-11	UP-1	13-15	65		Average Total Unit Weight (13.0-14.7') = 108.2 Pcf															From 13.0-13.6' Depth- Brown f-m SAND, little Silt, trace Gravel
		13.6		51.5										Tv= 0.22 tsf						
		13.6-14.1		Save																From 13.6-14.7' Depth- Grey Organic SILT of high plasticity, soft to medium consistency, some fine Sand, trace Gravel
		14.2		53.3										Tv= 0.25 tsf						
		14.3-14.4		62.3							61.2								0.17	
		14.4-14.6		53.5	56	30														
		14.7		51.2										Tv= 0.26 tsf						



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	56 %	30 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	62.30	61.20			0.80
FINAL	41.20	79.23			0.62

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO.	R-11	TEST SERIES NO.	C65.1
SAMPLE	UP-1	DATE	10/23/02
DEPTH	14.3-14.4'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C65.1
ample Description .. Grey Organic SILT
oring Number R-11
Sample Number UP-1
epth ..... 14.3-14.4'

Technician ..... MST
eviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 6.3090E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 6.1800E-01
Initial Water Content .... 6.2300E+01
Final Water Content ..... 4.1200E+01
iquid Limit ..... 5.6000E+01
lastic Limit ..... 3.0000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.671			
2	0.125	60.0	0.75	1.651			
3	0.250	155.0	1.94	1.619	4.4	32.27	
4	0.500	336.0	4.20	1.559	6.3	21.76	
5	1.000	601.0	7.51	1.471	8.4	15.39	
6	2.000	934.0	11.67	1.359	10.9	10.94	
7	4.000	1315.0	16.44	1.232	7.3	14.76	0.006
8	1.000	1231.0	15.39	1.260			
9	0.500	1173.0	14.66	1.280			
10	1.000	1199.0	14.99	1.271	2.6	40.71	0.0005
11	2.000	1253.0	15.66	1.253	2.6	40.23	
12	4.000	1367.0	17.09	1.215	1.7	60.01	
13	8.000	1742.0	21.77	1.090	5.3	17.87	
14	16.000	2205.0	27.56	0.935			
15	4.000	2110.0	26.37	0.967			
16	1.000	1975.0	24.69	1.012			
17	0.250	1819.0	22.74	1.064			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

Project No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

Project Engineer: D. SCHULZE | Date: Aug.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-11	UP-2	23-25	66		Average Total Unit Weight (23.0-25.0') = 95.8 Pcf															
		23.3		65.5										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency,
		23.3-23.8		Save																
		23.8		65.8										Tv= 0.27 tsf						
		23.8-24.3		63.9							62.3			UU	1397	P/A MAX	1104	10.5		
		24.3		66.9										Tv= 0.26 tsf						
		24.4-24.6		65.5	74	34														

GZA GeoEnvironmental, Inc.

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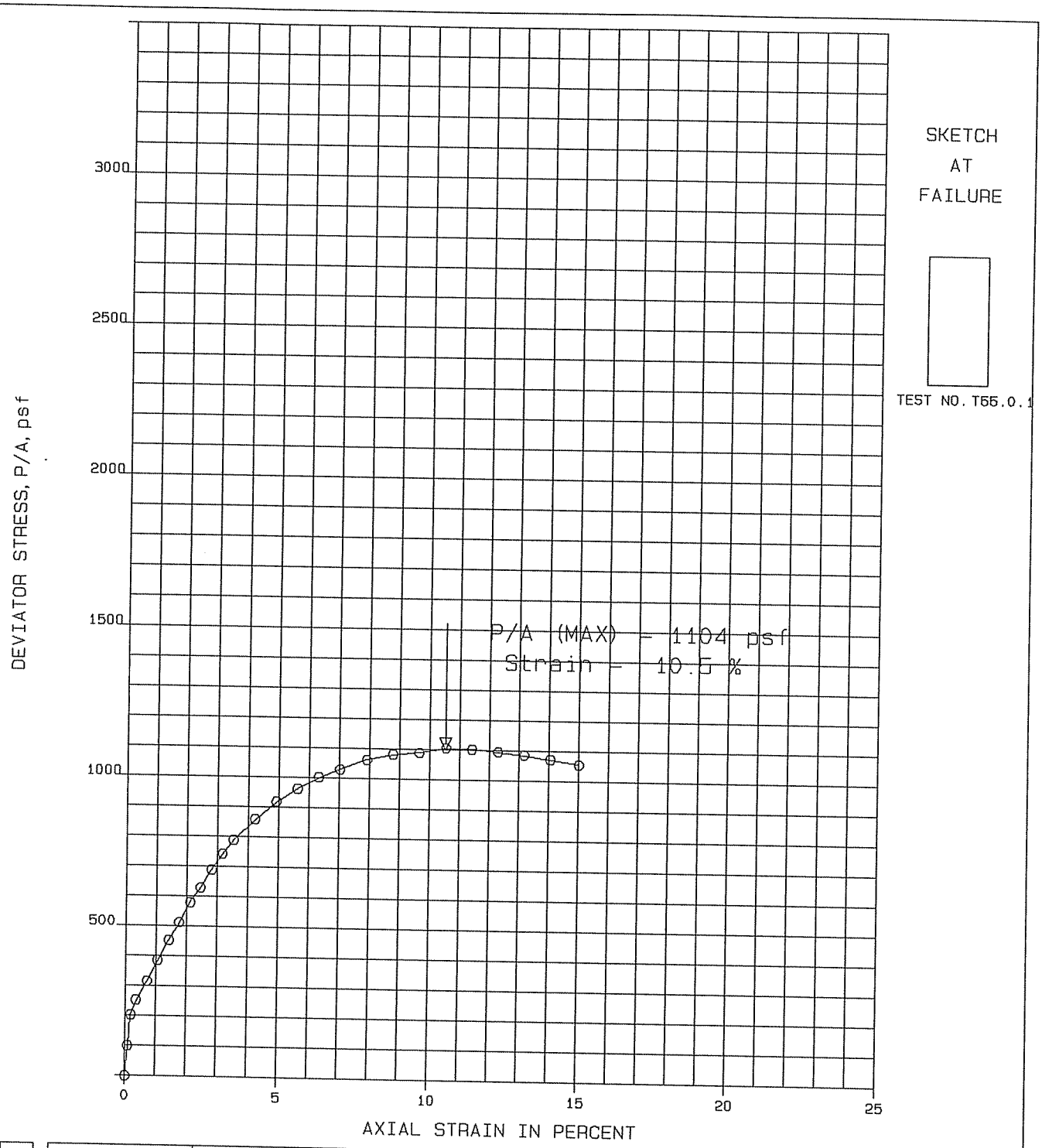
labform1.xls



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T66.0	63.9	62.3	5.70 2.82	1397	–	–	–	63.4	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 74 % PLASTIC LIMIT 34 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. R-11
SAMPLE UP-2
DEPTH 23.8-24.3'
TECH. MST
REVIEWER

