APENDICE A

Estudio Preliminar de Recomendaciones Geotécnicas

Octubre 2010

Declaración de Impacto Ambiental – Preliminar

Planta de Generación de Energía Renovable y Recuperación de Recursos

BARRIO CAMBALACHE DE ARECIBO

EnergyAnswers Arecibo

GEOCONSULT

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PRELIMINARY GEOTECHNICAL RECOMMENDATIONS FOR RESOURCE RECOVERY PLANT RECOVERY SOLUTIONS INC. ARECIBO, PUERTO RICO

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1. Introduction

This report presents preliminary geotechnical recommendations for the resource recovery plant that is being considered by Recovery Solutions Inc. The plant will consist of boilers, shredders, warehouse structures, water tanks and administration buildings. The site is located at Cambalache sector in the town of Arecibo in the north-central portion of the island of Puerto Rico. **Figure 1** shows the general location of the project. The structures will be founded at a higher elevation than the original ground surface elevation as dictated by the hydrologic/hydraulic study. This issue will be referred to further in this report.

The soil investigation performed at the site consists of 15 borings drilled throughout the lot. Borings labeled RCS-1, RCS-6 through RCS-10 and RCS-14 through RCS-15 were drilled to a depth of 100, whereas borings labeled RCS-2 through RCS-5 and RCS-11 through RCS-13 were drilled to a depth of 150 feet.

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Continuous sampling was performed in the first 15 feet of every boring. Surveying was provided by Recovery Solutions Inc. to locate borings where we indicated. Elevations and coordinates of the borings are indicated in the boring logs presented in **Appendix A** of this report.

2. Subsoil Conditions and Engineering Analysis

The geology of the area, shown in **Figure 1**, is controlled mostly by the presence of the Rio Grande of Arecibo. Referring to the geologic map of the area by Briggs, 1968 it can be noticed that the area comprehends only alluvium deposits dated as quaternary. This deposit (Qa) most likely is composed of quartz, feldspars and plutonic-rock fragments sand grains. Some areas have been described to contain large boulder-sized limestone fragments. According to Briggs' estimate the approximate thickness in the area ranges from 0-70 meters. Quaternary swamp deposits have been identified in some areas running parallel to the river main channel and tributaries. The lithology of these deposits has been described as clay, sandy clay and silty clay, grayish to bluish-gray. Peat is present in some areas in the swamp deposits.

The rock basement for these deposits is the Middle Tertiary limestone of the Aymamón and Camuy Formations. These are well exposed southwest of the project site. In this limestone formations typical karst landforms can be identified.

The topography in this area is mostly controlled by mogote hills and dissolution valleys.

From the information provided by the 15 borings, which location is shown in **Figure 2,** it can be inferred that the subsoil in the area is an alluvial deposit as mentioned in the geologic description. The material varies between fat clays and clayey sands, where the content of sand is a variable, which depends on the level of energy of the active deposition environment when the material was deposited. This variation is not gradual along the boring; it is rather heterogeneous, where thin layers of sandy silt can be found between thicker layers of fat clay. This situation was observed in all 15 borings drilled, with the peculiarity that no two borings were found to be alike. This fact indicates also the heterogeneity found in the deposits in the aerial extension, which will impact the type and characteristics of the foundation solution for the different projected structures, as they are located on the site. In general, the alluvial material found indicates the presence of a desiccated crust with a thickness of about 20 feet. This assumption can be made mainly after examining the results obtained in the consolidation tests performed on undisturbed samples at different depths, where overconsolidation of the desiccated material is high. The clay found within this desiccated crust is generally stiff to very stiff, while the coarser material is poorly cemented with relative densities qualifying as very loose to loose. Material found deeper than 20 feet generally represent the opposite. Clays tend to be soft and medium, whereas

sands tend to become denser. Five profiles shown in **Figures 3 through 7** have been prepared, showing the results of the subsurface investigation.

In addition to the subsurface investigation described previously, several Shelby tube samples were retrieved from different depths at different locations. Consolidation tests, direct shear tests and unconfined compression tests were run on specimens cut from such samples. Results of all the laboratory tests performed in this study are presented in **Appendix B**.

Depths of water (while drilling, or one day after) varied approximately from -4 feet to 7 feet in elevation; no pattern in the water levels was evident in this borings.

The alluvial deposit is not competent to bear the proposed loads imposed by the projected structures. Using the values for the expected loads provided to this office, and assuming an allowable bearing capacity of 3,000 pounds per square foot, settlement calculations were run considering a subsurface profile with parameters of compressibility that follow the model presented in **Figure 8,** which was inferred from the consolidation tests run on undisturbed samples as described earlier. Settlements as much as 6 inches are to be expected, with the disadvantage that due to the aerial heterogeneity of the sand content of the different layers composing the subsurface, the time for this value of settlement to be achieved would vary over short distances, therefore causing large differential settlements to the structure. These differential settlements tend to be temporary since over time

(years) total settlements would be similar, but still would cause damage to structural elements. For these reasons, deep foundations are required for these structures. Use of piles is the most viable foundation solution, since drilled piers are rarely used on the island (however, a drilled pier solution can be analyzed if a contractor becomes available for this work). Taking into account the variability of the soil conditions within the area, a static analysis was performed for every boring in order to establish the required lengths of piles to be used at different zones. Also, thirteen types of piles were analyzed for each boring. The different piles and their corresponding working loads are summarized in **Table 1**. The results of the static analysis can be found on **Table 2,** where the variation in pile lengths for the same type of pile located at different positions is due to the heterogeneity, which was preliminarily referred. This analysis was performed considering a factor of safety of 2.5 for this preliminary geotechnical report, this factor of safety can be reduced as more data is obtained and further analysis of the same type are performed. Moreover, fill will cause negative skin friction loads, which will produce lengths similar to those presented herein. Since the extent and depth of fill is still uncertain, this will have to be defined in the final report. **Figures 9 through 21** show contour maps for each type of pile, where the contours indicate the estimated lengths required to achieve the stated working loads.

Table 1. Allowable Compressive Capacity of Piles

Pile Type	Allowable Compressive Load (tons)
10" Fuentes precast concrete circular pile	60
12" Fuentes precast concrete circular pile	100
10" Unfilled steel pipe pile (0.188" wall)	50
12" Unfilled steel pipe pile (0.250" wall)	80
18" Unfilled steel pipe pile (0.312" wall)	140
24" Unfilled steel pipe pile (0.375" wall)	200
30" Unfilled steel pipe pile (0.500" wall)	250
10" Filled steel pipe pile (0.188" wall)	80
12" Filled steel pipe pile (0.250" wall)	120
18" Filled steel pipe pile (0.312" wall)	200
24" Filled steel pipe pile (0.375" wall)	250
30" Filled steel pipe pile (0.500" wall)	300
14x73 Steel H pile	150

Note: Steel pipe piles were considered in two ways; a) driven without any type of fill (unfilled section) and b) using a concrete core along the pile, driven with a steel plug at the toe (filled section).

Graphs of compressive resistance against pile length for each analyzed option are found in **Appendix C.**

Lateral load capacities were also analyzed for each type of pile using conditions found at boring RCS-3, which was chosen based on the results of the

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Table 2
Recovery Solutions
Arecibo, Puerto Rico
Pile length required to achieve design compressive loads

Pile Type	*Design Load*	*Required Length*, ft*														
	tons	*RCS-1*	*RCS-2*	*RCS-3*	*RCS-4*	*RCS-5*	*RCS-6*	*RCS-7*	*RCS-8*	*RCS-9*	*RCS-10*	*RCS-11*	*RCS-12*	*RCS-13*	*RCS-14*	*RCS-15*
10" Circular Concrete Pile (Fuentes)	60	115	125	115	115	105	110	115	115	145	115	110	120	110	110	105
12" Circular Concrete Pile (Fuentes)	100	145	155	150	180	140	135	150	145	190	145	140	150	145	140	145
10" Steel Pipe Pile Open-ended	50	105	120	110	105	100	110	110	110	125	105	105	110	105	105	105
12" Steel Pipe Pile Open-ended	80	130	140	130	135	125	125	135	130	155	130	125	135	125	125	125
18" Steel Pipe Pile Open-ended	140	145	155	150	160	135	140	150	145	175	145	140	150	135	140	140
24" Steel Pipe Pile Open-ended	200	150	165	155	175	150	145	160	155	185	150	150	155	145	150	150
30" Steel Pipe Pile Open-ended	250	150	165	155	175	175	145	160	155	185	150	150	160	145	150	150
10" Steel Pipe Pile Close-ended	80	135	150	140	165	135	130	145	140	180	135	135	145	140	135	135
12" Steel Pipe Pile Close-ended	120	165	175	170	225	160	150	170	165	225	165	160	170	160	160	165
18" Steel Pipe Pile Close-ended	200	175	185	180	235	170	160	180	180	230	175	170	180	165	170	170
24" Steel Pipe Pile Close-ended	250	160	165	165	220	175	140	170	160	220	160	155	165	160	160	160
30" Steel Pipe Pile Close-ended	300	125	135	130	175	120	110	105	105	155	125	145	130	135	125	125
14x73 Steel H Pile	150	150	165	155	180	150	145	160	155	190	155	150	155	145	150	150

***Notes:** Required length to obtain indicated loads not accounting for negative skin friction
Factor of Safety = 2.5

static compressive load analysis as the boring representing average conditions in terms of resistance. The lateral load analysis was performed using the length previously found to mobilize the compressive resistance in boring RCS-3 also. This analysis is governed by the amount of lateral displacement that occurs at the pile head when submitted to certain load. Our analysis presents lateral load resistance for every type of pile at four different values of lateral deflection, in order to provide different criteria in this preliminary report to the structural engineer to choose the type or types of piles to be analyzed in more detail in further studies. The results of such analysis are shown in **Tables 3 through 6.** Lateral deflection curves along the piles analyzed can be found in **Appendix D**.

We have been informed that previous hydraulic studies performed for the site under study conclude that the minimum elevation for the location of the structures should be 12 feet above mean sea level in order to avoid flooding during severe storms. This implies the placing of fill in most of the site since its elevation is mainly under the indicated minimum elevation. If the fill were placed, it would cause settlements, which in time would generate negative skin friction on the piles, making the indicated lengths to be longer than would normally be required with a safety factor of 2 to achieve the working loads. Settlements of the entire site and the effects of negative skin friction can be minimized with the construction of a dike that surrounds the site and prevents the flooding to reach the structures of the plant. Settlement analyses were performed for different

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Table 3
Recovery Solutions
Arecibo, Puerto Rico
Allowable lateral load (1/4" deflection)

Pile Type	*Allowable Lateral Load tons*
10" Circular Concrete Pile (Fuentes)	2.3
12" Circular Concrete Pile (Fuentes)	2.9
10" Steel Pipe Pile Unfilled	2.3
12" Steel Pipe Pile Unfilled	3.2
18" Steel Pipe Pile Unfilled	5.5
24" Steel Pipe Pile Unfilled	8.4
30" Steel Pipe Pile Unfilled	12.0
10" Steel Pipe Pile Filled	3.9
12" Steel Pipe Pile Filled	5.0
18" Steel Pipe Pile Filled	9.4
24" Steel Pipe Pile Filled	15.4
30" Steel Pipe Pile Filled	22.8
14x73 Steel H Pile	3.8

Table 4
Recovery Solutions
Arecibo, Puerto Rico
Allowable lateral load (3/8" deflection)

Pile Type	*Allowable Lateral Load tons*
10" Circular Concrete Pile (Fuentes)	2.7
12" Circular Concrete Pile (Fuentes)	3.5
10" Steel Pipe Pile Unfilled	2.8
12" Steel Pipe Pile Unfilled	3.8
18" Steel Pipe Pile Unfilled	6.5
24" Steel Pipe Pile Unfilled	10.0
30" Steel Pipe Pile Unfilled	14.3
10" Steel Pipe Pile Filled	4.6
12" Steel Pipe Pile Filled	6.0
18" Steel Pipe Pile Filled	11.3
24" Steel Pipe Pile Filled	19.3
30" Steel Pipe Pile Filled	30.2
14x73 Steel H Pile	4.5

Table 5
Recovery Solutions
Arecibo, Puerto Rico
Allowable lateral load (1/2" deflection)

Pile Type	*Allowable Lateral Load tons*
10" Circular Concrete Pile (Fuentes)	3.0
12" Circular Concrete Pile (Fuentes)	3.9
10" Steel Pipe Pile Unfilled	3.2
12" Steel Pipe Pile Unfilled	4.3
18" Steel Pipe Pile Unfilled	7.3
24" Steel Pipe Pile Unfilled	11.2
30" Steel Pipe Pile Unfilled	16.3
10" Steel Pipe Pile Filled	5.2
12" Steel Pipe Pile Filled	6.7
18" Steel Pipe Pile Filled	13.1
24" Steel Pipe Pile Filled	22.9
30" Steel Pipe Pile Filled	36.5
14x73 Steel H Pile	5.0

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Table 6
Recovery Solutions
Arecibo, Puerto Rico
Allowable lateral load (3/4" deflection)

Pile Type	*Allowable Lateral Load tons*
10" Circular Concrete Pile (Fuentes)	3.5
12" Circular Concrete Pile (Fuentes)	4.6
10" Steel Pipe Pile Unfilled	3.7
12" Steel Pipe Pile Unfilled	5.0
18" Steel Pipe Pile Unfilled	8.7
24" Steel Pipe Pile Unfilled	13.4
30" Steel Pipe Pile Unfilled	19.5
10" Steel Pipe Pile Filled	6.1
12" Steel Pipe Pile Filled	7.9
18" Steel Pipe Pile Filled	16.3
24" Steel Pipe Pile Filled	29.8
30" Steel Pipe Pile Filled	48.5
14x73 Steel H Pile	5.9

arrangements in the case that the final grade elevation is taken to 12 feet above mean sea level by means of a compacted fill. This was done considering a fill with a wedge-shaped cross section due to the sloping ground on which it would be placed. Results indicate that cross sections with long wedges (about 1,000 feet) would induce a settlement of approximately 3 inches at its highest station, which decreases to zero towards the ends. Shorter wedges (20 feet) induce 1.2 inches of settlement at their highest section, also decreasing to zero towards the ends. If a dike is used to avoid filling the entire site, considering a cross section using two on one slopes, a crown length of 10 feet, and a height of 6 feet, the settlements induced on the ground would be about 2 inches at the center of the crown, decreasing to 1.8 inches towards the corners of the cross section, and finally diminishing to zero at the toes. Consideration of the type of alternative to use for the flooding protection alternative should be considered from the point of view of the settlements induced by the necessary structures, and also by the effect that they can have on the length of the piles.

3. Recommendations

- The proposed structures should be founded on piles designed using the allowable compressive load values previously stated. The length of these piles is estimated to vary, depending of the type of pile and its location within the lot. **Table 2** summarizes the estimated lengths needed to

achieve compressive resistances at different locations for different types of pile. These lengths will vary, depending on variations in the subsoil profile.

- Allowable lateral loads also change depending on the criteria used for the maximum allowable lateral deflection and pile type. **Tables 3 through 6** give the maximum allowable lateral loads for different combinations of pile type and deflection values. Assuming that one-half inch of deflection is permissible, the allowable lateral loads are:

Table 7. Allowable Lateral Load (½" deflection)

Pile Type	Lateral Load (tons)
10" Fuentes precast concrete circular pile	3.0
12" Fuentes precast concrete circular pile	3.9
10" Unfilled steel pipe pile (0.188" wall)	3.1
12" Unfilled steel pipe pile (0.250" wall)	4.2
18" Unfilled steel pipe pile (0.312" wall)	7.3
24" Unfilled steel pipe pile (0.375" wall)	11.2
30" Unfilled steel pipe pile (0.500" wall)	16.2
10" Filled steel pipe pile (0.188" wall)	5.1
12" Filled steel pipe pile (0.250" wall)	6.7
18" Filled steel pipe pile (0.312" wall)	13.0
24" Filled steel pipe pile (0.375" wall)	22.9

30" Filled steel pipe pile (0.500" wall)	36.5
14x73 Steel H pile	5.0

These loads should be reduced to take account for the effects of piles installed in groups. The reduction factors depend on the spacing between piles in the direction of the application of the load. Their values are expressed in terms of the diameter or side length of the pile (b) as indicated in **Table 8**.

Table 8. Reduction factors for allowable lateral load

Pile spacing	Reduction Factor
8b	1.0
6b	0.8
4b	0.5
3b	0.4

- Allowable tension loads per pile are one-third of the mobilized skin friction, depending on the reinforcement and splicing. Any splices must be designed to transmit necessary tension loads and lateral stresses.

- For seismic loads, the allowable compressive load may be increased by 30%; for wind loads, the allowable compressive load may be increased by 20%.

- The number of static and dynamic load tests to be performed depends on the type of pile chosen for the project. This will be addressed in the final report for this project. The geotechnical engineer should prepare a test program including test penetration piles for revision of the driving criteria. Once the structural design is finished, and the number of piles is known, a special revision can be prepared stating a work plan for this purpose.

- We recommend that dynamic tests consist of initial driving, restrike in one hour, and restrike at 24 hours. The dynamic test should also include a CAPWAP analysis. For static load tests, the quick load test is recommended. All tests must comply with applicable ASTM specifications.
- A geotechnical engineer should prepare the pile driving criteria and should review all pile driving activities.

- These recommendations should be revised depending on the decision made regarding the flood protection works. If additional fill is to be placed, negative skin friction should be considered and therefore, the pile lengths indicated in this report will most probably increase.

- Due to the expected lengths, splices will be required. The geotechnical and structural engineers must previously approve splices. We will not approve splices that do not include mechanical connections, and we will not approve splices that solely consist of steel plates welded together.

- Before driving any piles, the piling contractor should submit wave equation analyses to confirm that the pile and hammer are properly matched for the required length and loads.

- All precast piles must be tested after installation using the Pile Driver Analyzer (PDA by Pile Dynamics, Inc.) or similar equipment. The geotechnical engineer shall perform all testing.

4. Limitations of this Report

This preliminary report is based on all design concepts, parameters and constraints that have been made known to us. Any subsequent design changes will require revision of these recommendations in order to confirm their applicability to the new design.

In order to confirm that these conclusions and recommendations apply, it is recommended that we be allowed to review the plans as they are developed.

The reader is referred to **Appendix E** for additional information regarding this report.

This document has been prepared specifically for the client and the project addressed herein. Therefore, it should not be used for a different project at this site without the written approval of GeoConsult.

C.A. Regalado

Carlos A. Regalado
Geotechnical Engineer

August 27, 1999
San Juan, P.R.
File No. 2182-99

for/ C.A. Regalado

Alan R. Crumley
Geotechnical Engineer
License No. 5828

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FIGURES

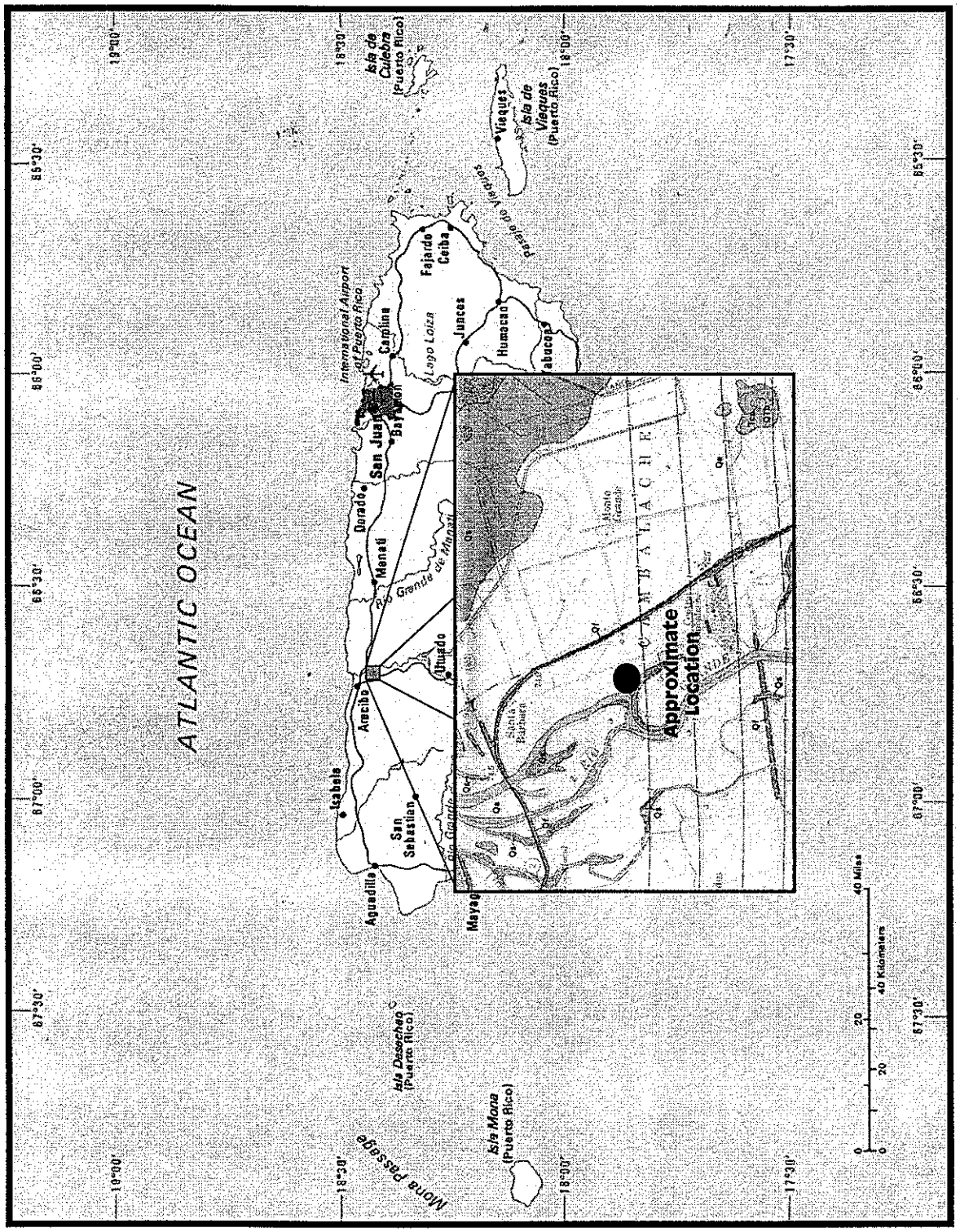
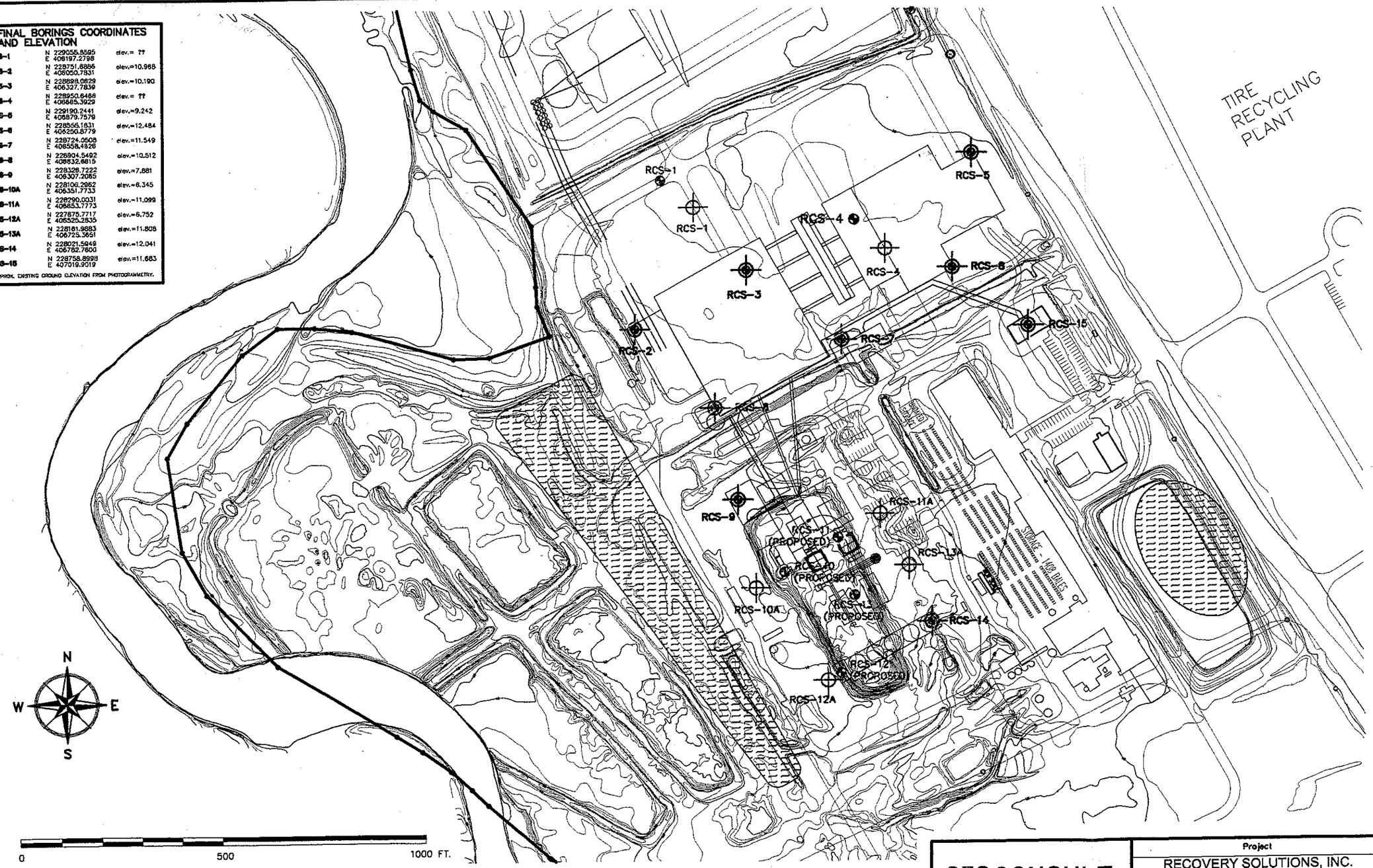


Figure 1. Location and generalized geology of the area.

FINAL BORINGS COORDINATES AND ELEVATION

RCS-1	N 229055.8595 E 406197.2798	elev.= ??
RCS-2	N 228751.6886 E 406050.7831	elev.=10.988
RCS-3	N 228899.0829 E 406327.7839	elev.=10.190
RCS-4	N 228950.6486 E 406665.3929	elev.= ??
RCS-5	N 229190.2441 E 406879.7579	elev.=9.242
RCS-6	N 228555.1831 E 406250.8779	elev.=12.484
RCS-7	N 228724.0508 E 406558.4826	elev.=11.549
RCS-8	N 226904.5492 E 406832.6815	elev.=10.512
RCS-9	N 228328.7222 E 406307.2085	elev.=7.881
RCS-10A	N 228106.2962 E 406351.7733	elev.=6.345
RCS-11A	N 228290.0031 E 406653.7773	elev.=11.099
RCS-12A	N 227875.7717 E 406525.2835	elev.=8.752
RCS-13A	N 228161.9883 E 406725.3651	elev.=11.808
RCS-14	N 228021.5948 E 406782.7600	elev.=12.041
RCS-15	N 228758.8998 E 407019.9019	elev.=11.683

APPROX. EXISTING GROUND ELEVATION FROM PHOTOGRAMMETRY.



LEYEND:

PROPOSED BORING LOCATION

ACTUAL DRILLING LOCATION

PROPOSED AND ACTUAL BORING LOCATION

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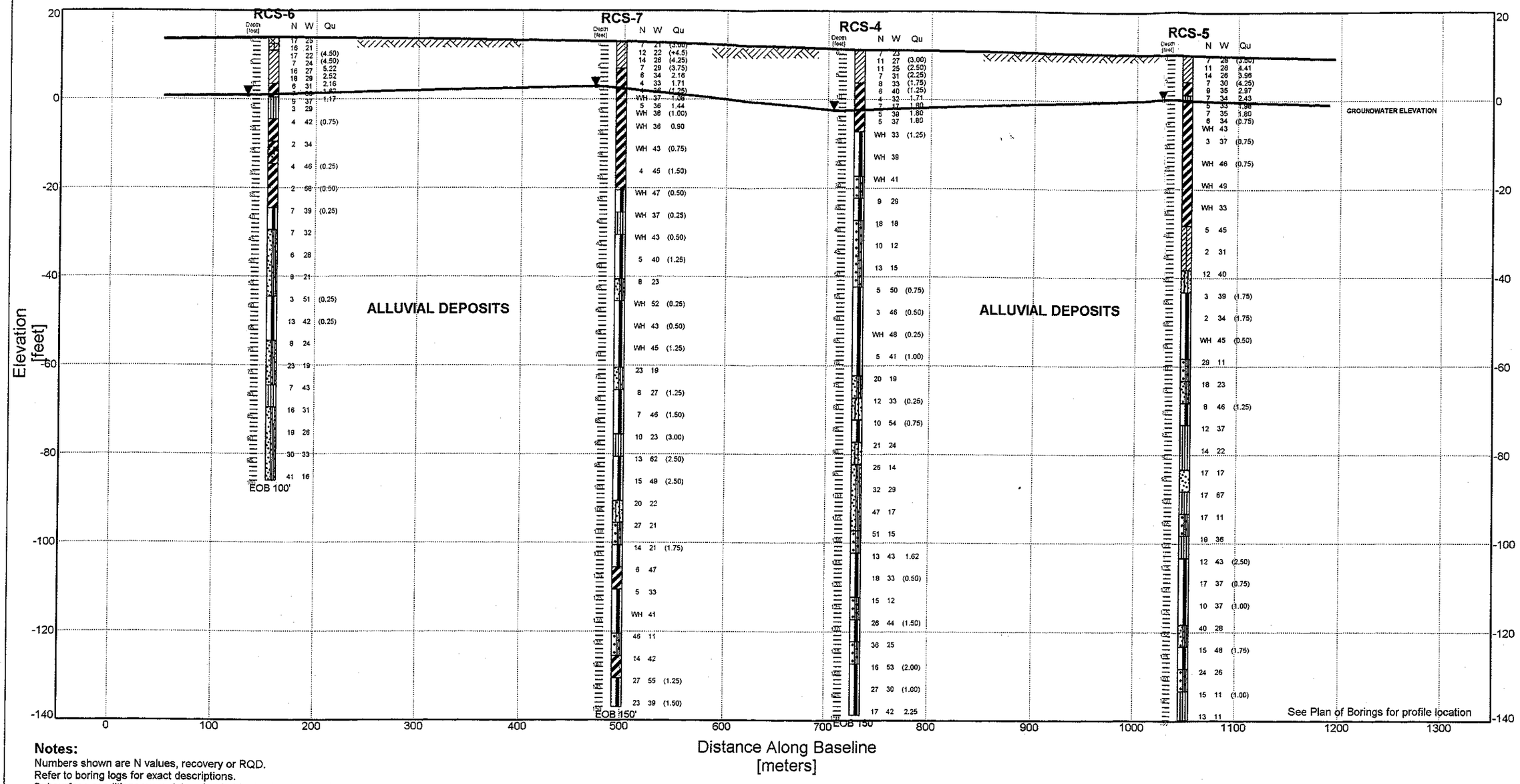
Project		Sheet No.
RECOVERY SOLUTIONS, INC. ARECIBO, PUERTO RICO		FIGURE 2
Reference	Description	Code No.
Scale : 1" = 250' Date : 07/14/99 By : E.J.A.H. Revised :	BORING LOCATION PLAN	. Project No. 2182-99



Notes:
Numbers shown are N values, recovery or RQD.
Refer to boring logs for exact descriptions.
Subsurface conditions were determined at boring locations only.
Subsurface conditions may vary from the generalized subsurface profile shown here.

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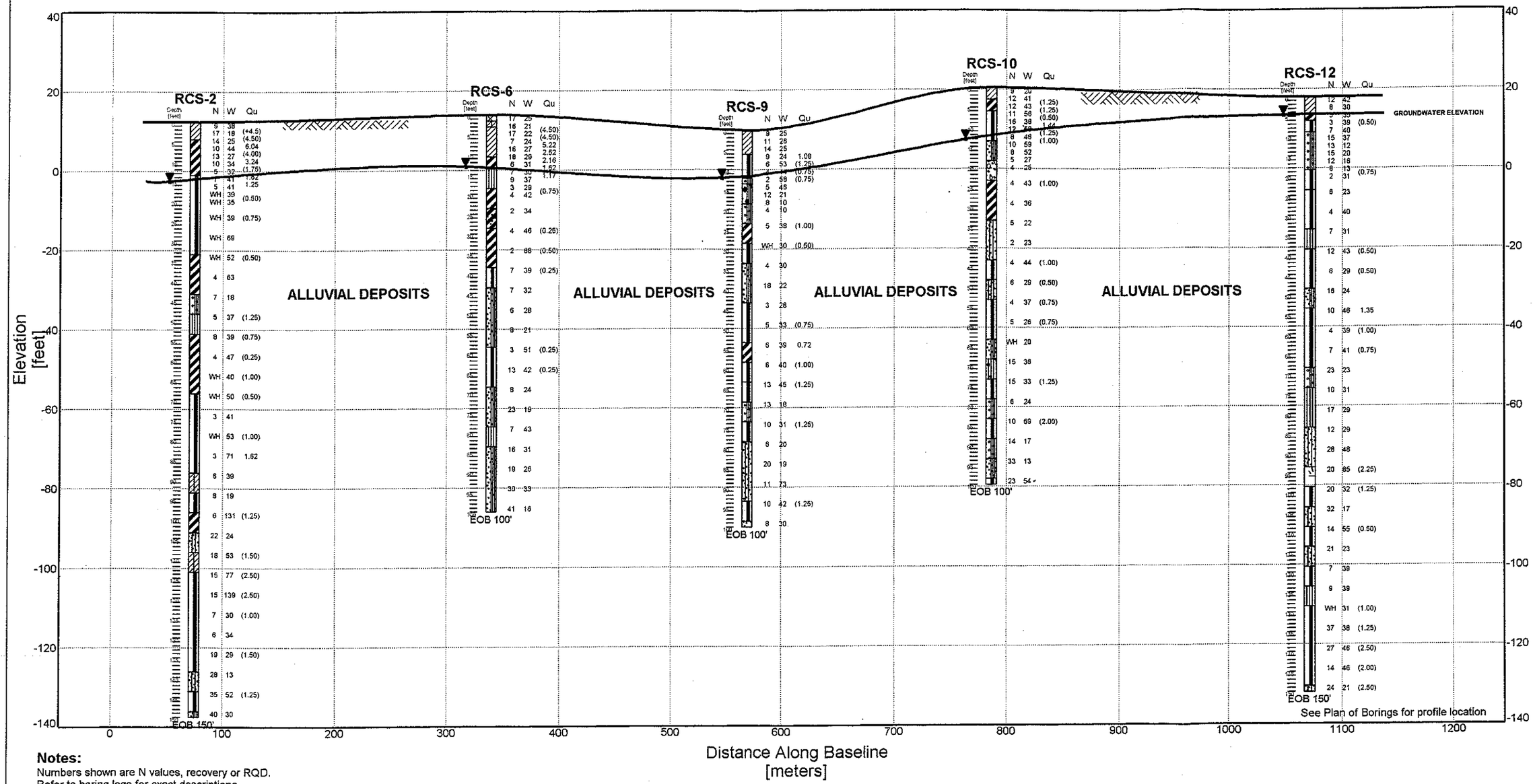
GENERALIZED SUBSURFACE PROFILE