TEST SERIES NO. 66
DATE Sep.02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
R-12	UP-1	22-24	67		Average Total Unit Weight (22.0-24.0') = 93.2 Pcf															
		22.1		72.5										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency, some fine-grained Peat (deposits), trace fine Sand
		22.2-22.7		Save																
		22.7		78.9										Tv= 0.37 tsf						
		22.9-23.0		76.2							55.8								0.25	
		23.0-23.2		72.9	102	48														
		23.2		78.9										Tv= 0.38 tsf						

GZA GeoEnvironmental, Inc.
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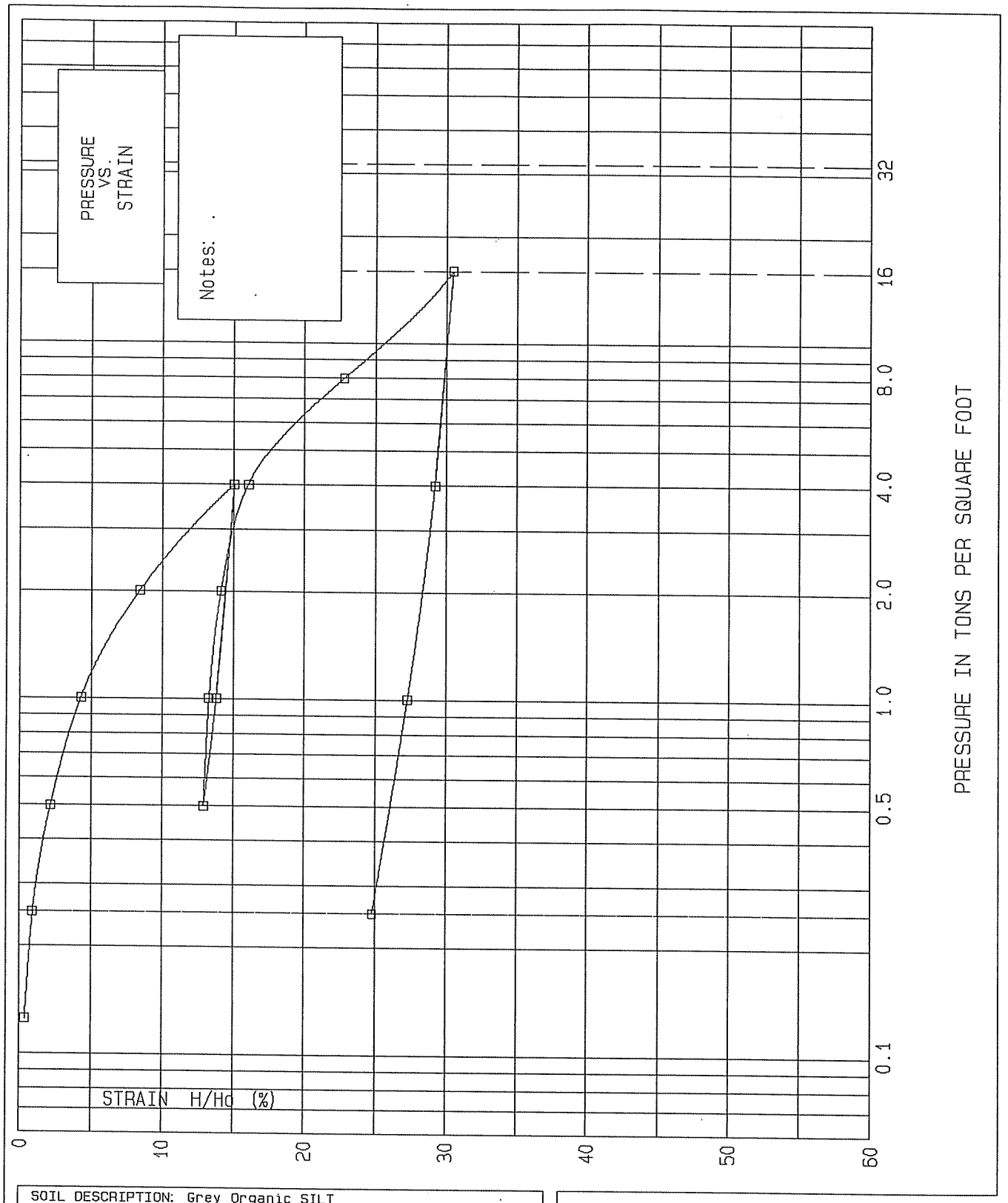
labform1.xls



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 102 %	PLASTIC LIMIT 48 %	SPECIFIC GRAVITY 2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	76.20	55.77			0.80
FINAL	50.20	74.24			0.60

I-95 RECONSTRUCTION

CONSOLIDATION TEST

FIGURE

BORING NO.	R-12	TEST SERIES NO.	C67.1
SAMPLE	UP-1	DATE	10/23/02
DEPTH	22.9-23.0'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C67.1
ample Description .. Grey Organic SILT
Boring Number R-12
Sample Number UP-1
epth ..... 22.9-23.0'

Technician ..... MST
eviewer ..... DAS

NOTES: .