Project: RECOVERY SOLUTIONS, INC.
Location: Arecibo, P.R.
Project No: 2182-99

FIGURE 3



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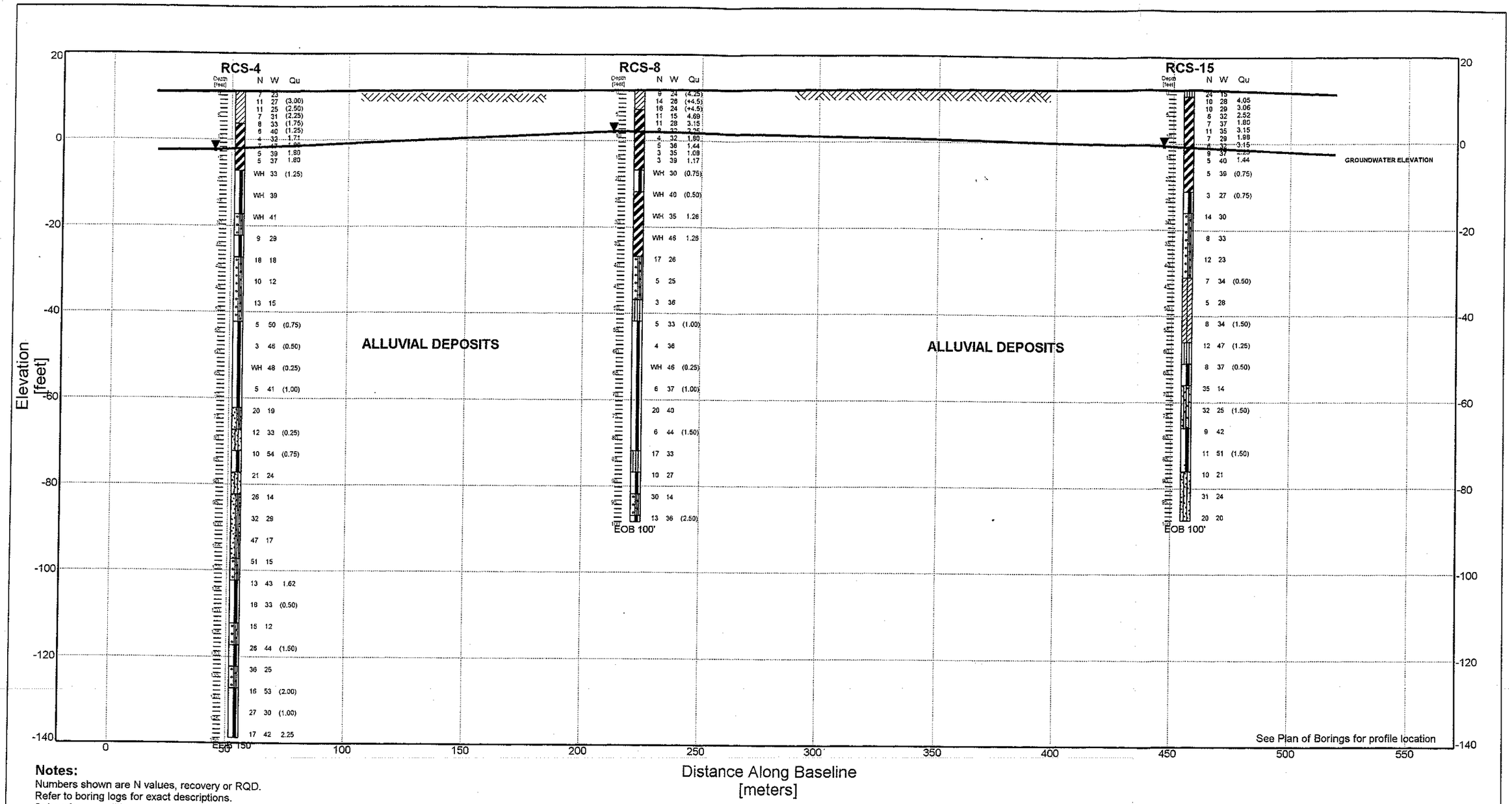
GENERALIZED SUBSURFACE PROFILE

Project: RECOVERY SOLUTIONS, INC.
Location: Arecibo, P.R.
Project No: 2182-99

FIGURE 4



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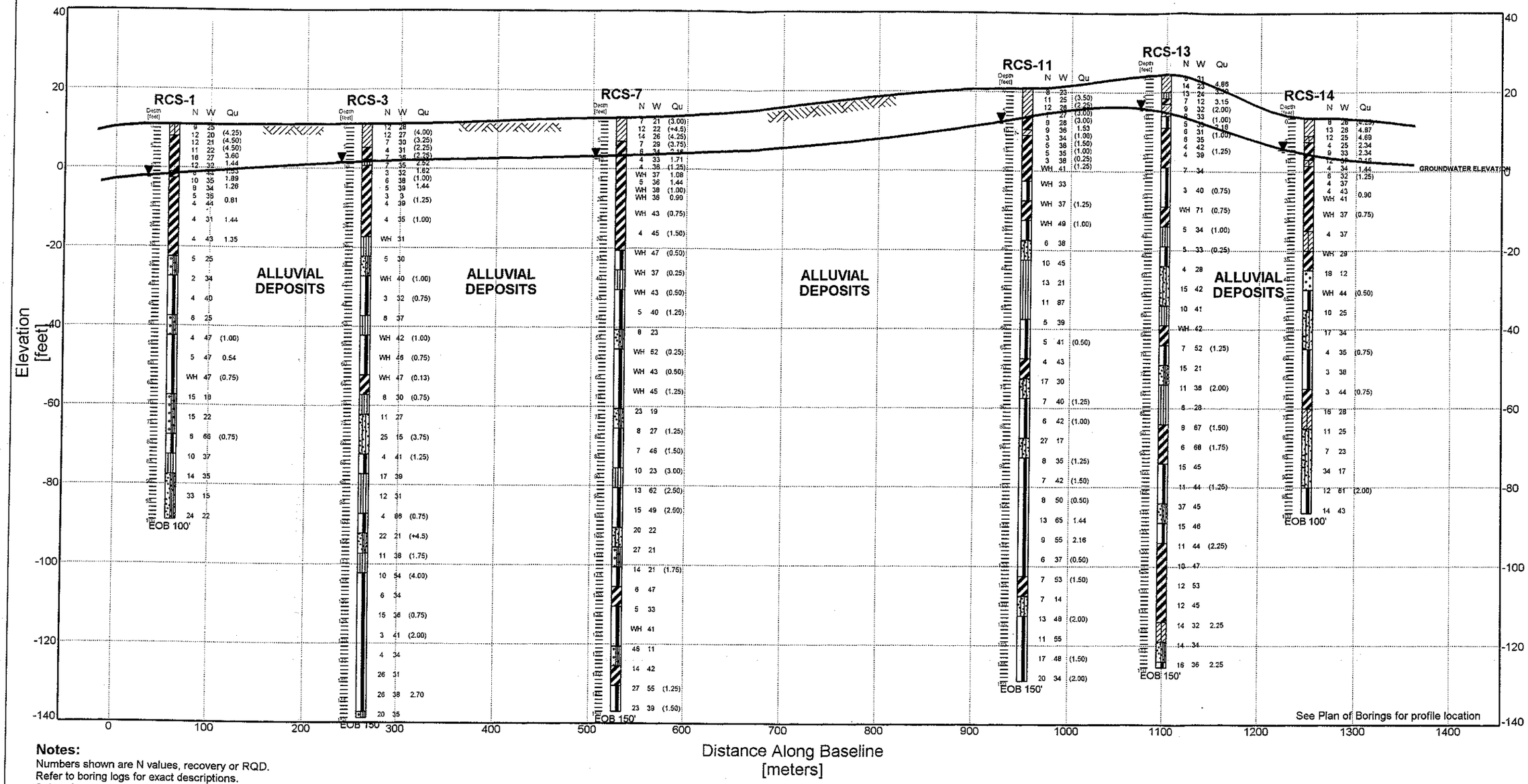
GENERALIZED SUBSURFACE PROFILE

Project: RECOVERY SOLUTIONS, INC.
Location: Arecibo, P.R.
Project No: 2182-99

FIGURE 5



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GENERALIZED SUBSURFACE PROFILE

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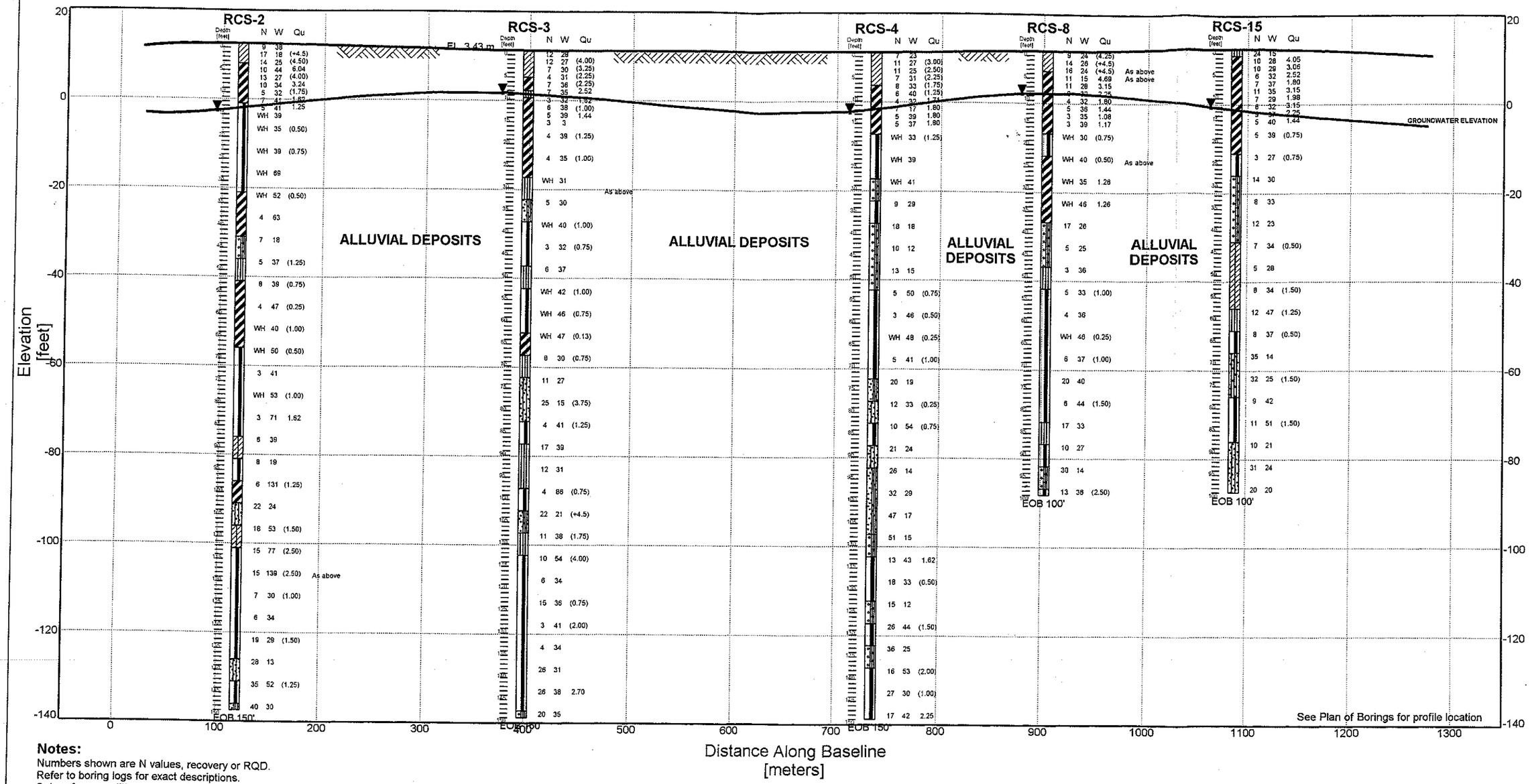
Project No: 2182-99

FIGURE 6



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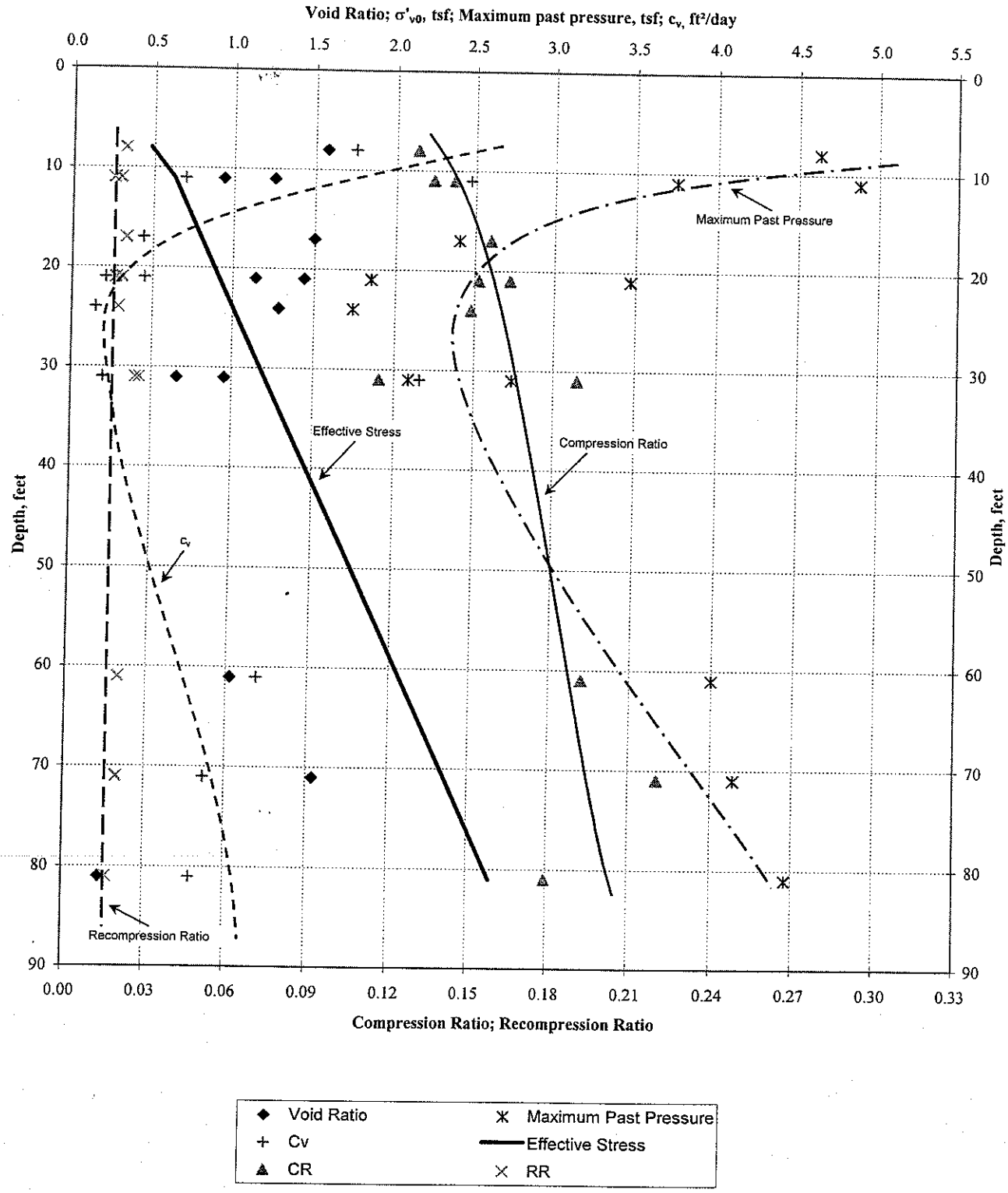
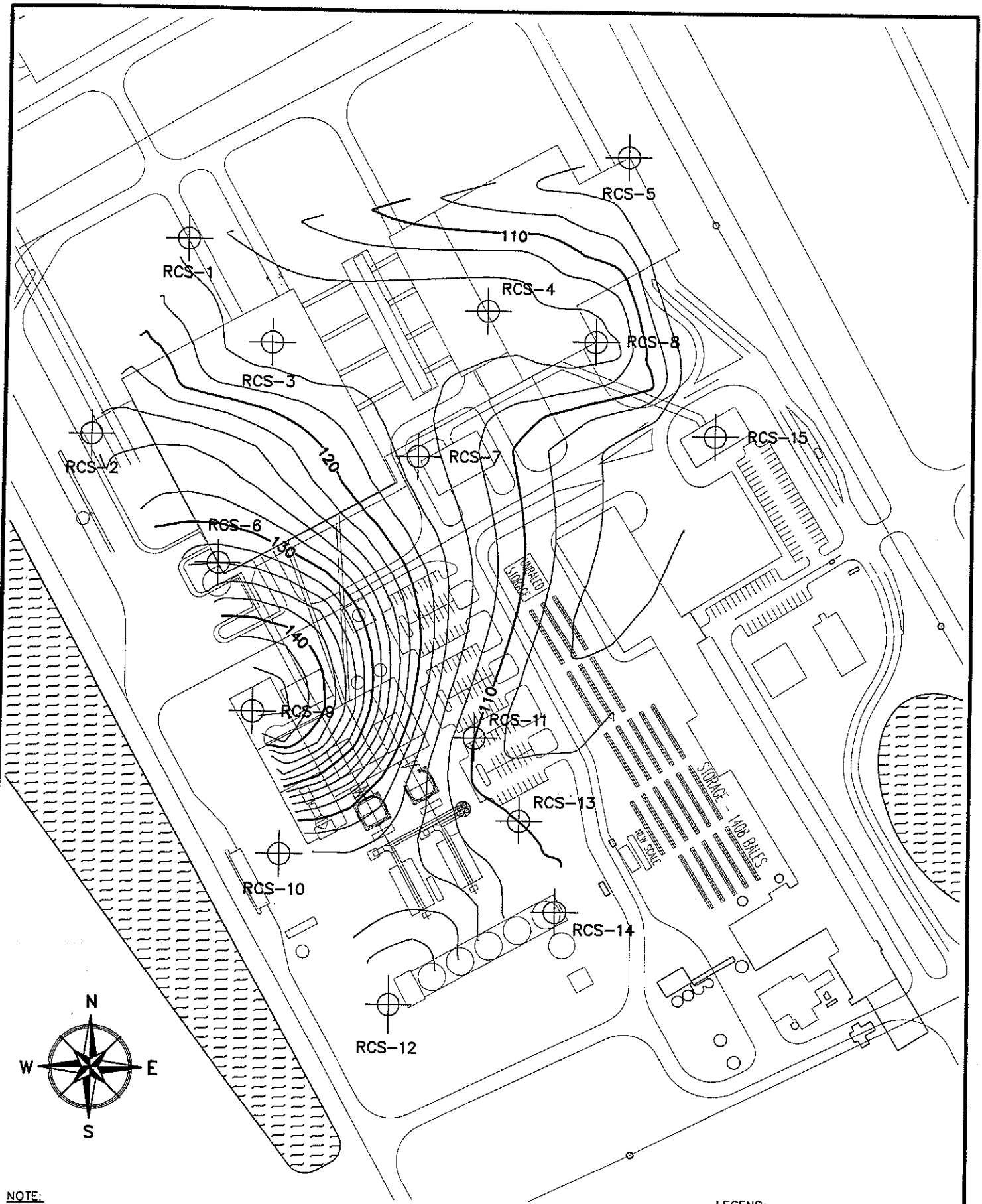
GENERALIZED SUBSURFACE PROFILE

Project: RECOVERY SOLUTIONS, INC.
Location: Arecibo, P.R.
Project No: 2182-99

FIGURE 7

Figure 8
Recovery Solutions
Consolidation Test Resutls

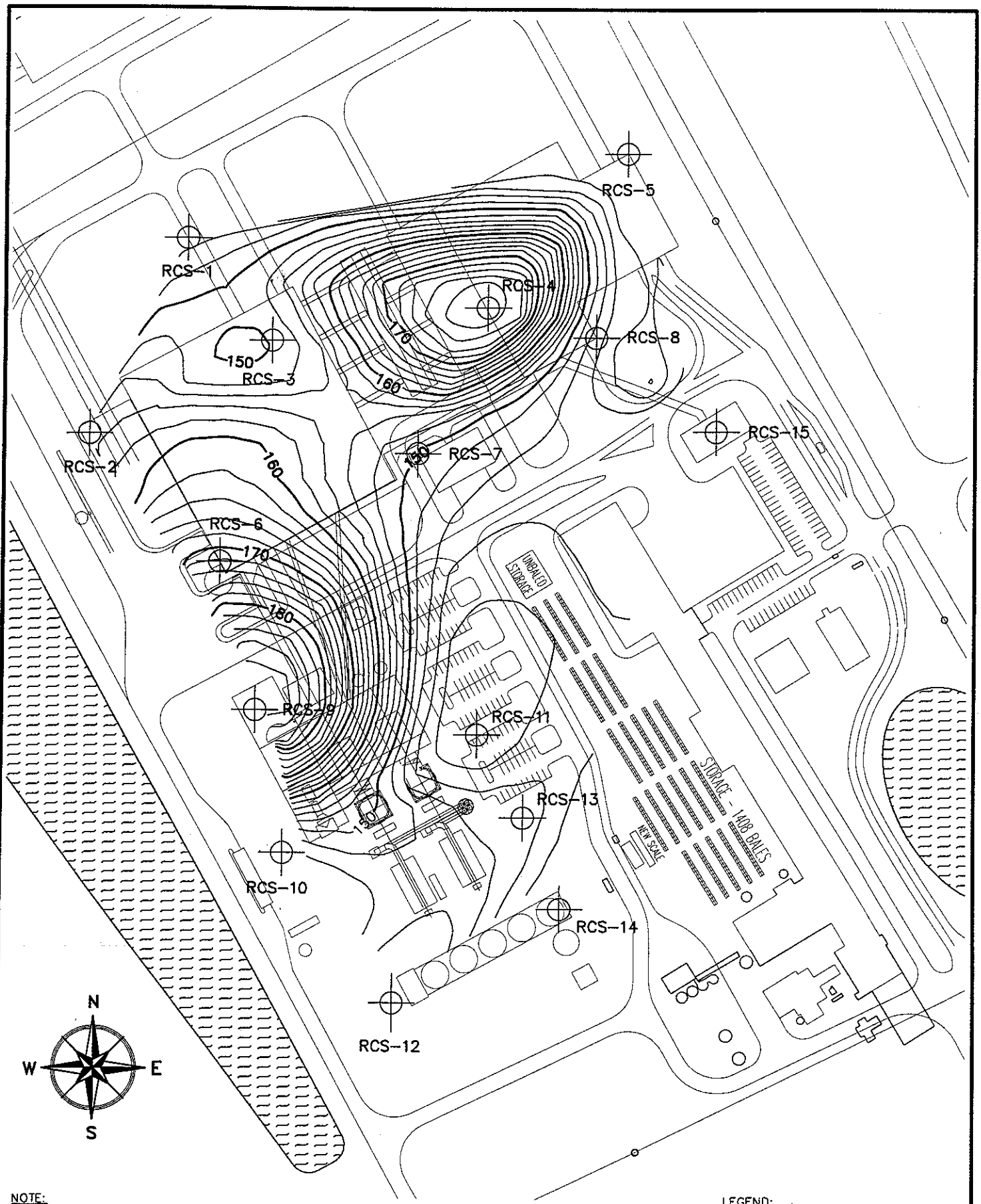




NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

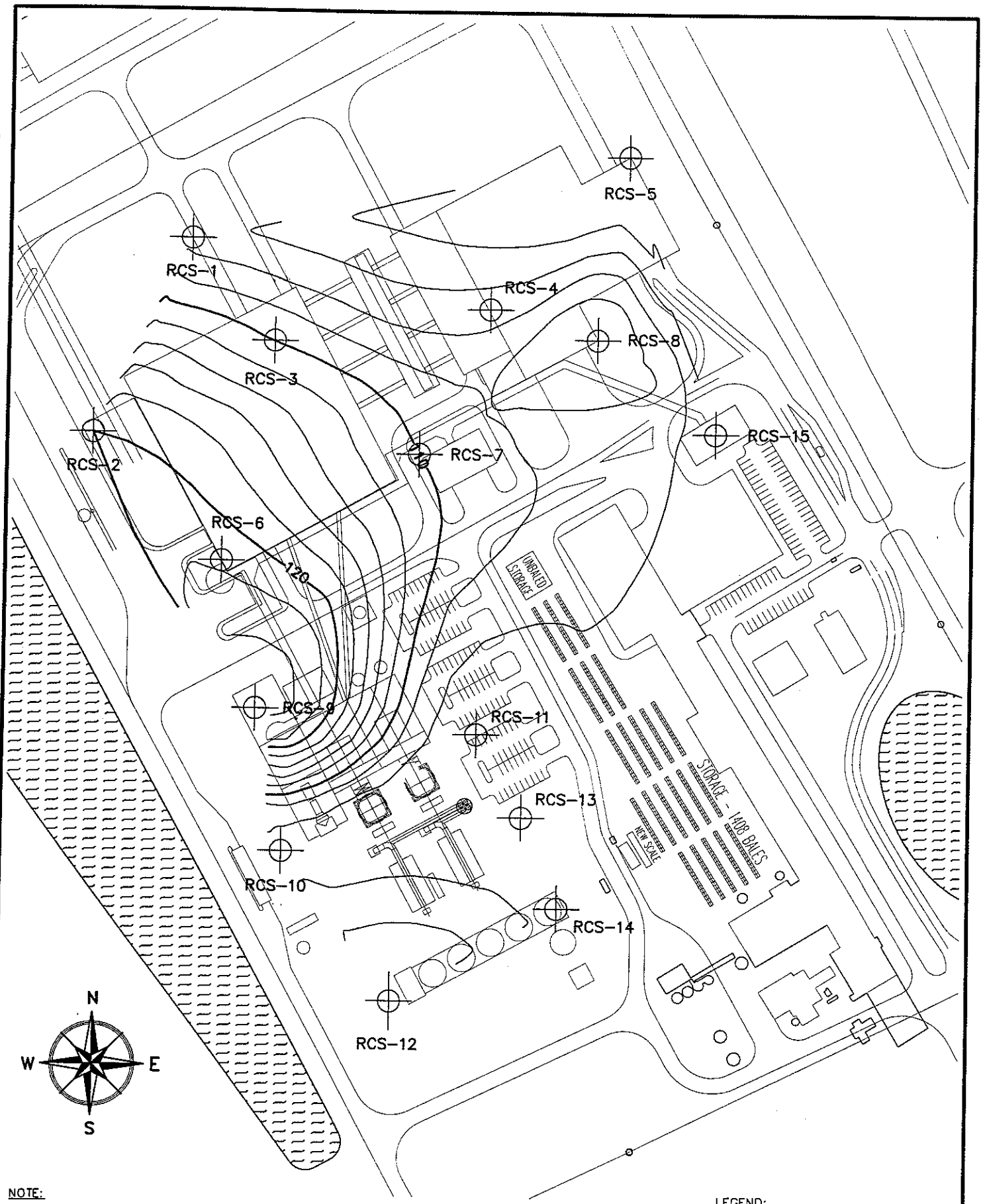
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Circular reinforced concrete fuentes pile. Diameter: 10"	- Project No. 2182-99	FIGURE 9



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

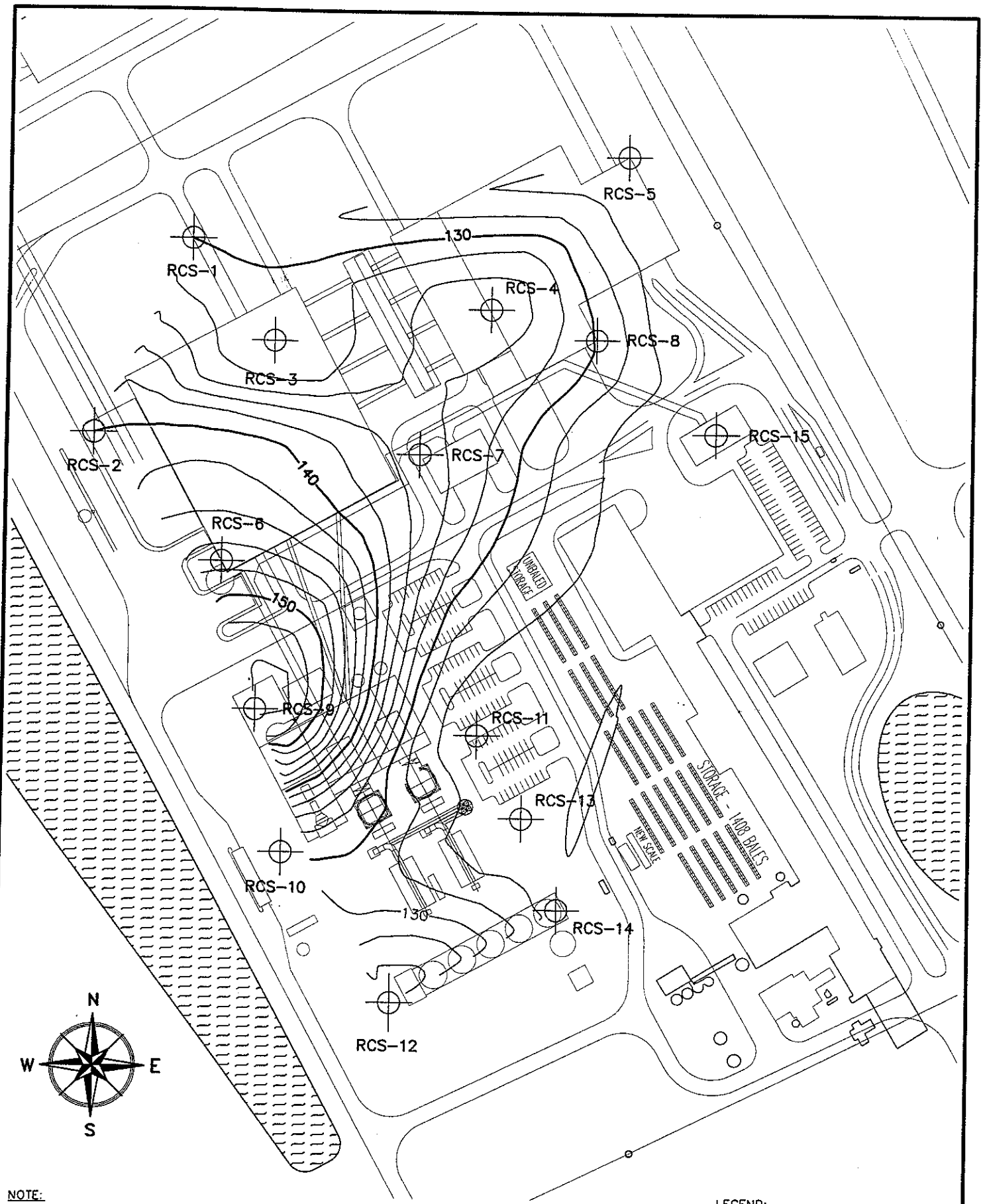
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Circular reinforced concrete fuentes pile. Diameter: 12"	Project No. 2182-99	FIGURE 10



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

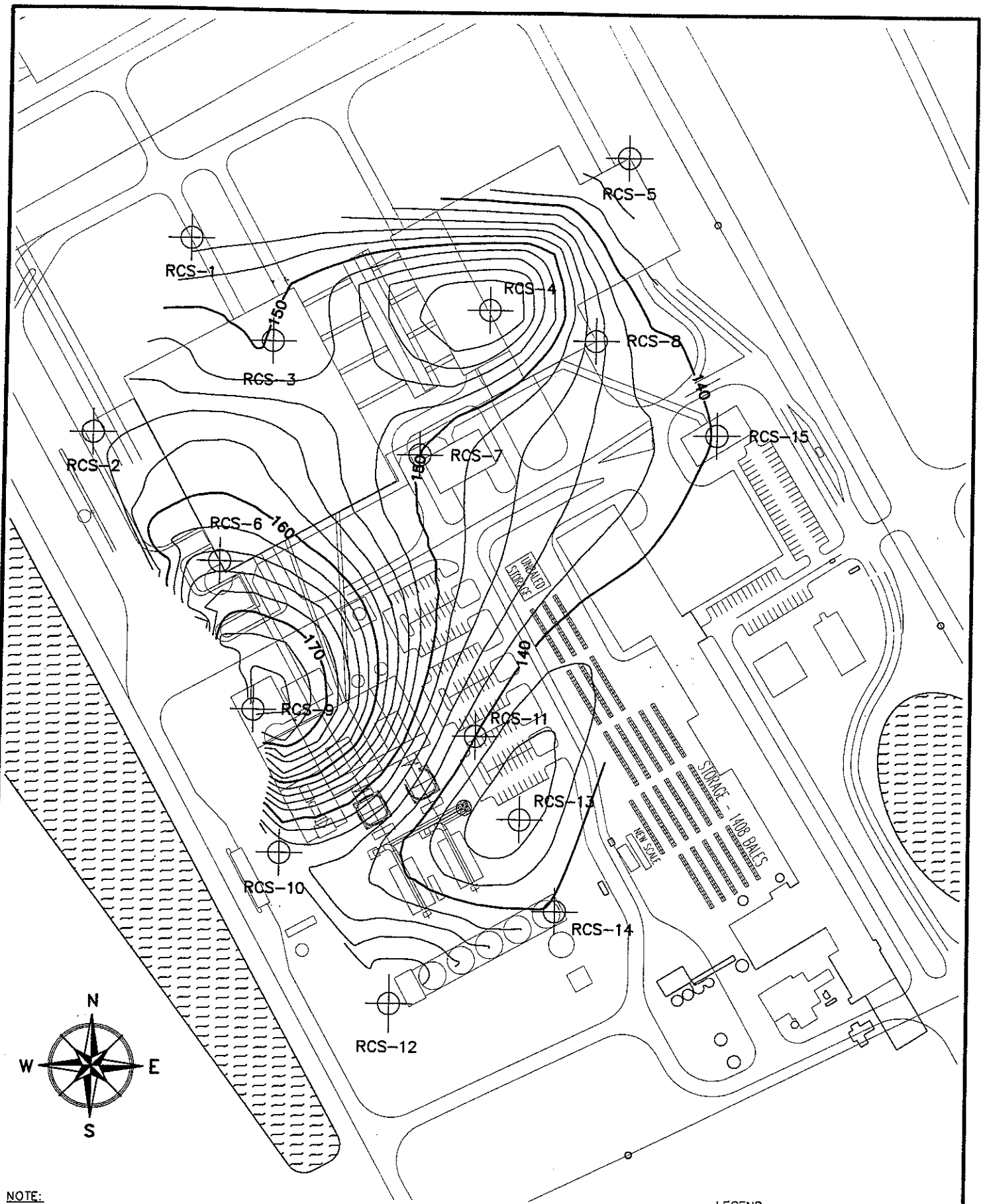
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Unfilled steel pipe pile. Diameter: 10"	- Project No. 2182-99	FIGURE 11



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

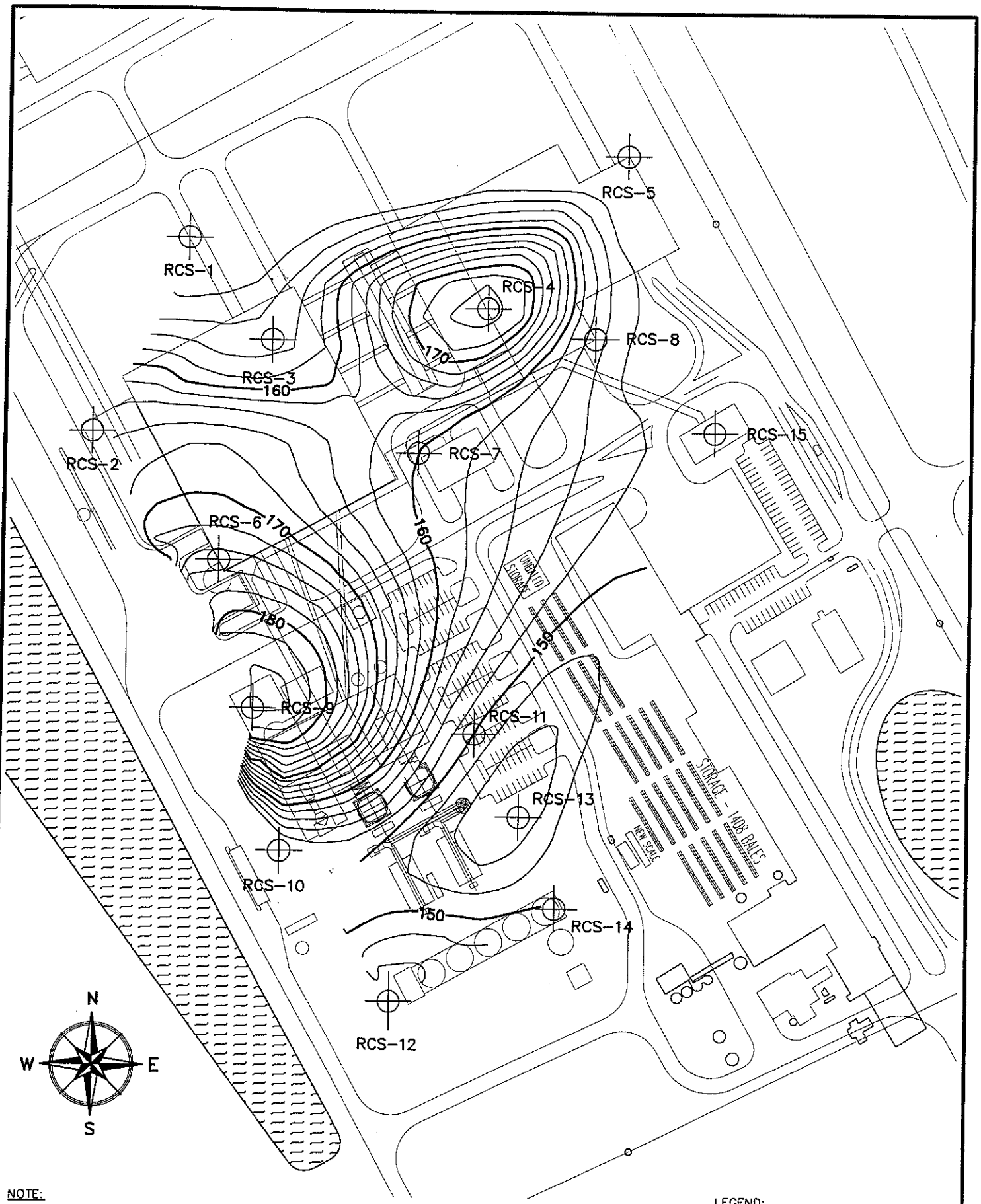
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Unfilled steel pipe pile. Diameter: 12"	- Project No. 2182-99	FIGURE 12



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Unfilled steel pipe pile. Diameter: 18"	. Project No. 2182-99	FIGURE 13