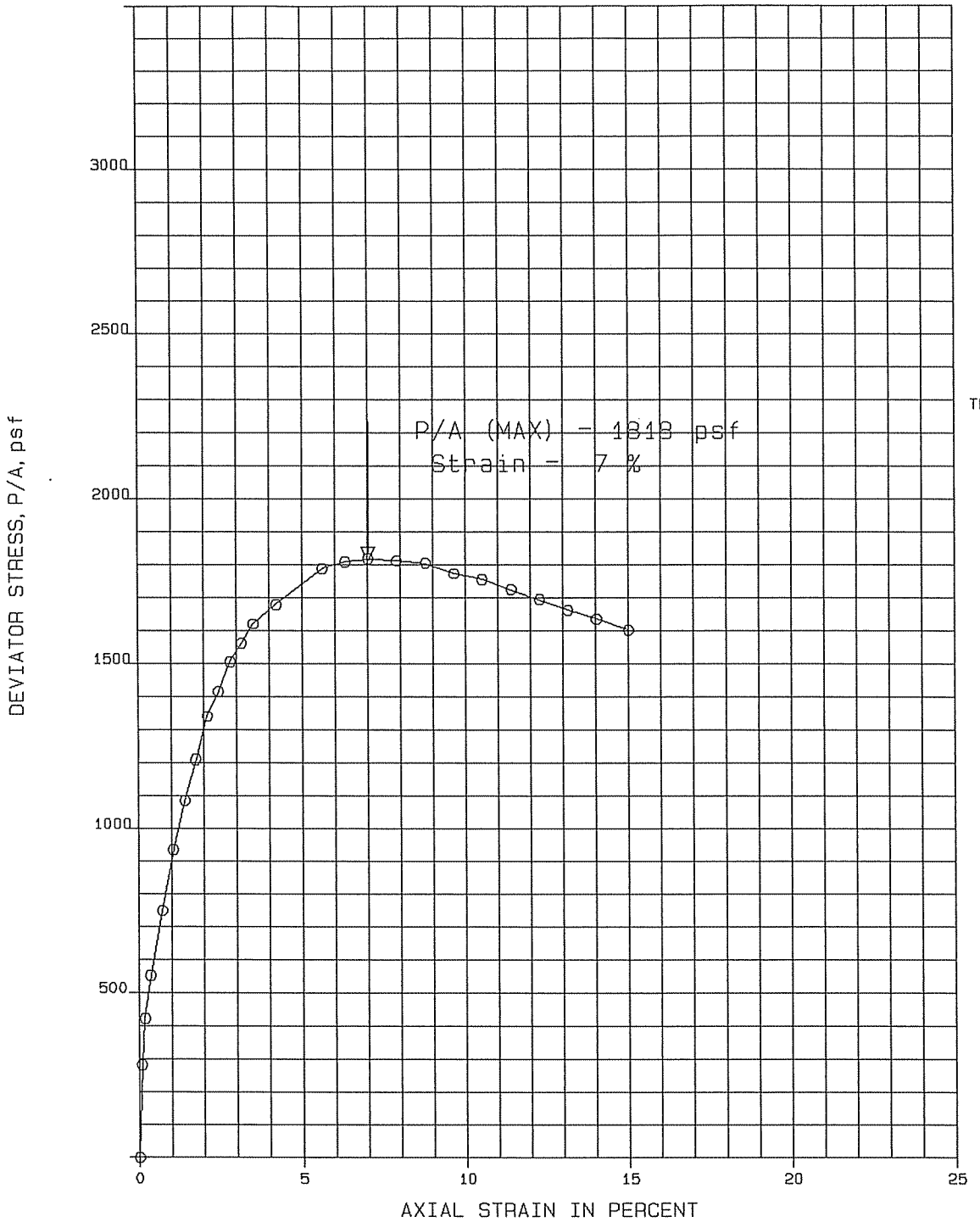
Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 5.7490E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 6.0100E-01
Initial Water Content .... 7.6200E+01
Final Water Content ..... 5.0200E+01
iquid Limit ..... 1.0200E+02
lastic Limit ..... 4.8000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	
1	0.000	0.0	0.00	1.931			
2	0.125	28.0	0.35	1.921			
3	0.250	73.0	0.91	1.905	3.2	45.02	
4	0.500	173.0	2.16	1.868	2.6	54.40	
5	1.000	343.0	4.29	1.806	3.6	37.95	
6	2.000	672.0	8.40	1.685	3.6	35.55	
7	4.000	1203.0	15.04	1.491	6.3	18.05	0.013
8	1.000	1103.0	13.79	1.527			
9	0.500	1033.0	12.91	1.553			
10	1.000	1064.0	13.30	1.542	1.0	110.16	0.0005
11	2.000	1129.0	14.11	1.518	1.4	77.60	
12	4.000	1281.0	16.01	1.462	1.4	75.18	
13	8.000	1824.0	22.80	1.263	4.4	21.54	
14	16.000	2438.0	30.47	1.038	4.4	17.85	
15	4.000	2336.0	29.20	1.075			
16	1.000	2182.0	27.27	1.132			
17	0.250	1986.0	24.82	1.204			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371 — Assigned By: R. BORJESON — Reviewed By:
Project Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
A1-2	UP-1	30-32	1		Average Total Unit Weight (30.0-31.9') = 97.7 Pcf															
		30.2		74.5										Tv= 0.26 tsf						Grey Organic SILT of high plasticity, medium consistency, trace Shells, trace fine Sand
		30.2-30.7		Save																
		30.8		70.8										Tv=0.40 tsf						
		30.7-31.2		69.4							58.6			UU	2304	P/A MAX	1818	7.0		
		31.3		64.9										Tv= 0.41 tsf						
		31.3-31.4		73.4							56.4								0.26	
		31.4-31.6		68.8	86	39														



SKETCH AT FAILURE

TEST NO. T1.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T1.1	69.4	58.6	5.70 2.84	2304.	-	-	-	68.1	-	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 86 % PLASTIC LIMIT 39 % SPECIFIC GRAVITY 2.62

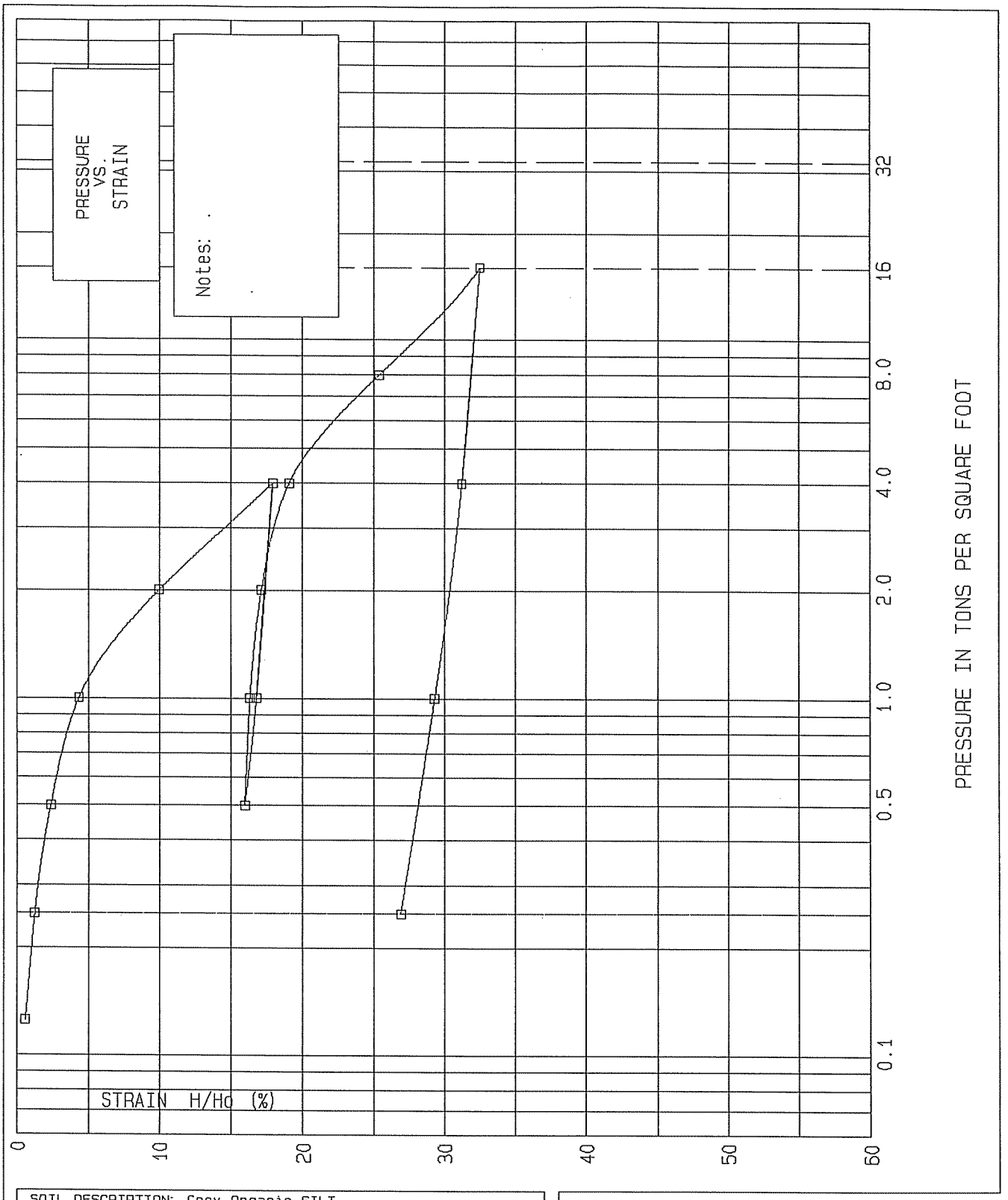
RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. A1-2
SAMPLE UP-1
DEPTH 30.7-31.2'
TECH. MST
REVIEWER