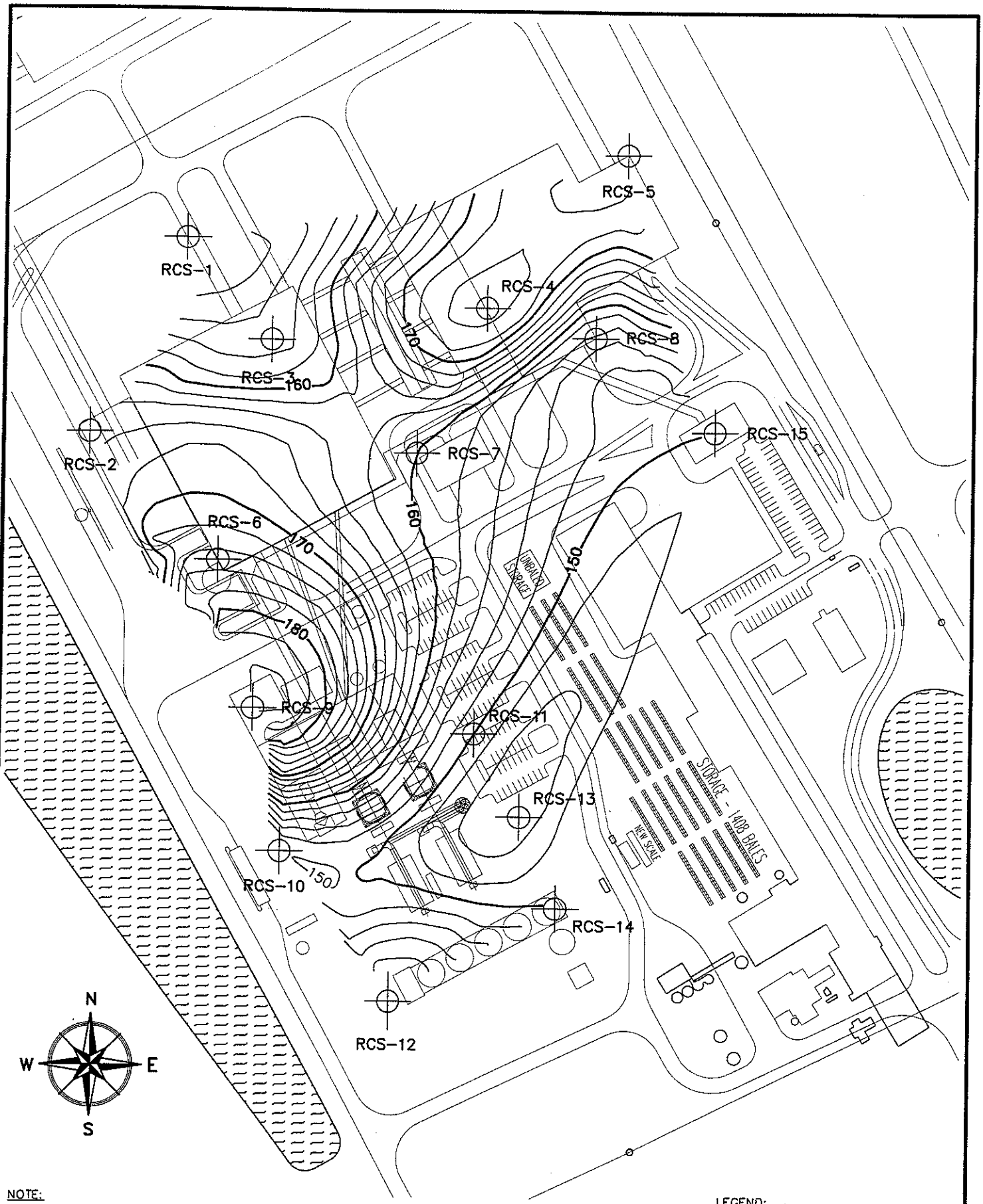


NOTE:

CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND: DRILLING LOCATION

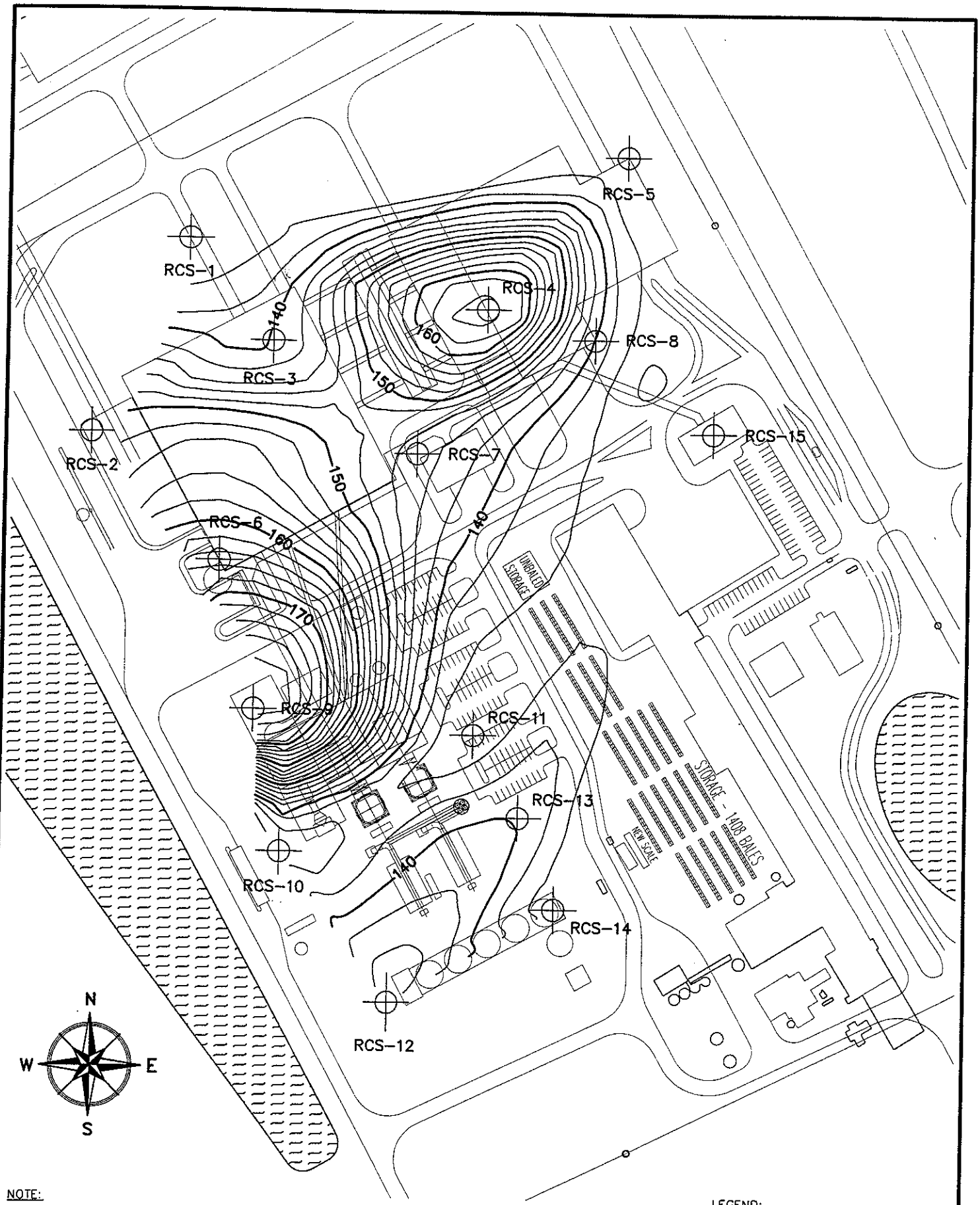
GEOCONSULT	Project	Reference	Description	Code No.	Sheet No.
Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Unfilled steel pipe pile. Diameter: 24"	. Project No. 2182-99	FIGURE 14



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

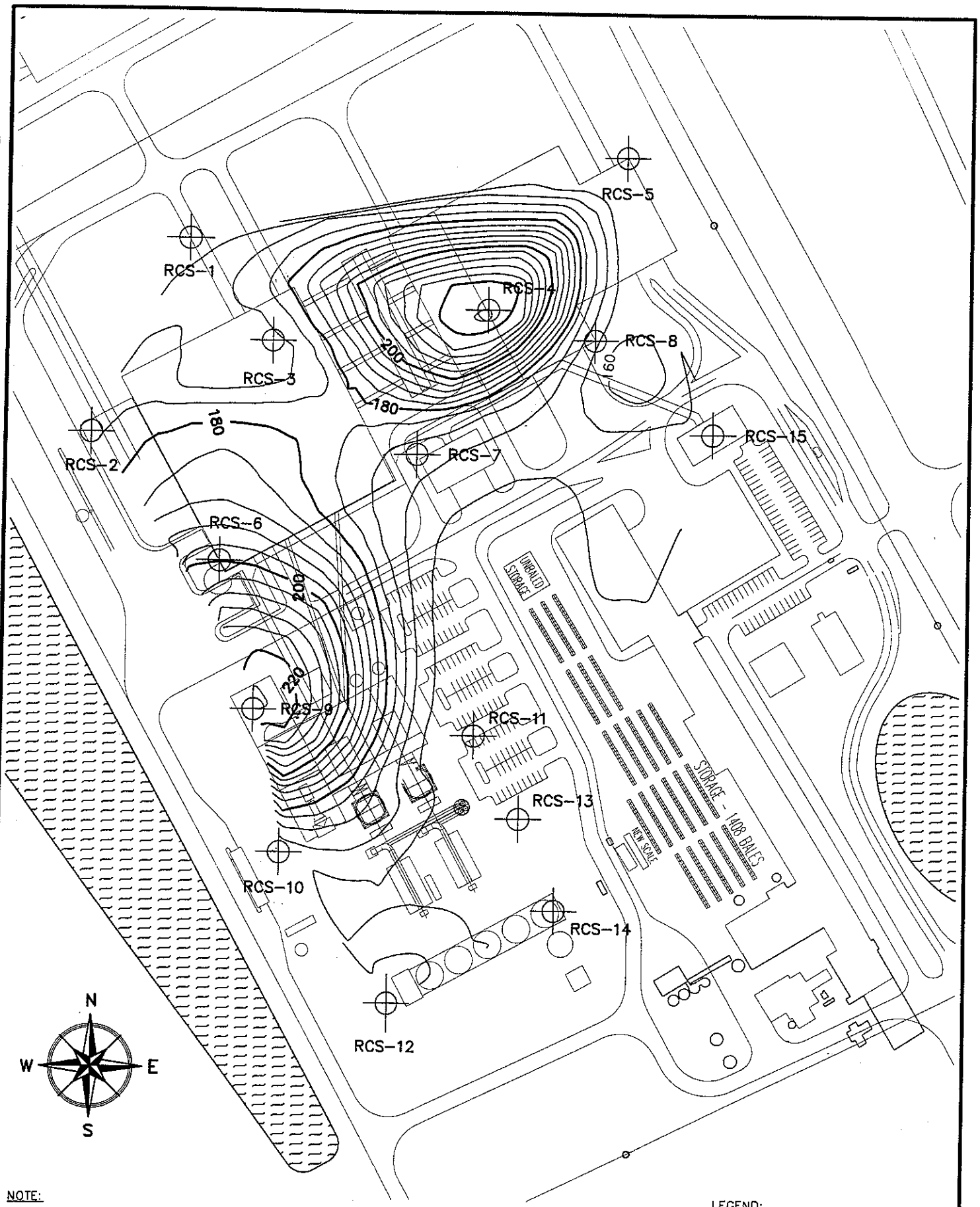
GEOCONSULT Geotechnical Engineers	Project	Reference	Description	Code No.	Sheet No.
P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Unfilled steel pipe pile. Diameter: 30"	Project No. 2182-99	FIGURE 15



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

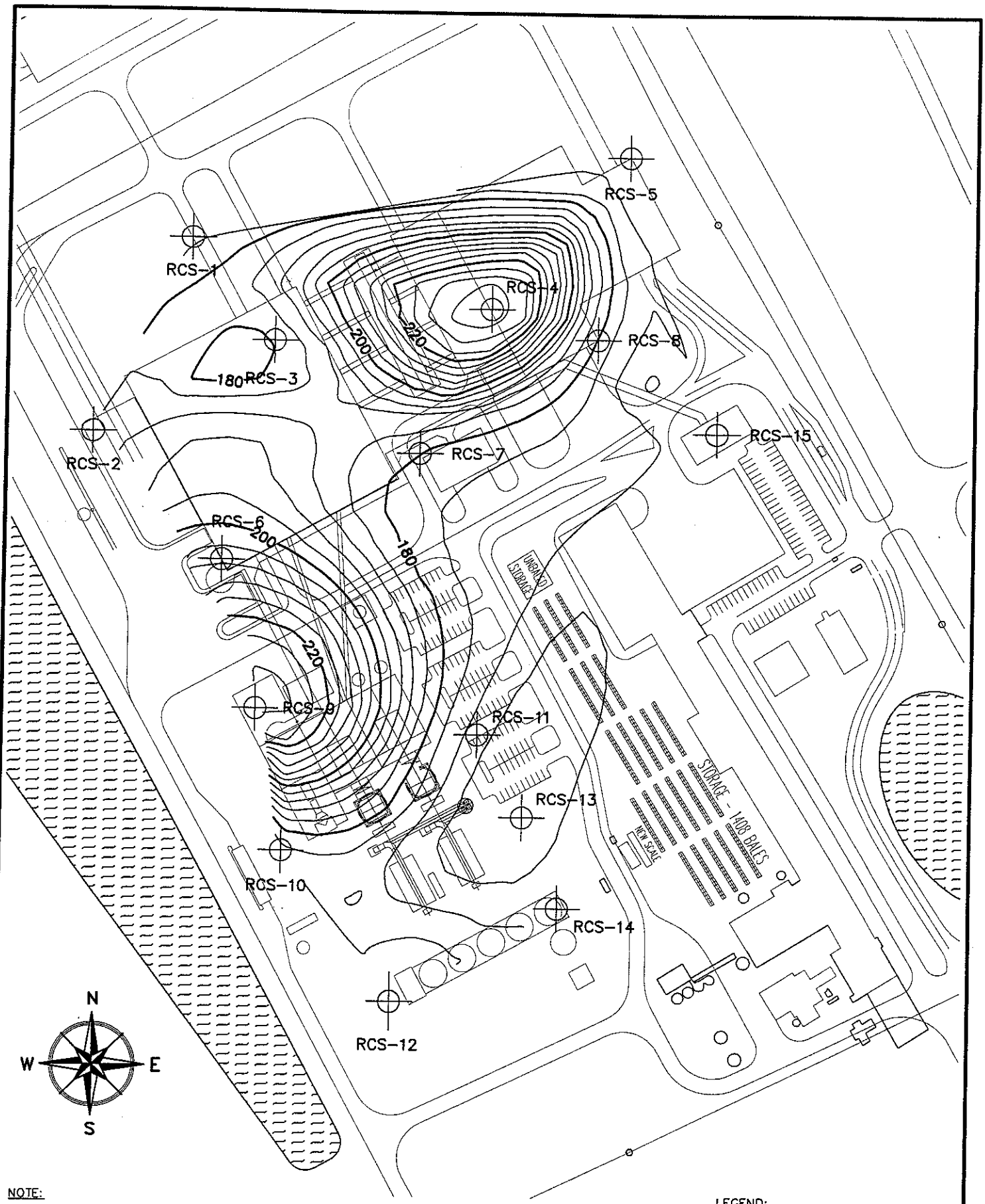
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Concrete filled steel pipe pile. Diameter: 10"	- Project No. 2182-99	FIGURE 16



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

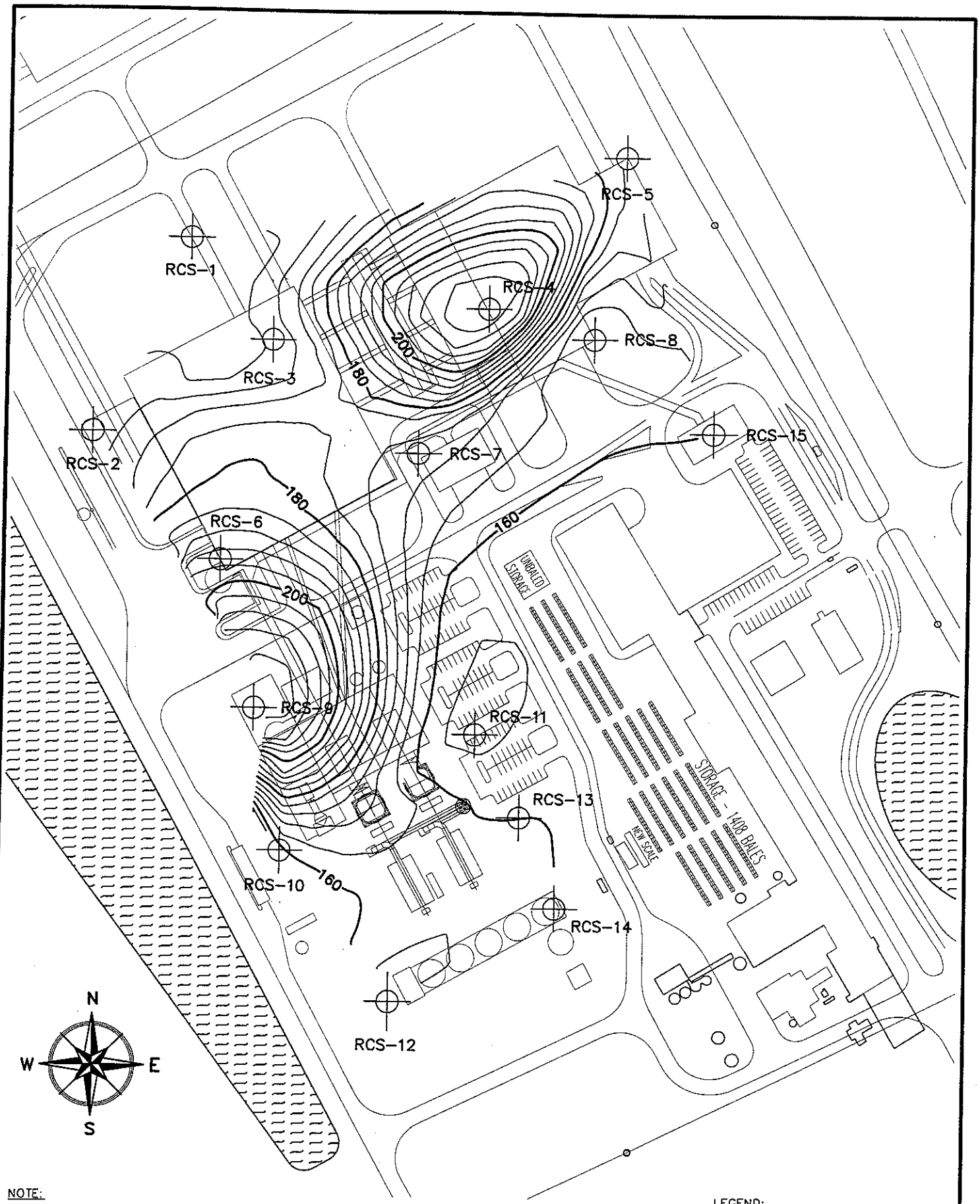
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Concrete filled steel pipe pile. Diameter: 12"	- Project No. 2182-99	FIGURE 17



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND: DRILLING LOCATION

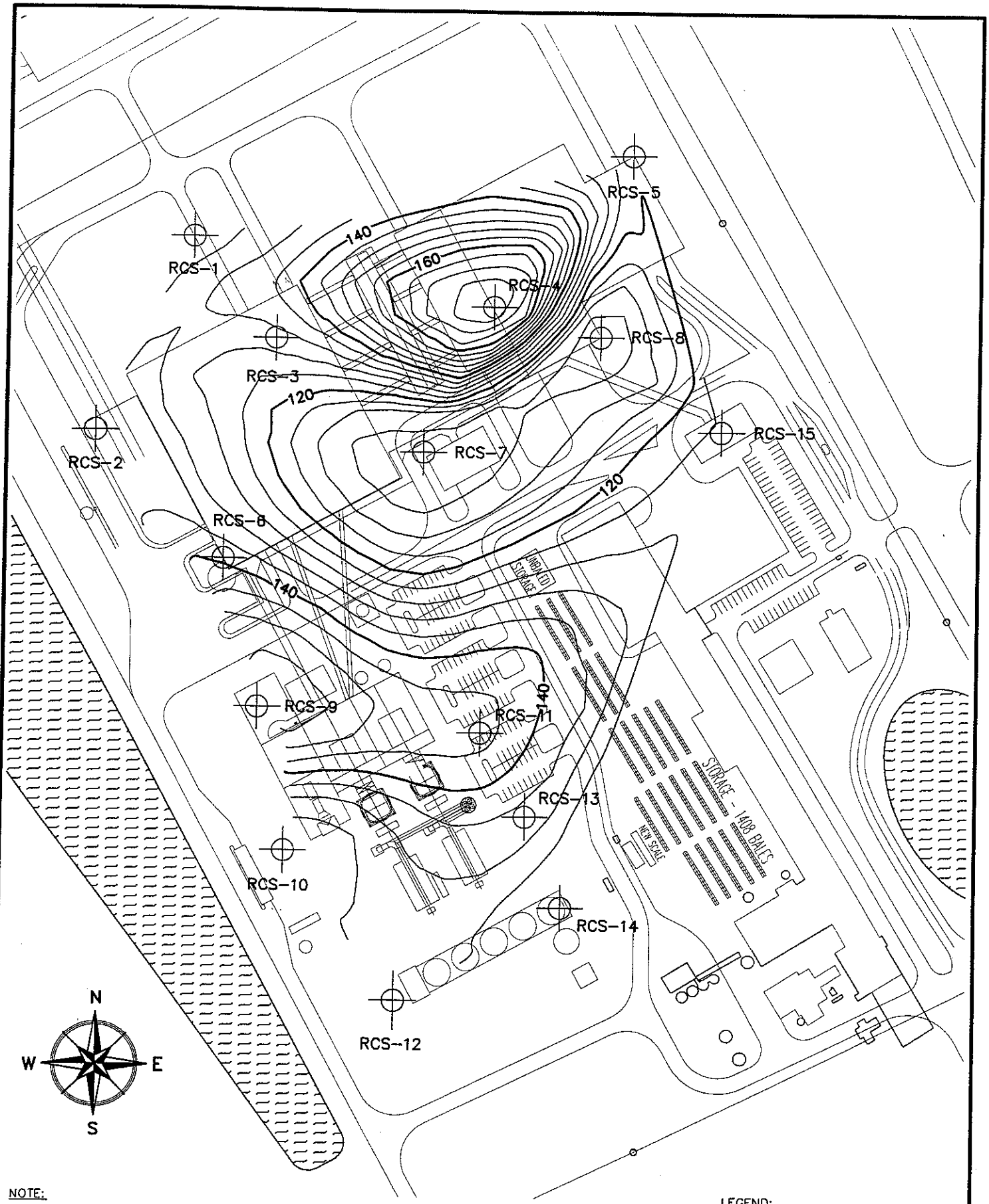
GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Concrete filled steel pipe pile. Diameter: 18"	. Project No. 2182-99	FIGURE 18



NOTE:
CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:
DRILLING LOCATION

GEOCONSULT Geotechnical Engineers	Project	Reference	Description	Code No.	Sheet No.
P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Concrete filled steel pipe pile. Diameter: 24"	· Project No. 2182-99	FIGURE 19



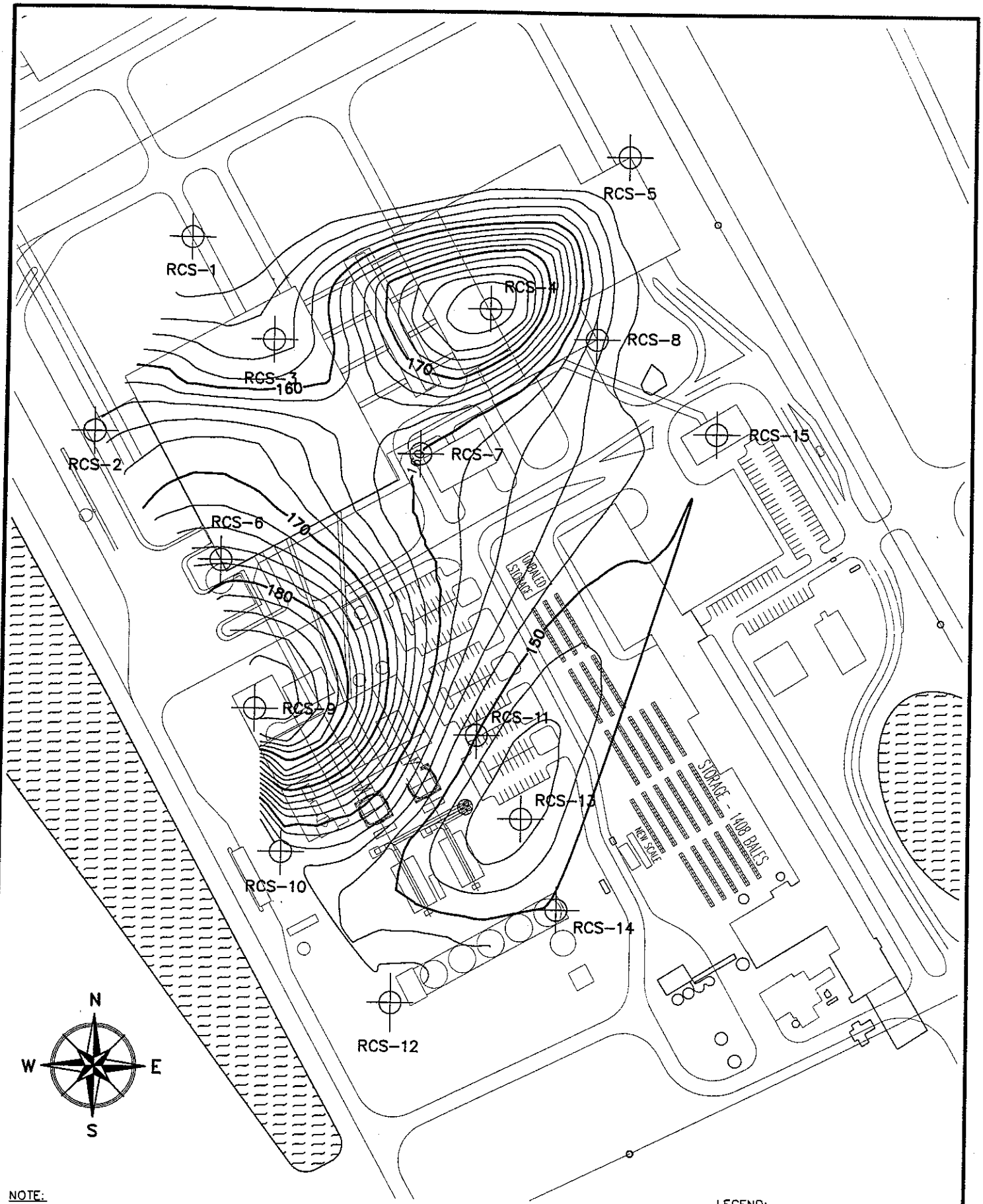
NOTE:

CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:

DRILLING LOCATION

GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Concrete filled steel pipe pile. Diameter: 30"	Project No. 2182-99	FIGURE 20



NOTE:

CONTOURS INDICATE PILE LENGTH IN FEET BASED ON A PRELIMINARY ANALYSIS USING F.O.S. OF 2.5

LEGEND:

DRILLING LOCATION

GEOCONSULT Geotechnical Engineers P.O. Box 362040, San Juan Puerto Rico 00936 Telephones (787) 782-3554 / 783-3585 Fax (787) 793-0410 / 783-6320	Project	Reference	Description	Code No.	Sheet No.
	RECOVERY SOLUTION, INC.	Scale : 1"=200' Date : 8/23/99 By : C.O. Revised :	ESTIMATED PILE LENGTH PILE TYPE: Steel pipe. HP 14 x 73	Project No. 2182-99	FIGURE 21

GEOCONSULT

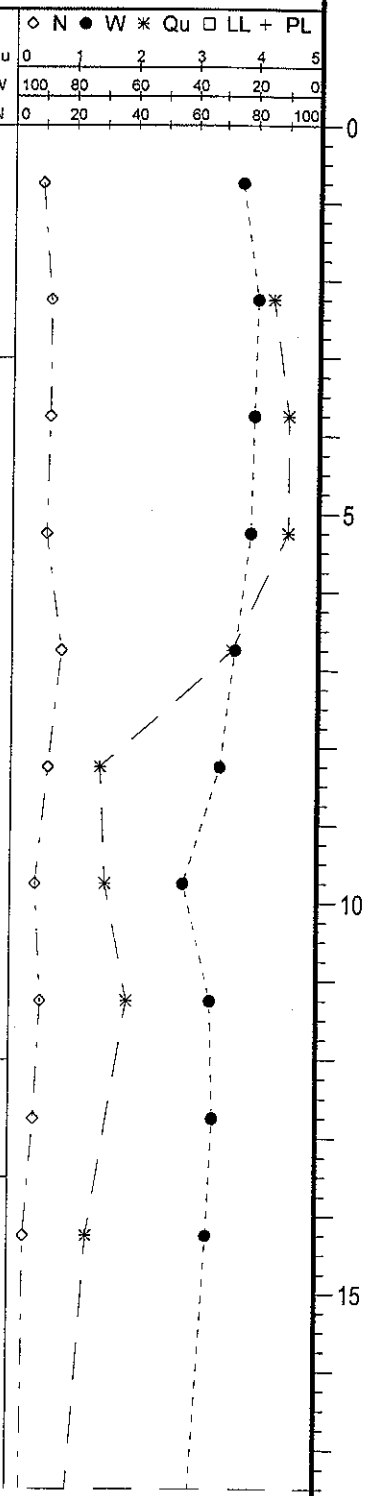
Appendix A
Boring Logs

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/02/1999 — COMPLETED: 06/08/1999
GROUNDWATER: 13 feet	ELEVATION TOP OF HOLE: 11.00 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
11.0	0.0			1	3 4 5	9	25		Silty CLAY, no reaction with HCL, dry, medium, low plasticity, dark brown
				2	5 6 6	12	20	(4.25)	As above, hard
10.1	3.0			3	6 6 6	12	21	(4.50)	Fat CLAY, no reaction with HCl, dry, hard, high plasticity, dark brown
				4	5 5 6	11	22	(4.50)	As above
				5	8 7 9	16	27	(3.25) 3.60	As above, moist, very stiff
				6	6 7 5	12	32	(1.50) 1.44	As above, moist, stiff, black mottled
				7	3 4 4	8	44	(1.50) 1.53	Fat CLAY, lensed with very dark grayish brown silty clay, no reaction with HCl, moist, stiff, high plasticity, dark brown
7.3	12.0			8	6 5 5	10	35	(1.75) 1.89	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, brownish yellow mottled, gray
6.9	▼ 13.5			9	5 4 4	8	34		Sandy fat CLAY, subangular fine sand, no reaction with HCl, moist, soft, high plasticity, brownish yellow
				10	2 3 2	5	36	(1.00) 1.26	Fat CLAY, no reaction with HCl, moist, medium, high plasticity, olive brown mottled, gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

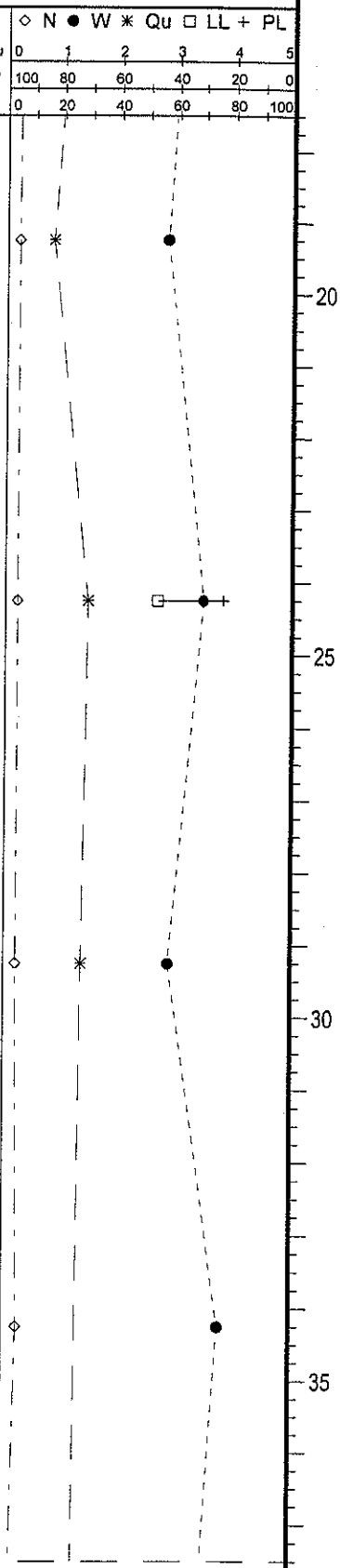
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
5.7	17.5								
				11	1 2 2	4	44	(0.75) 0.81	Fat CLAY, no reaction with HCl, moist, medium, high plasticity, dark gray
				12	WH 2 2	4	31	(1.25) 1.44	As above, gray LL=47, PL=24, PI=23
				13	1 2 2	4	43	(1.00) 1.35	As above
0.8	33.5								
				14	2 3 2	5	25		Well graded SAND with silt, loose, subangular lithic sand, weak reaction with HCl, wet, weak cementation, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

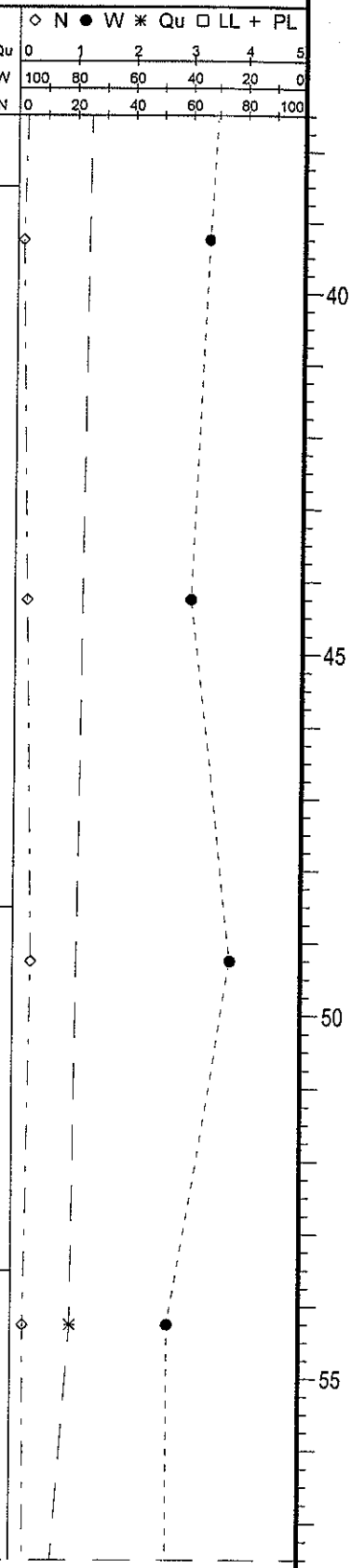
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-0.4	37.5								
-0.7	38.5								
				15	2 1 1	2	34		Elastic SILT with sand, subangular fine sand, no reaction with HCl, moist, soft, medium plasticity, dark gray
				16	2 2 2	4	40		Sandy elastic SILT, subangular fine sand, about 9% shell fragments, strong reaction with HCl, moist, very soft, high plasticity, dark gray
-3.8	48.5								
				17	3 2 4	6	25		Well graded SAND with silt, loose, subangular lithic sand, strong reaction with HCl, moist, weak cementation, dark gray
-5.3	53.5								
				18	2 1 3	4	47	(1.00)	Elastic SILT with sand, subangular fine sand, strong reaction with HCl, moist, stiff, high plasticity, dark gray



Continued Next Page

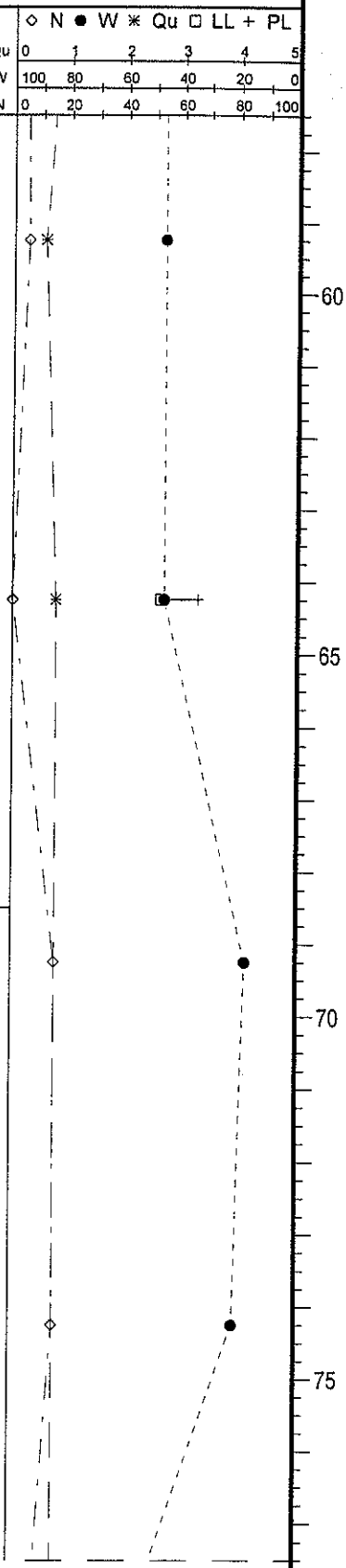
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-6.5	57.5								
				19	3 2 3	5	47	(0.25) 0.54	Elastic SILT, weak reaction with HCl, moist, soft, high plasticity, gray
				20	WH WH WH	WH	47	(0.75)	As above, medium, about 4% subangular fine gravel LL=48, PL=35, PI=13
-9.9	68.5								
				21	6 9 6	15	18		Well graded SAND with silt, medium, subangular lithic sand, strong reaction with HCl, wet, weak cementation, dark gray
				22	3 6 9	15	22		As above, moist