TEST SERIES NO. 1
DATE JULY 02
FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	86 %	39 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURA-TION, %	SAMPLE HEIGHT, INCH
INITIAL	73.40	56.43			0.80
FINAL	47.10	77.17			0.58

RECONSTRUCTION OF I-95

CONSOLIDATION TEST

BORING NO.	A1-2	TEST SERIES NO.	C1.1
SAMPLE	UP-1	DATE	8/15/02
DEPTH	31.3-31.4'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17371
Project Name ..... RECONSTRUCTION OF I-95
Test Number C1.1
Sample Description .. Grey Organic SILT
Boring Number A1-2
Sample Number UP-1
Depth ..... 31.3-31.4'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 5.8170E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 5.8500E-01
Initial Water Content .... 7.3400E+01
Final Water Content ..... 4.7100E+01
Liquid Limit ..... 8.6000E+01
Plastic Limit ..... 3.9000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)
1	0.000	0.0	0.00	1.897		
2	0.125	46.0	0.57	1.880		
3	0.250	99.0	1.24	1.861	1.4	102.33
4	0.500	188.0	2.35	1.829	1.0	140.71
5	1.000	348.0	4.35	1.771	1.7	80.17
6	2.000	798.0	9.97	1.608	5.3	23.72
7	4.000	1433.0	17.91	1.378	8.4	12.86
8	1.000	1341.0	16.76	1.411		
9	0.500	1275.0	15.94	1.435		
10	1.000	1305.0	16.31	1.425	1.4	73.31
11	2.000	1369.0	17.11	1.401	1.7	59.53
12	4.000	1525.0	19.06	1.345	2.0	48.94
13	8.000	2031.0	25.39	1.162	6.3	14.01
14	16.000	2600.0	32.50	0.956	4.0	18.42
15	4.000	2498.0	31.22	0.992		
16	1.000	2345.0	29.31	1.048		
17	0.250	2154.0	26.92	1.117		

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Jul-02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
A1-2	UP-2	40-42	2		Average Total Unit Weight (40.0-41.8') = 98.9 Pcf															
		40.3		74.4										Tv=0.35 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		40.3-40.8		Save																
		40.8		72.8										Tv= 0.41 tsf						
		40.8-41.3		70.2							57.5			UU	2599	P/A MAX	2081	8.7		
		41.4		68.8										Tv= 0.38 tsf						
		41.4-41.5		69.6							58.6								0.29	
		41.5-41.7		72.3	89	40														

GZA GeoEnvironmental, Inc.
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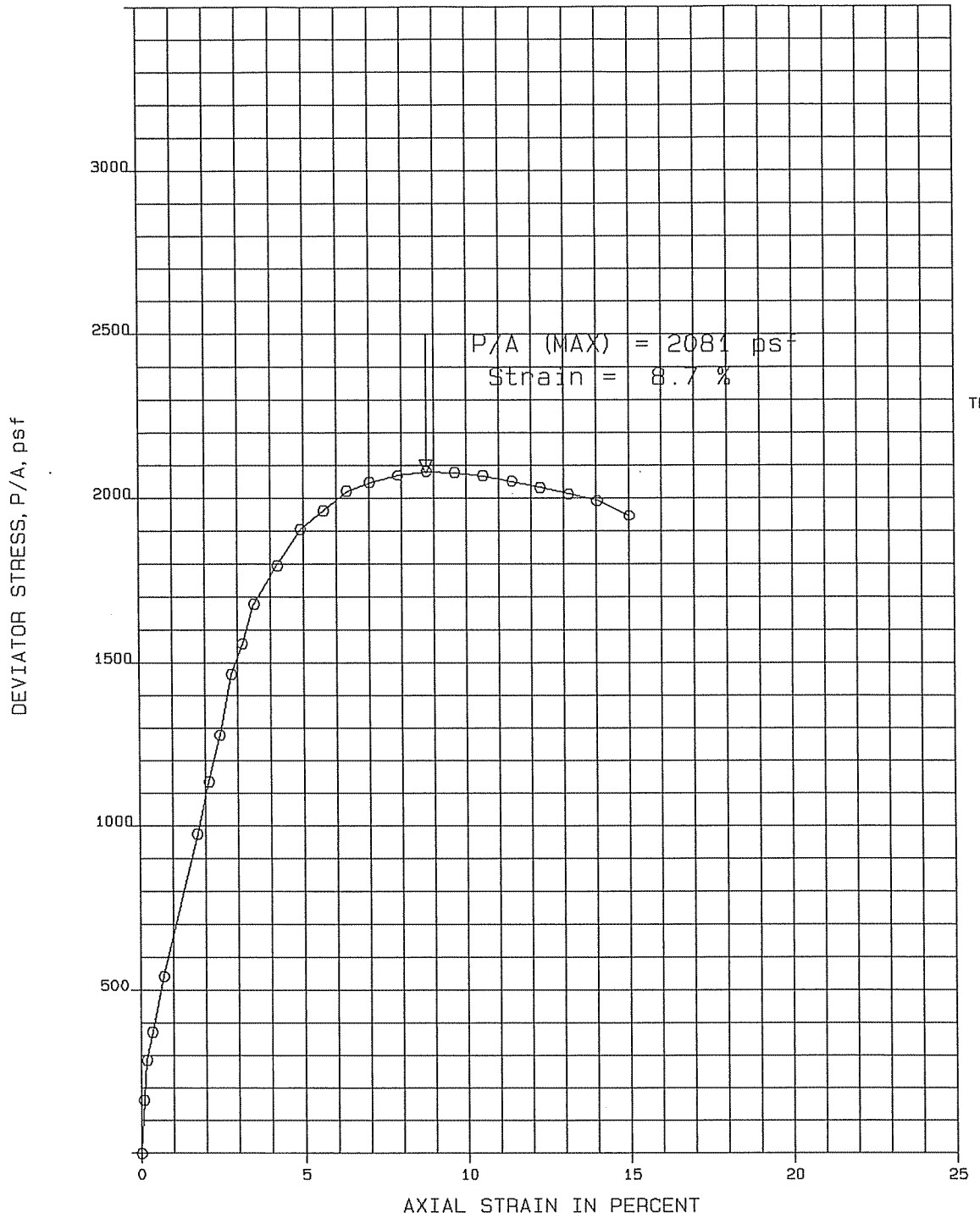
labform1.xls



SKETCH AT FAILURE

TEST NO. T2.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T2.1	70.2	57.5	5.70 2.86	2599.	-	-	-	69.2	-	0.50