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

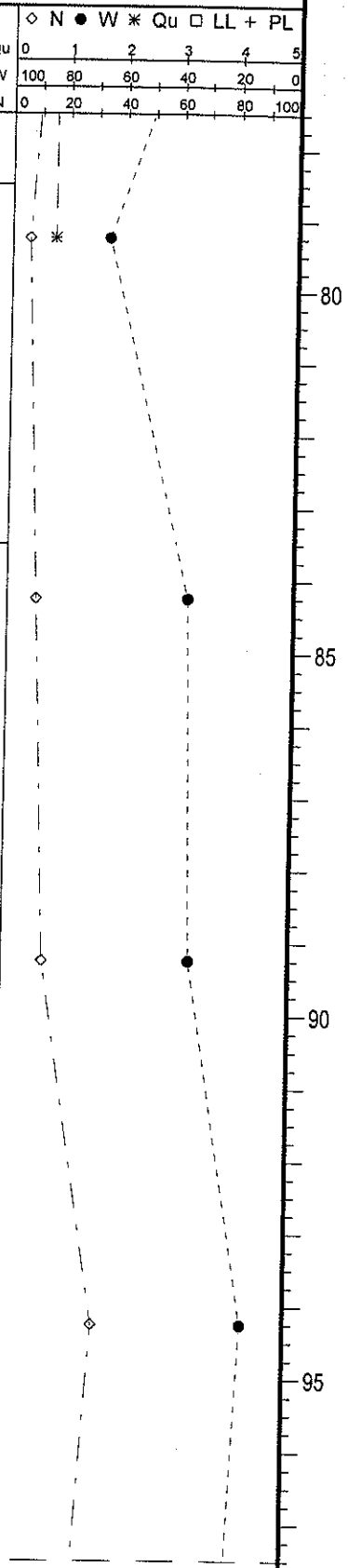
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-12.6	77.5								
-12.9	78.5								
				23	3 3 3	6	66	(0.75)	Elastic SILT, medium, about 7% shell fragments, strong reaction with HCl, moist, high plasticity, dark gray
-14.5	83.5								
				24	4 5 5	10	37		SILT with sand, subangular fine sand, about 6% shell fragments, strong reaction with HCl, moist, soft, non plastic, dark gray
-16.0	88.5								
				25	2 4 10	14	35		Poorly graded SAND with silt, medium, subangular fine sand, strong reaction with HCl, moist, weak cementation, dark gray
				26	15 16 17	33	15		As above, dense, subangular medium medium sand



Continued Next Page

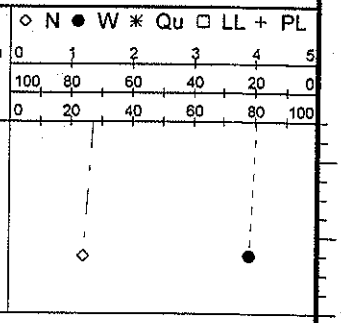
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-18.7	97.5								
-19.5	100.0			27	9 11 12	24	22		As above, subangular medium medium sand



100

NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

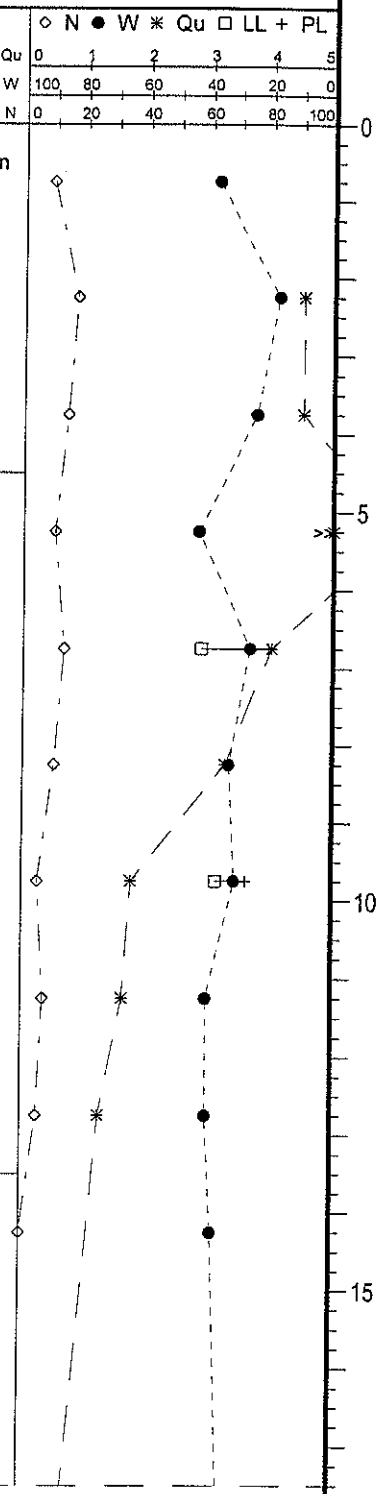
STATION COORDINATES (m): x = 406197.2798 y = 229055.8595 z = 11.00

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Angel Ferrer / CME-55 Truck Mounted
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/09/1999 — COMPLETED: 06/10/1999
GROUNDWATER: 15 feet	ELEVATION TOP OF HOLE: 12.50 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
12.5	0.0			1	2 3 6	9	38		Lean CLAY, about 6% roots, no reaction with HCl,moist, stiff, medium plasticity, yellowish brown
				2	7 10 7	17	18	(+4.5)	As above, dry, hard
				3	6 7 7	14	25	(4.50)	As above, dry, hard
11.1	4.5			4	4 5 5	10	44	(4.50) 6.04	Fat CLAY, no reaction with HCL, dry, hard, high plasticity, dark yellowish brown
				5	5 6 7	13	27	(4.00)	As above, moist, very stiff, yellowish brown LL=43, PL=21, PI=22
				6	5 6 4	10	34	(3.25) 3.24	Fat CLAY, no reaction with HCl, moist, very stiff, high plasticity, dark brown mottled, yellowish brown
				7	2 2 3	5	32	(1.75)	As above, stiff LL=38, PL=28, PI=10
				8	3 4 3	7	41	(1.75) 1.62	As above, stiff
				9	3 2 3	5	41	(1.00) 1.25	As above, stiff
8.4	13.5			10	WH WH 2	WH	39		Elastic SILT, no reaction with HCl, moist, soft, high plasticity, brownish yellow



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

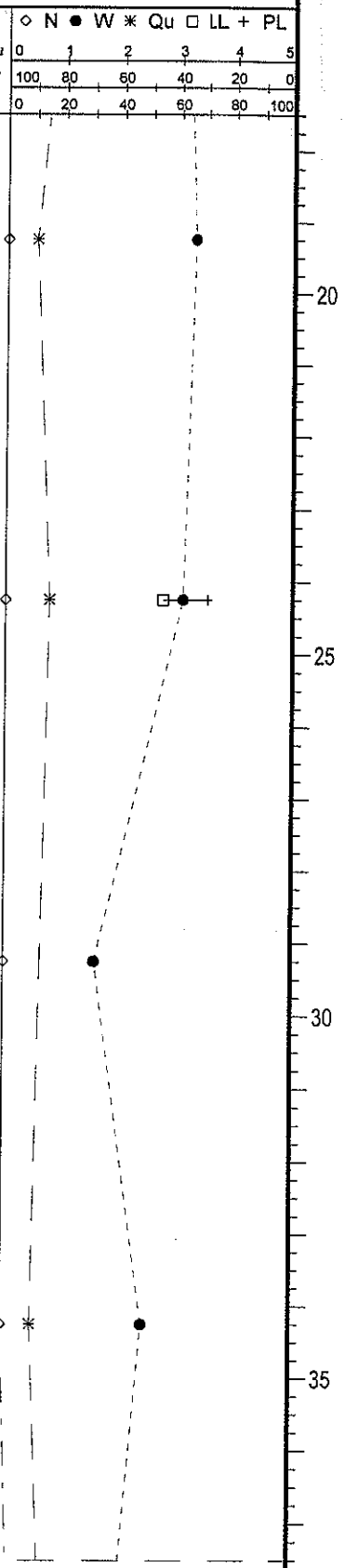
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
7.2	17.5								
			X	11	WH WH 2	WH	35	(0.50)	As above, soft, dark gray
			X	12	WH WH WH	WH	39	(0.75)	As above, medium, dark gray LL=46, PL=30, PI=16
			X	13	2 WH WH	WH	69		As above, soft, dark gray
2.3	33.5								
			X	14	WH WH WH	WH	52	(0.50)	Fat CLAY, about 1% wood fragments, no reaction with HCl, moist, soft, high plasticity, dark gray



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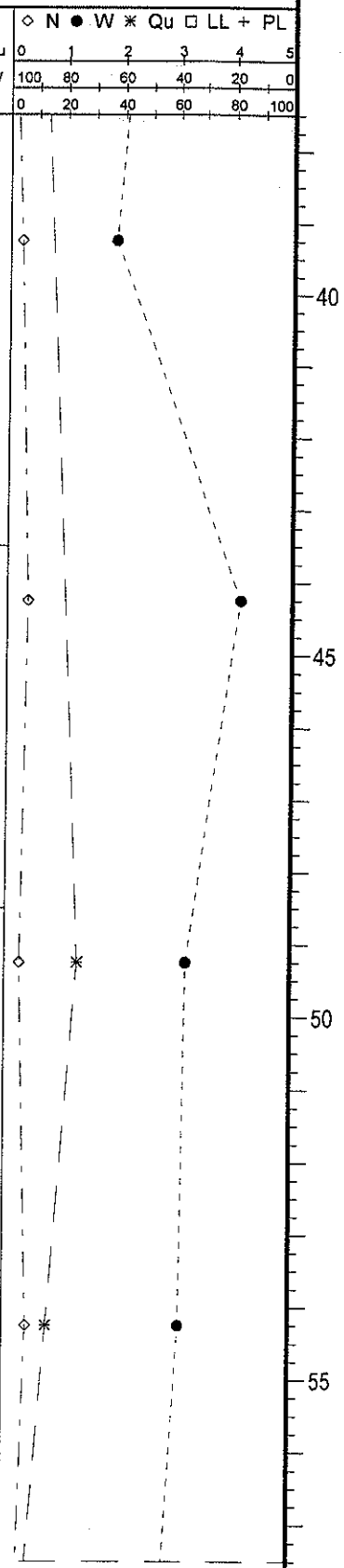
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
1.1	37.5								
				15	WH † 3	4	63		As above, at bottom (2.0 in.) dark gray sandy silt, subangular fine lithic sand
-0.8	43.5								
				16	3 3 4	7	18		Well graded SAND with silt, loose, subangular lithic sand, no reaction with HCl, moist, weak cementation, gray
-2.3	48.5								
				17	1 2 3	5	37	(1.25)	Silty with sand, subangular fine sand, about 10% shell fragments, strong reaction with HCl, moist, stiff, non plastic, very dark gray
-3.8	53.5								
				18	2 4 4	8	39	(0.75)	Fat CLAY, no reaction with HCl, medium, high plasticity, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

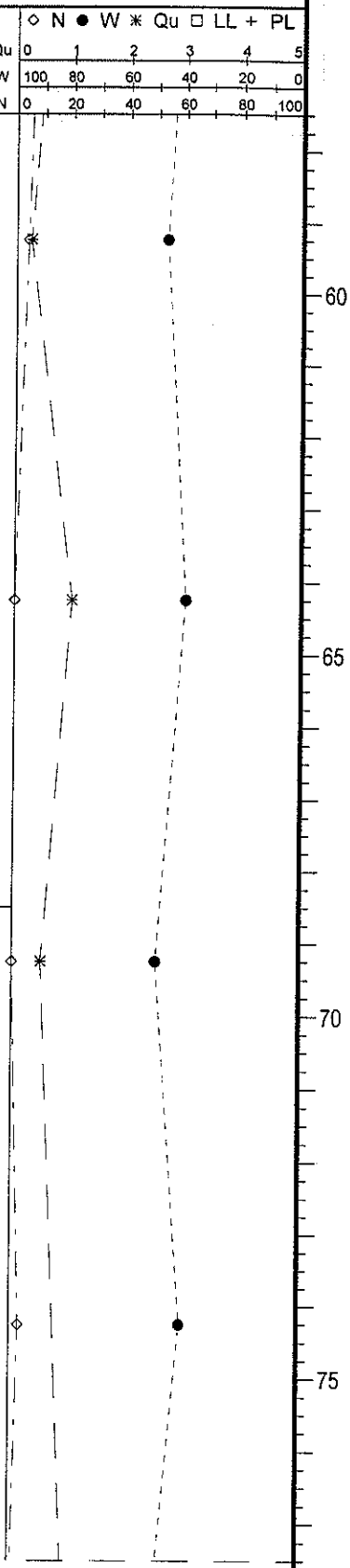
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-5.0	57.5								
				19	WH 2 2	4	47	(0.25)	As above, soft, olive gray
				20	WH WH 2	WH	40	(1.00)	As above, olive gray
-8.4	68.5								
				21	2 WH 1	WH	50	(0.50)	Elastic SILT, about 9% shell fragments, strong reaction with HCl, moist, soft, high plasticity, dark gray
				22	2 2 1	3	41		Elastic SILT with sand, subangular fine sand, weak reaction with HCl, moist, medium, high plasticity, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

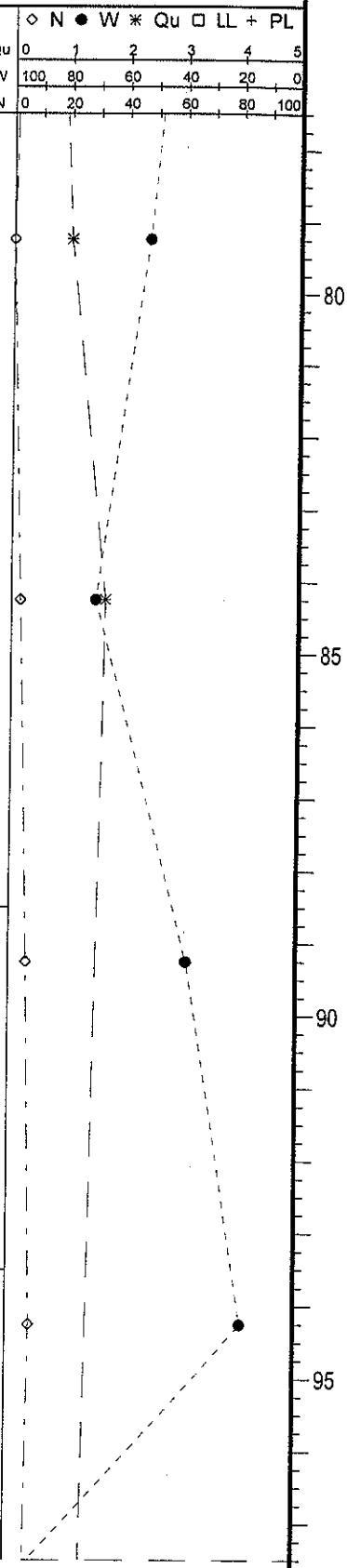
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-11.1	77.5								
			X	23	WH WH 1	WH	53	(1.00)	Elastic SILT, about 1% shell and coral fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray
			X	24	WH 2 1	3	71	(1.25) 1.62	As above, about 3% shell fragments
-14.5	88.5								
			X	25	WH 5 1	6	39		Sandy silty CLAY, subangular fine sand, about 10% shell fragments, strong reaction with HCl, wet, very soft, very dark brown
-16.0	93.5								
			X	26	5 4 4	8	19		Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, very dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

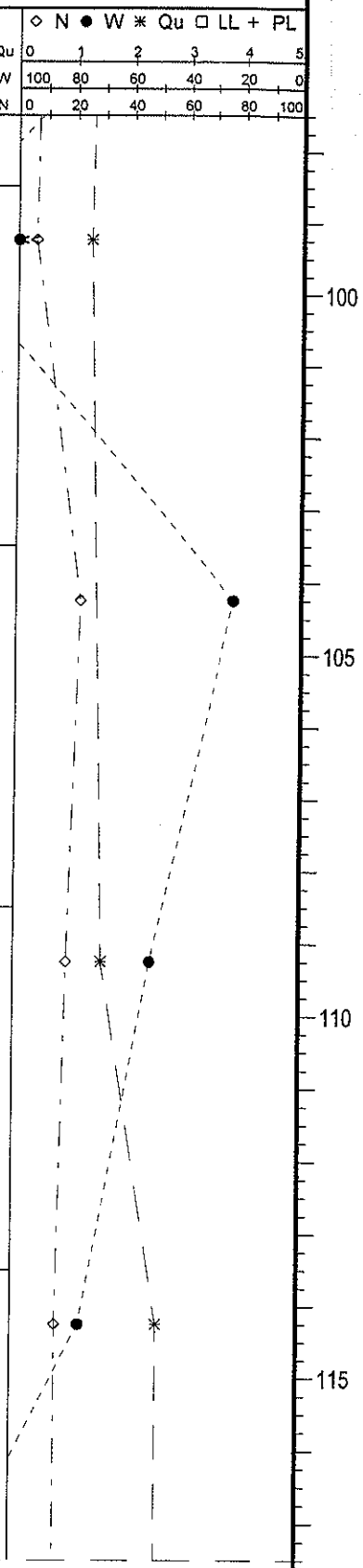
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-17.2	97.5								
-17.5	98.5								
				27	2 2 4	6	131	(1.25)	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, dark grayish brown
-19.0	103.5								
				28	8 8 14	22	24		Silty SAND, medium, subangular fine lithic sand, no reaction with HCl, moist, weak cementation, dark gray
-20.6	108.5								
				29	3 7 11	18	53	(1.50)	Silty CLAY, about 7% shell fragments, strong reaction with HCl, moist, stiff, low plasticity, very dark gray
-22.1	113.5								
				30	5 6 9	15	77	(2.50)	Elastic SILT, about 2% shell fragments, weak reaction with HCl, moist, very stiff, high plasticity, dark grayish brown