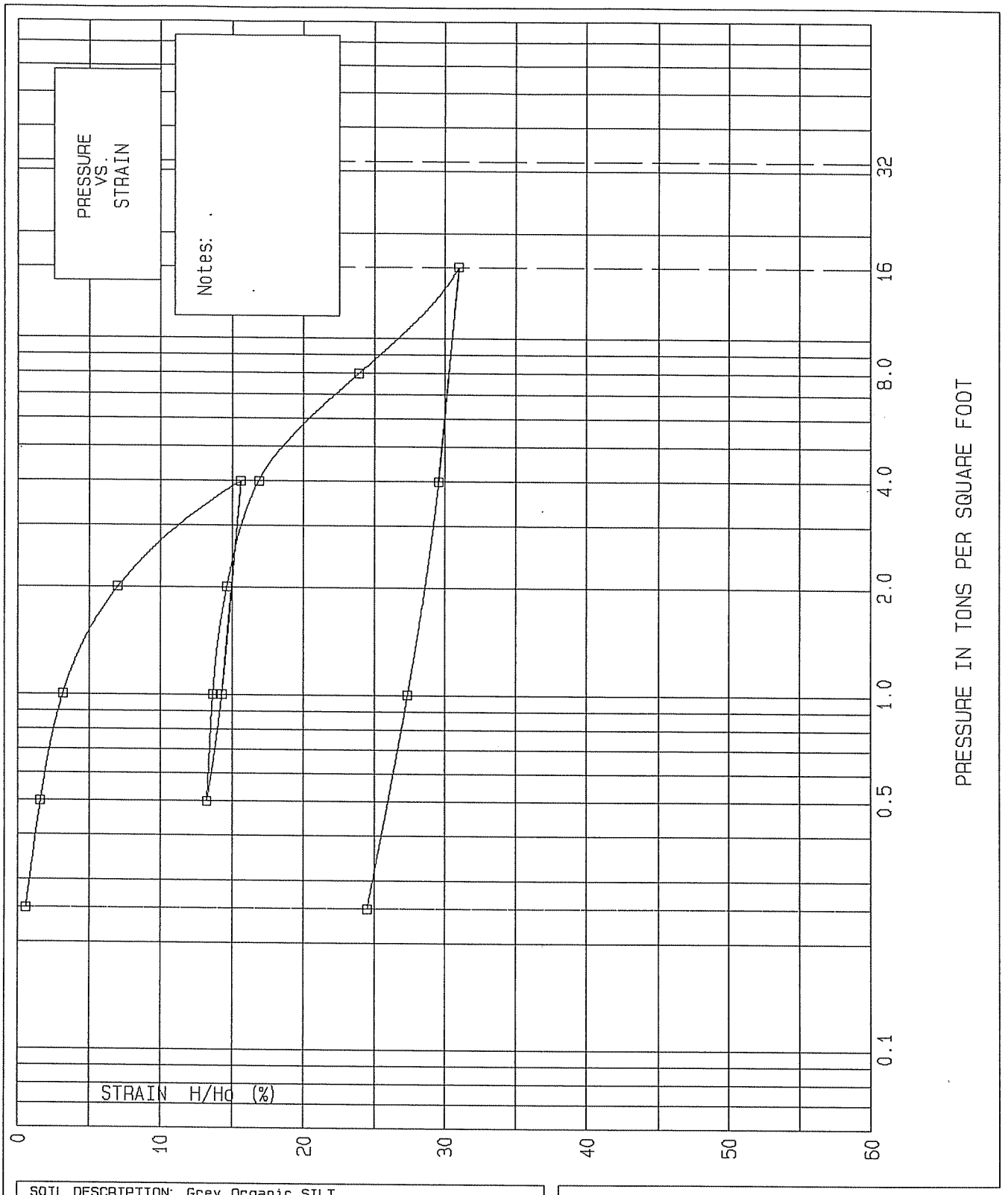
SOIL DESCRIPTION: Grey ORganic SILT

LIQUID LIMIT	89 %	PLASTIC LIMIT	40 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	A1-2	TEST SERIES	
SAMPLE	UP-2	NO.	2
DEPTH	40.8-41.3'	DATE	JULY 02
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	89 %	40 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	69.60	58.63			0.80
FINAL	47.10	77.92			0.60

RECONSTRUCTION OF I-95

CONSOLIDATION TEST

BORING NO.	A1-2	TEST SERIES NO.	C2.1
SAMPLE	UP-2	DATE	8/15/02
DEPTH	41.4-41.5'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... RECONSTRUCTION OF I-95
Test Number C2.1
ample Description .. Grey Organic SILT
Boring Number A1-2
Sample Number UP-2
epth ..... 41.4-41.5'

Technician ..... MST
eviewer ..... DAS

NOTES: .

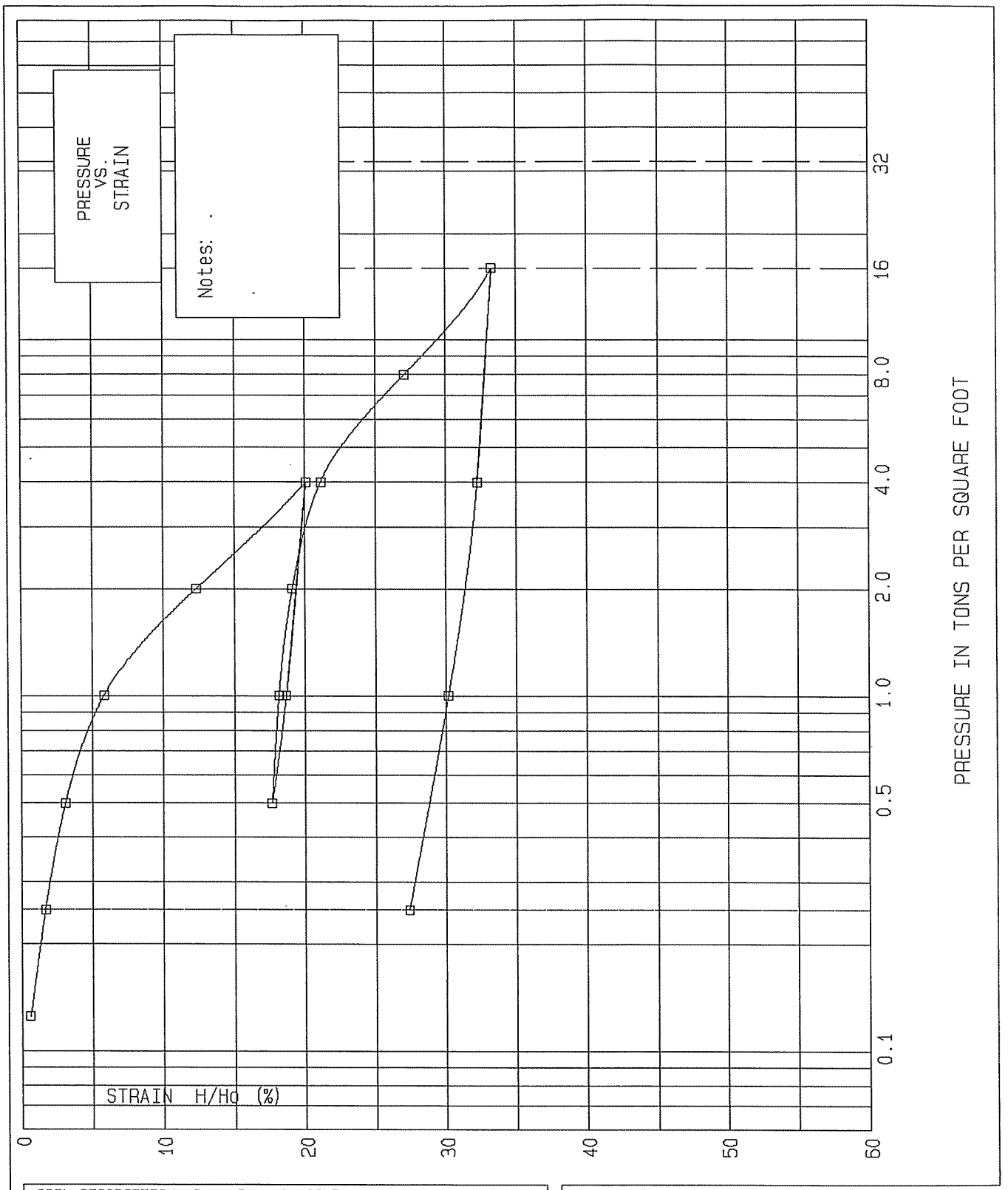
Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 6.0440E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 6.0200E-01
Initial Water Content .... 6.9600E+01
Final Water Content ..... 4.7100E+01
iquid Limit ..... 8.9000E+01
Plastic Limit ..... 4.0000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment mber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)
1	0.125	19.0	0.00	1.788		
2	0.250	63.0	0.55	1.773	4.8	30.23
3	0.500	146.0	1.59	1.744	4.8	29.75
4	1.000	272.0	3.16	1.700	3.6	38.62
5	2.000	582.0	7.04	1.592	6.3	20.86
6	4.000	1265.0	15.57	1.354	9.6	11.95
7	1.000	1161.0	14.27	1.390		
8	0.500	1078.0	13.24	1.419		
9	1.000	1111.0	13.65	1.408	2.6	42.04
10	2.000	1188.0	14.61	1.381	2.6	41.37
11	4.000	1365.0	16.82	1.319	3.2	32.39
12	8.000	1932.0	23.91	1.122	8.4	11.01
13	16.000	2498.0	30.99	0.924	6.8	11.29
14	4.000	2384.0	29.56	0.964		
15	1.000	2208.0	27.36	1.025		
16	0.250	1980.0	24.51	1.105		

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
A2-2	UP-2	37-39	87		Average Total Unit Weight (37.0-39.0') = 93.2 Pcf															
		37.4		76.6										Tv= 0.22 tsf						Grey Organic SILT of high plasticity, soft to medium consistency, trace Shell, trace fine Sand
		37.4-37.9		Save																
		38.0		65.9										Tv= 0.25 tsf						
		38.1-38.2		69.1							58.2								0.26	
		38.2-38.4		76.5	74	36														
		38.5		82.0										Tv= 0.25 tsf						



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 74 %	PLASTIC LIMIT 36 %	SPECIFIC GRAVITY 2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURA-TION, %	SAMPLE HEIGHT, INCH
INITIAL	69.10	58.24			0.80
FINAL	43.50	80.20			0.58

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO.	A2-2	TEST SERIES NO.	C87.1
SAMPLE	UP-2	DATE	10/23/02
DEPTH	38.2-38.3'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C87.1
ample Description .. Grey Organic SILT
Boring Number A2-2
Sample Number UP-2
epth ..... 38.2-38.3'

Technician ..... MST
eviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 6.0040E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 5.8100E-01
Initial Water Content .... 6.9100E+01
inal Water Content ..... 4.3500E+01
iquid Limit ..... 7.4000E+01
Plastic Limit ..... 3.6000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment mber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.807			
2	0.125	46.0	0.57	1.791			
3	0.250	134.0	1.67	1.760	2.4	59.43	
4	0.500	248.0	3.10	1.720	3.2	43.44	
5	1.000	468.0	5.85	1.643	4.8	27.73	
6	2.000	984.0	12.30	1.462	10.2	11.82	
7	4.000	1605.0	20.06	1.244	13.7	7.48	0.014
8	1.000	1490.0	18.62	1.284			
9	0.500	1408.0	17.60	1.313			
10	1.000	1448.0	18.10	1.299	3.2	30.77	
11	2.000	1526.0	19.07	1.271	3.2	30.22	0.001
12	4.000	1690.0	21.12	1.214	4.0	23.28	
13	8.000	2166.0	27.07	1.047	6.8	12.36	
14	16.000	2663.0	33.29	0.873	4.8	14.82	
15	4.000	2580.0	32.25	0.902			
16	1.000	2415.0	30.19	0.960			
17	0.250	2191.0	27.39	1.038			

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
B164-5	UP-1	38-40	68		Average Total Unit Weight (38.0-39.5') = 103.3 Pcf															
		38.2		55.6										Tv= 0.60 tsf						Grey Organic SILT of high plasticity, stiff consistency, trace Shell, trace fine Sand
		38.2-38.7		Save																
		38.7		53.5										Tv= 0.65 tsf						
		38.8-38.9		57.6							66.5								0.24	
		38.9-39.1		57.0	75	38														
		39.3		61.6										Tv= 0.72 tsf						

GZA GeoEnvironmental, Inc.
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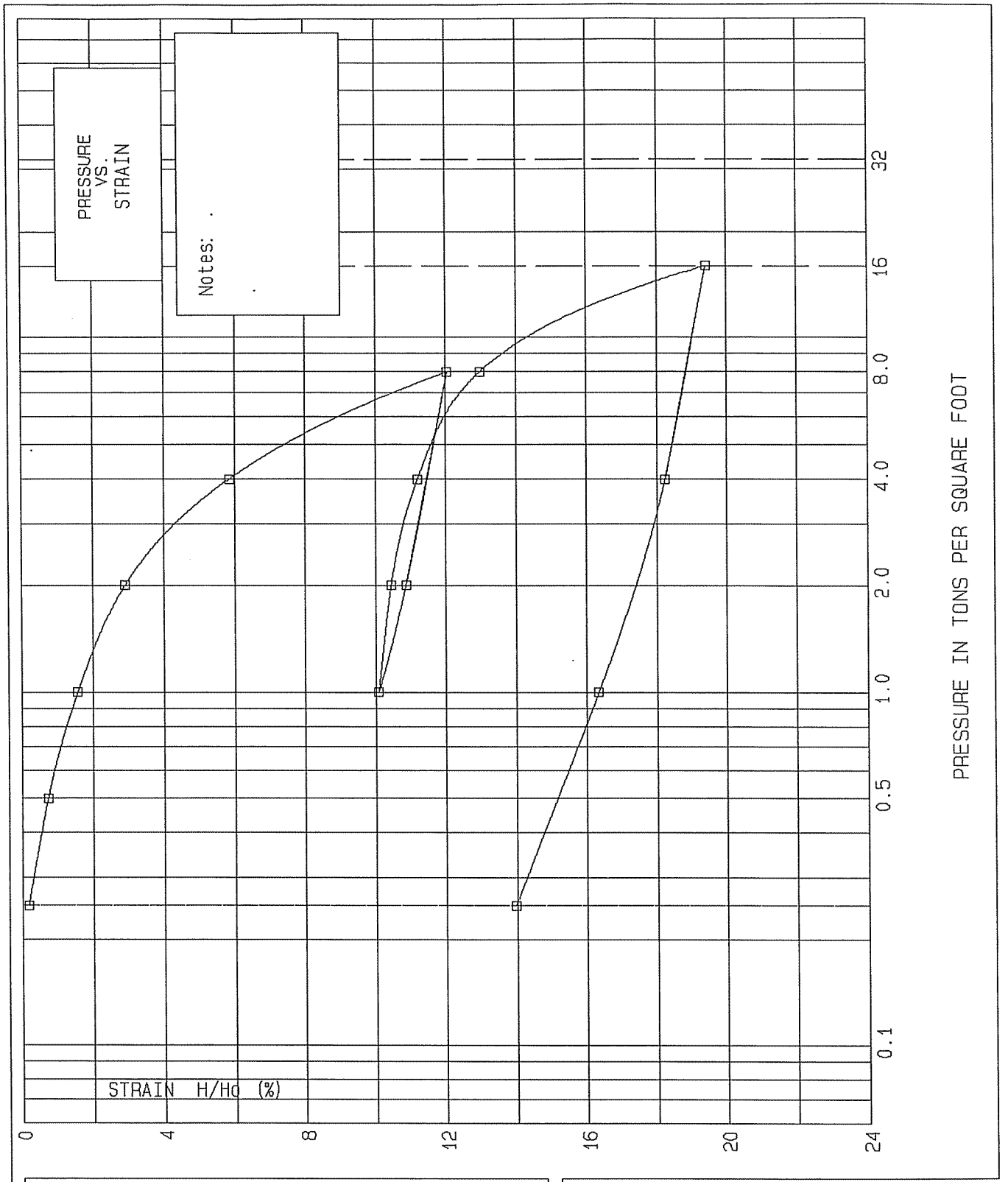
labform1.xls



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	75 %	38 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	57.60	66.46			0.80
FINAL	45.70	77.28			0.69

I-95 RECONSTRUCTION

CONSOLIDATION TEST

BORING NO.	B164-5	TEST SERIES NO.	C68.1
SAMPLE	UP-1	DATE	10/29/02
DEPTH	38.8-38.9'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

Job Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C68.1
Sample Description .. Grey Organic SILT
Boring Number B164-5
Sample Number UP-1
Depth ..... 38.8-38.9'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

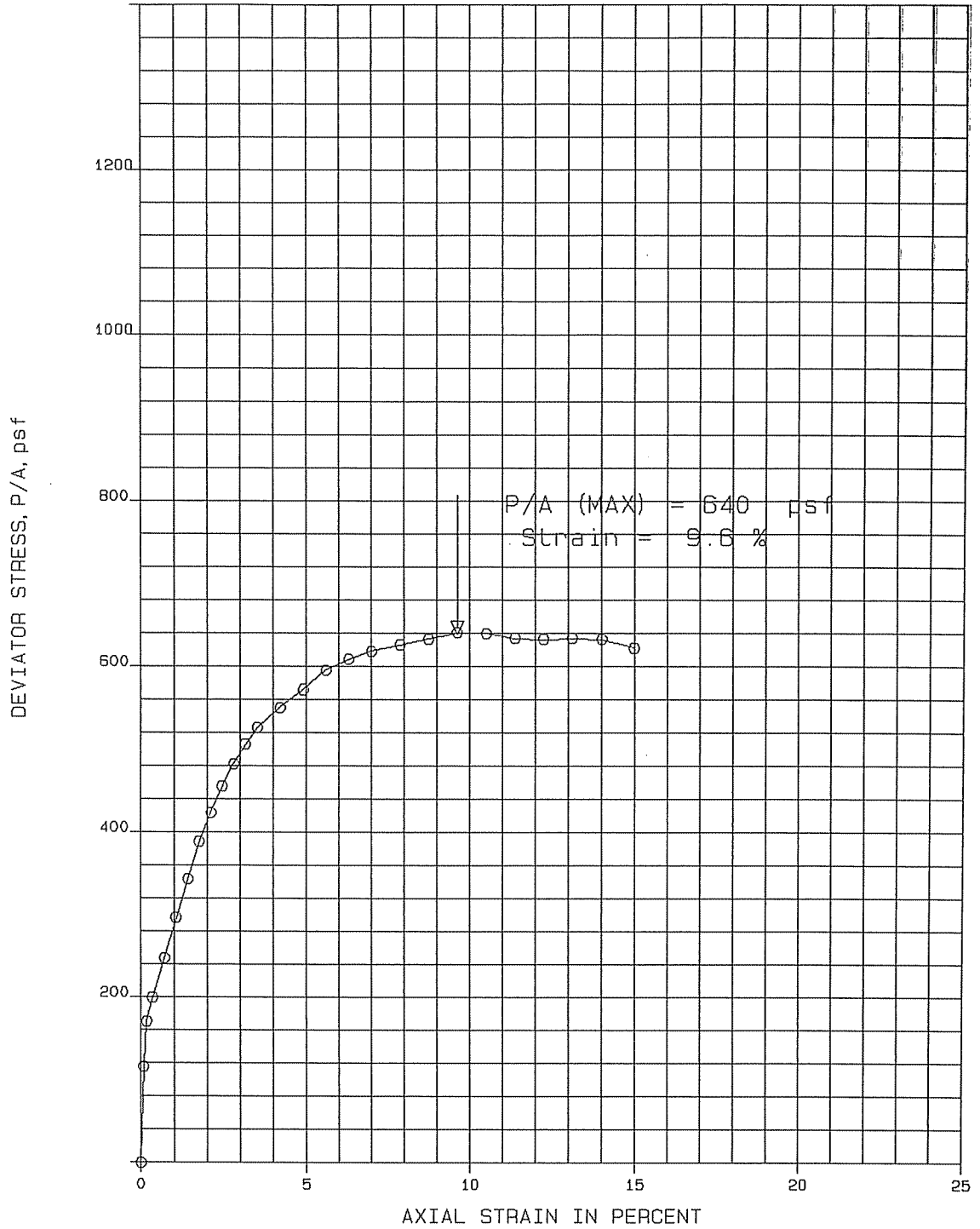
Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.8510E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.8800E-01
Initial Water Content .... 5.7600E+01
Final Water Content ..... 4.5700E+01
Liquid Limit ..... 7.5000E+01
Plastic Limit ..... 3.8000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (Cm²/sec)
1	0.000	0.0	0.00	1.460		
2	0.250	13.0	0.16	1.456		
3	0.500	58.0	0.72	1.442	2.3	62.87
4	1.000	126.0	1.57	1.421	2.6	54.83
5	2.000	233.0	2.91	1.388	2.3	60.62
6	4.000	467.0	5.84	1.316	2.6	51.31
7	8.000	964.0	12.05	1.163	6.3	19.20
8	2.000	870.0	10.87	1.192		
9	1.000	807.0	10.09	1.212		
10	2.000	836.0	10.45	1.203	1.4	83.91
11	4.000	897.0	11.21	1.184	1.2	96.67
12	8.000	1038.0	12.97	1.141	2.0	56.37
13	16.000	1553.0	19.41	0.982	4.4	23.29
14	4.000	1459.0	18.24	1.011		
15	1.000	1307.0	16.34	1.058		
16	0.250	1117.0	13.96	1.116		

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
W101-1	UP-1	13-15	25	Average Total Unit Weight (13.0-14.8') = 86.4 Pcf																Grey Organic SILT of high plasticity, soft consistency, trace Shell, trace fine Sand
		13.2		65.2										Tv= 0.22 tsf						
		13.2-13.7		74.0							56.6			UU	792	P/A MAX	640	9.6		
		13.7		81.1										Tv= 0.25 tsf						
		13.9-14.0		71.4							58.4								0.23	
		14.0-14.2		68.2	66	30														
		14.3		77.1										Tv= 0.24 tsf						



SKETCH AT FAILURE

TEST NO. T25.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T25.0	74.0	56.6	5.72 2.84	792..	–	–	–	73.8	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 66 % PLASTIC LIMIT 30 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

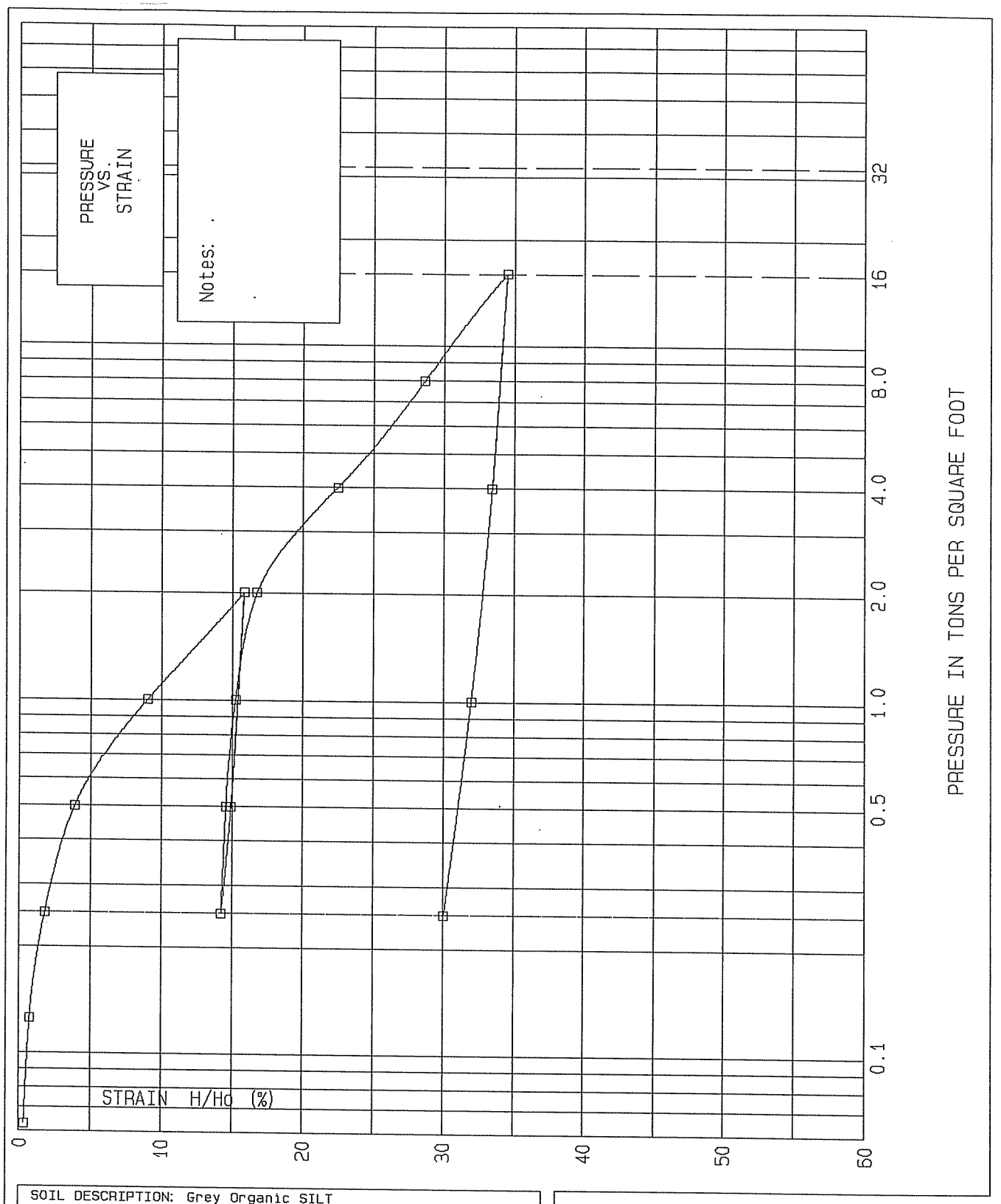
BORING NO. W101-1
SAMPLE UP-1
DEPTH 13.2-13.7'
TECH. MST
REVIEWER

TEST SERIES NO. 25
DATE Aug.02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 66 %	PLASTIC LIMIT 30 %	SPECIFIC GRAVITY 2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	71.10	58.43			0.80
FINAL	40.40	84.07			0.56

RECONTRUCTION OVER I-95

CONSOLIDATION TEST

BORING NO.	W101-1	TEST SERIES NO.	C25.1
SAMPLE	UP-1	DATE	9/5/02
DEPTH	13.9-14.0'		
TECH.	mst		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17371
Project Name ..... RECONTRUCTION OVER I-95
Test Number C25.1
ample Description .. Grey Organic SILT
oring Number W101-1
Sample Number UP-1
epth ..... 13.9-14.0'

Technician ..... mst
eviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
ample Dry Weight ..... 6.0230E+01
ample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
inal Sample Height 5.5600E-01
nitial Water Content .... 7.1100E+01
Final Water Content ..... 4.0400E+01
iquid Limit ..... 6.6000E+01
lastic Limit ..... 3.0000E+01
Initial Saturation ..... 0.0000E+00
inal Saturation ..... 0.0000E+00
50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.798			
2	0.063	26.0	0.32	1.789			
3	0.125	59.0	0.74	1.777	2.9	49.77	
4	0.250	145.0	1.81	1.747	2.9	49.03	
5	0.500	313.0	3.91	1.689	2.9	47.47	
6	1.000	723.0	9.04	1.545	6.3	20.26	
7	2.000	1265.0	15.81	1.356	6.3	17.76	0.014
8	0.500	1192.0	14.90	1.381			
9	0.250	1138.0	14.22	1.400			
10	0.500	1163.0	14.54	1.391	1.2	89.12	
11	1.000	1216.0	15.20	1.373	1.0	105.73	0.004
12	2.000	1338.0	16.72	1.330	1.0	103.03	
13	4.000	1799.0	22.49	1.169	4.8	19.64	
14	8.000	2292.0	28.65	0.996	4.8	16.84	
15	16.000	2757.0	34.46	0.834	4.0	17.09	
16	4.000	2674.0	33.42	0.863			
17	1.000	2557.0	31.96	0.904			
18	0.250	2405.0	30.06	0.957			