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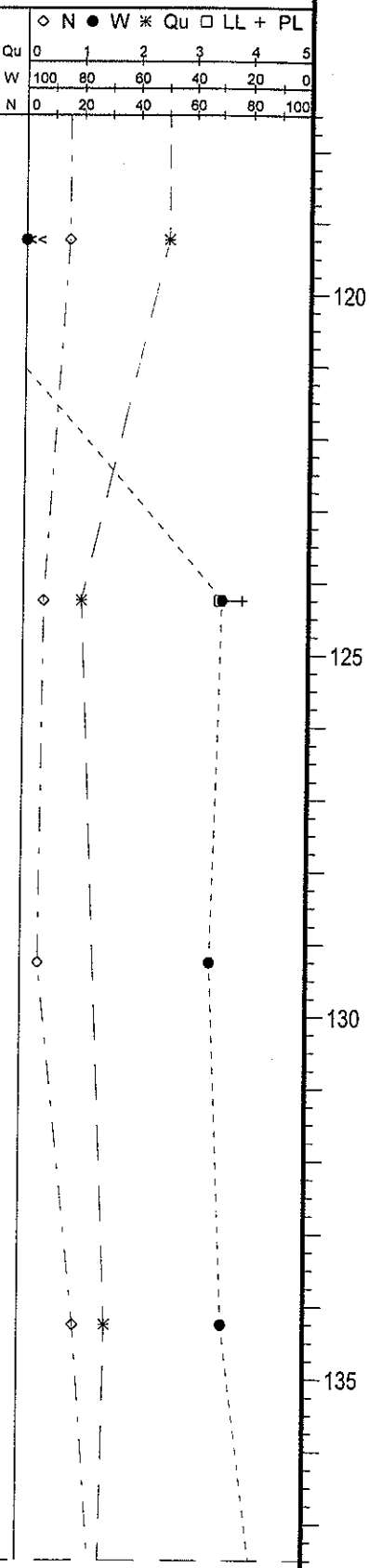
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-23.3	117.5								
			X	31	5 7 8	15	139	(2.50)	As above
			X	32	WH 2 5	7	30	(1.00)	As above, dark gray LL=31, PL=23, PI=8
			X	33	WH 2 4	6	34		As above, strong reaction with HCl, dark gray.
			X	34	7 9 10	19	29	(1.50)	Elastic SILT, weak reaction with HCl, moist, stiff, high plasticity, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

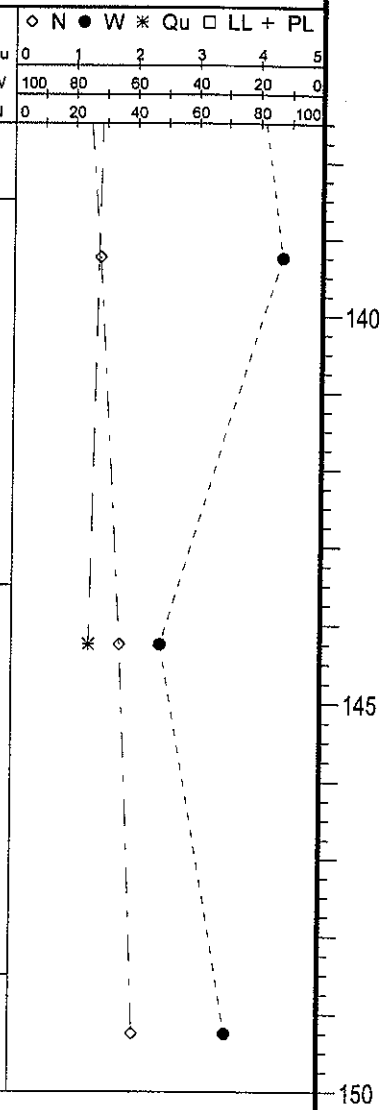
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-29.4	137.5								
-29.7	138.5								
				35	12 10 18	28	13		Silty SAND, medium, subangular medium lithic sand, no reaction with HCl, moist, weak cementation, gray
-31.2	143.5								
				36	6 13 22	35	52	(1.25)	Elastic SILT, about 15% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, very dark gray
-32.8	148.5								
				37	10 18 22	40	30		Poorly graded SAND with silt, very dense, subangular medium sand, weak reaction with HCl, moist, weak cementation, gray
-33.2	150.0								



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.
7) Boreholes drilled with automatic SPT.

STATION COORDINATES (m): x = 406050.7831 y = 228751.6886 z = 12.50

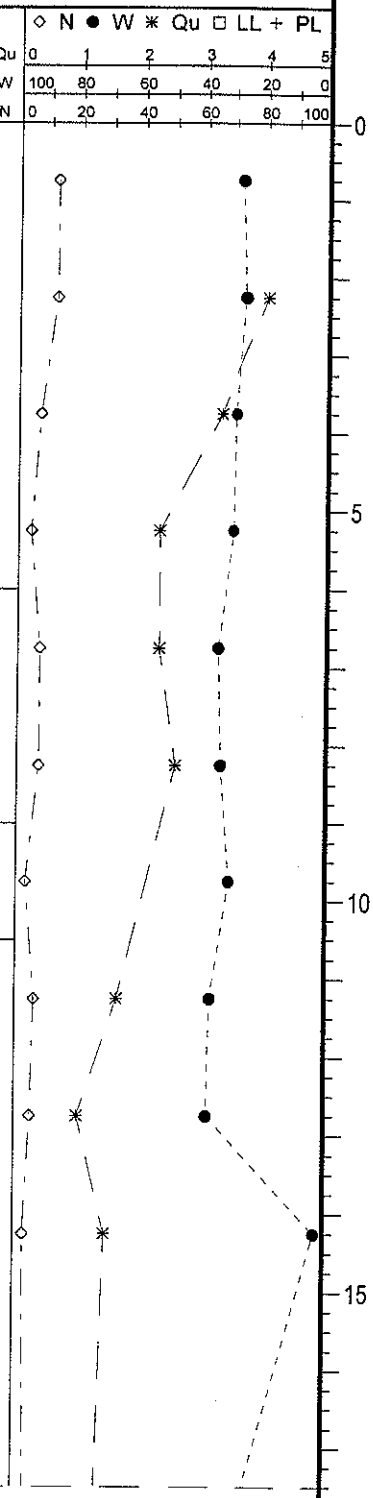
GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE: STARTED 06/11/1999, COMPLETED 06/15/1999
GROUNDWATER: 9.5 feet	ELEVATION TOP OF HOLE: 11.25 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
11.3	0.0			1	3 6 6	12	28		Lean CLAY, dry, hard, medium plasticity, no reaction with HCl, dark yellowish brown
				2	4 5 7	12	27	(4.00)	As above, moist, very stiff
				3	4 4 3	7	30	(3.25)	As above, moist, very stiff
9.4	6.0			4	1 2 2	4	31	(2.25)	As above, moist, very stiff, yellowish brown
				5	2 3 4	7	36	(2.25)	Fat CLAY, moist, very stiff, high plasticity, lensed with yellowish brown lean clay, no reaction with HCl, dark yellowish brown
8.5	9.0			6	2 4 3	7	35	(2.00) 2.52	As above, brownish yellow
8.0	10.5			7	WH 1 2	3	32		SILT, moist, soft, non plastic, oxidation stains, no reaction with HCl, brownish yellow
				8	2 3 3	6	38	(1.50) 1.62	Fat CLAY, moist, stiff, high plasticity, dark brown and gray mottled, no reaction with HCl, yellowish brown
				9	2 3 2	5	39	(1.00)	As above, dark brown mottled, dark gray
				10	1 1 2	3	3	(0.75) 1.44	Fat CLAY, moist, medium, high plasticity, black mottled, no reaction with HCl, brownish yellow



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

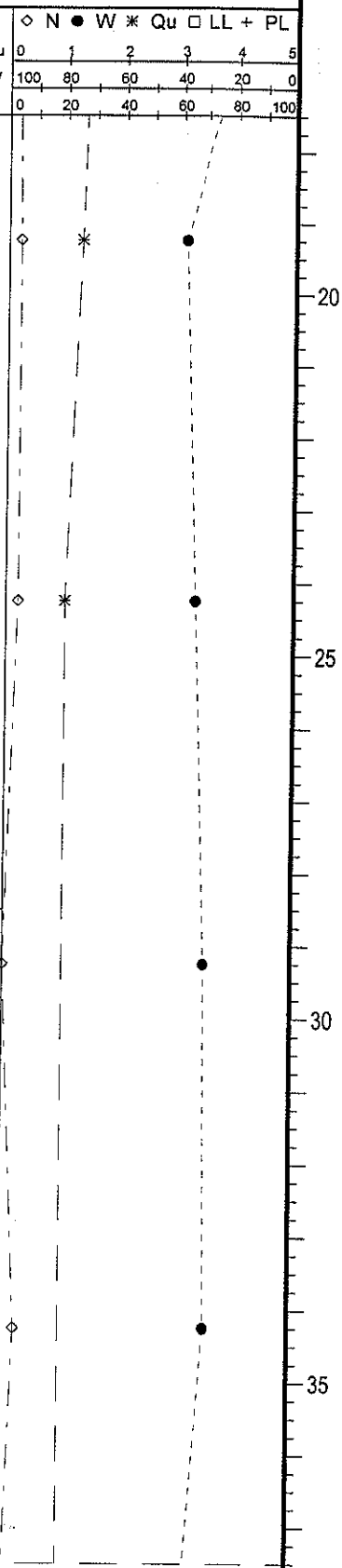
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
5.9	17.5								
				11	1 2 2	4	39	(1.25)	Fat CLAY, moist, stiff, high plasticity, no reaction with HCl, dark gray
				12	WH 2 2	4	35	(1.00)	As above
2.6	28.5								
				13	WH WH 2	WH	31		SILT with sand, moist, very soft, non plastic, subangular fine lithic sand, no reaction with HCl, dark gray
1.0	33.5								
				14	2 2 3	5	30		Poorly graded SAND with silt, moist, weak cementation, loose, subangular medium lithic sand, no reaction with HCl, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

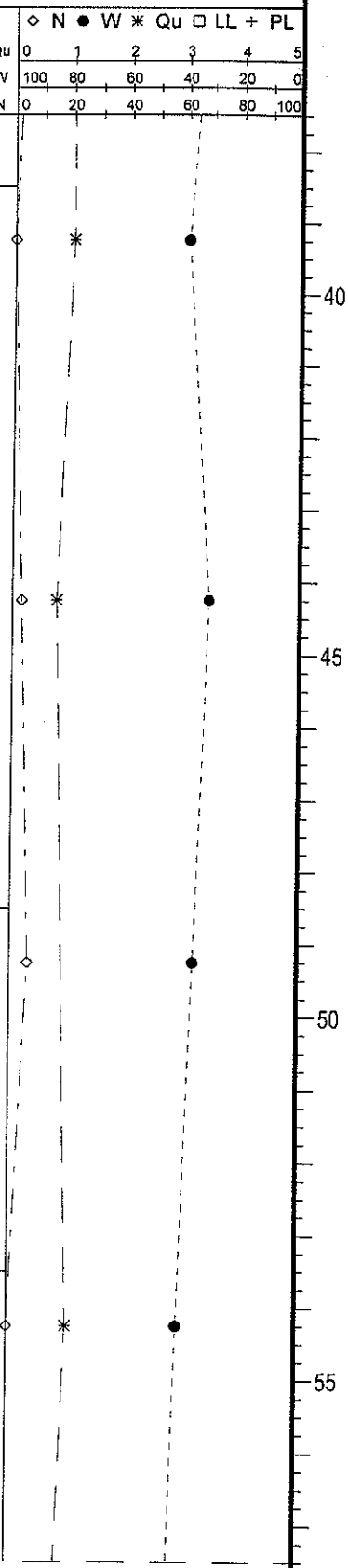
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-0.2	37.5								
-0.5	38.5								
				15	WH WH 1	WH	40	(1.00)	Elastic SILT, moist, medium, high plasticity, no reaction with HCl, dark gray
				16	WH 1 2	3	32	(0.75)	As above
-3.5	48.5								
				17	1 3 3	6	37		SILT with sand, moist, non plastic, subangular fine lithic sand, about 3% shell fragments, no reaction with HCl, dark gray
-5.1	53.5								
				18	WH WH 2	WH	42	(1.00)	Elastic SILT, moist, medium, high plasticity, weak reaction with HCl, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

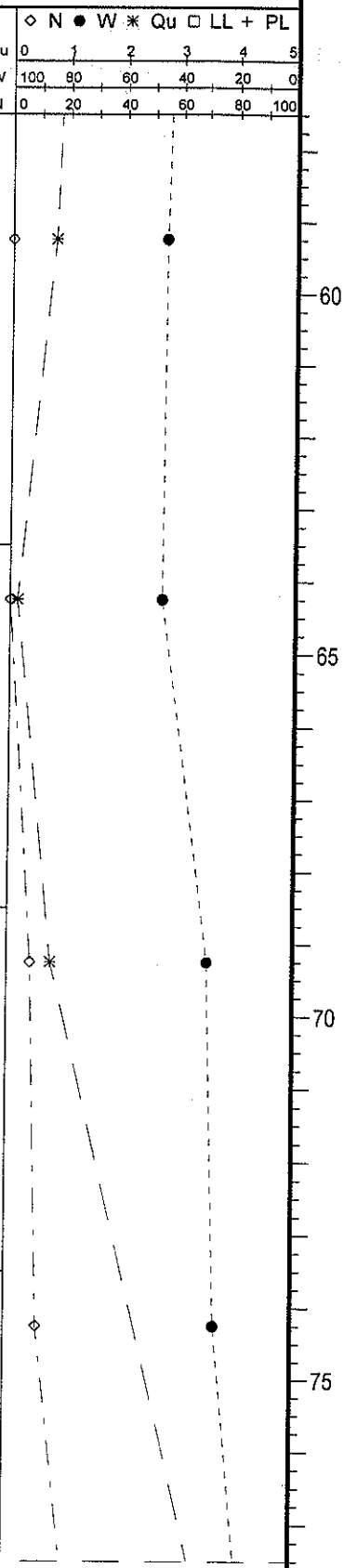
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-6.3	57.5								
				19	WH WH WH	WH	46	(0.75)	As above, gray
-8.1	63.5								
				20	WH WH 6	WH	47	(0.13)	Fat CLAY, moist, very soft, high plasticity, no reaction with HCl, gray
-9.6	68.5								
				21	3 3 5	8	30	(0.75)	SILT with sand, moist, medium, non plastic, subangular fine lithic sand, about 6% shell fragments, strong reaction with HCl, very dark gray
-11.2	73.5								
				22	5 5 6	11	27		Silty SAND, moist, weak cementation, medium, subangular fine lithic sand, about 7% shell fragments, strong reaction with HCl, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

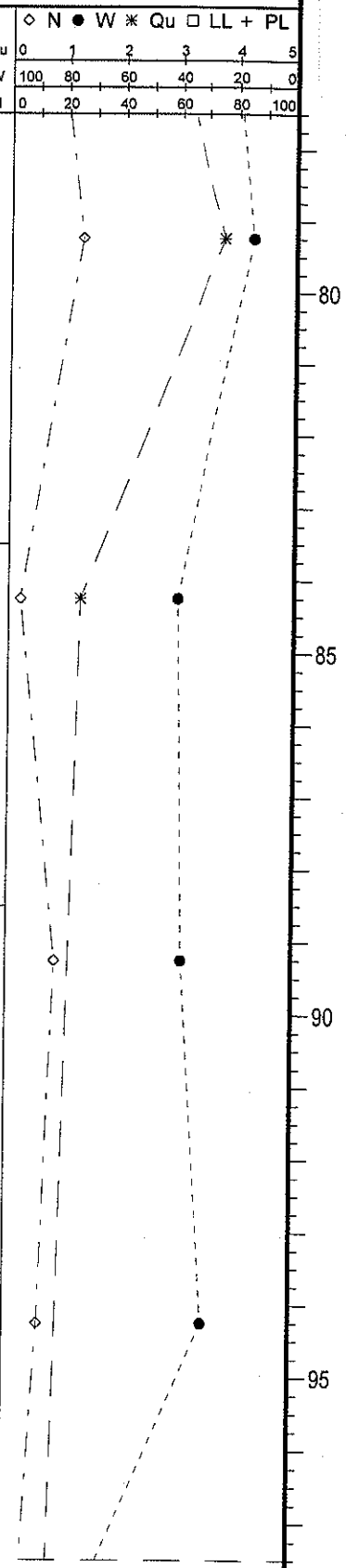
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-12.4	77.5								
				23	8 11 14	25	15	(3.75)	As above, moderate cementation, subangular medium lithic sand, gray
-14.2	83.5								
				24	2 2 2	4	41	(1.25)	Elastic SILT, stiff, high plasticity, about 6% shell fragments, strong reaction with HCl, very dark gray
-15.7	88.5								
				25	6 7 10	17	39		Sandy SILT, moist, soft, non plastic, subangular fine lithic sand, strong reaction with HCl, very dark gray
				26	5 6 6	12	31		As above, no reaction with HCl, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

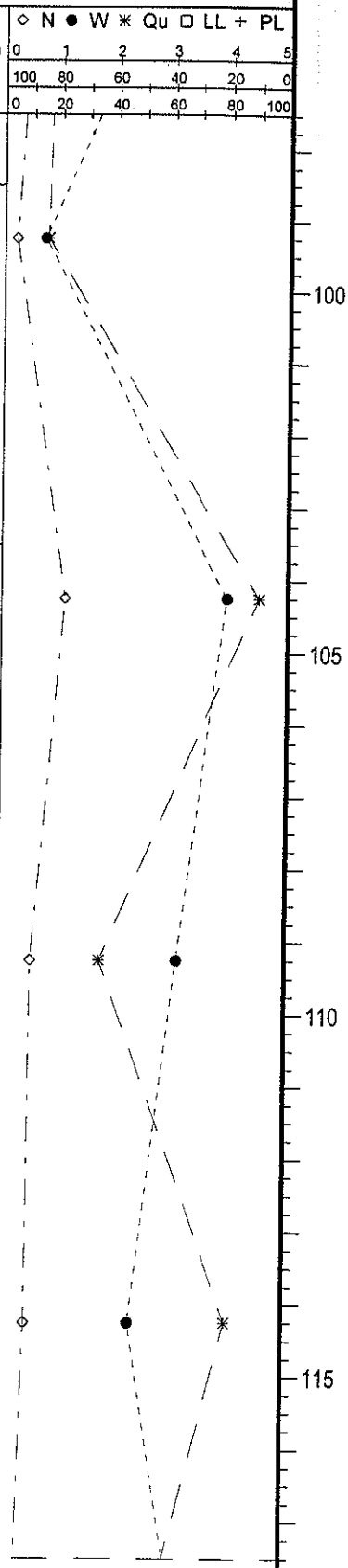
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-18.5	97.5								
-18.8	98.5								
				27	2 2 2	4	86	(0.75)	Elastic SILT, moist, medium, high plasticity, no reaction with HCl, dark grayish brown
-20.3	103.5								
				28	9 10 12	22	21	(+4.5)	Poorly graded SAND with silt, moist, moderate cementation, medium, subangular fine lithic sand, no reaction with HCl, gray
-21.8	108.5								
				29	6 5 6	11	38	(1.75)	SILT with sand, moist, stiff, non plastic, subangular fine lithic sand, about 9% shell fragments, strong reaction with HCl, very dark gray
-23.3	113.5								
				30	6 5 5	10	54	(4.00)	Elastic SILT, moist, very stiff, high plasticity, no reaction with HCl, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

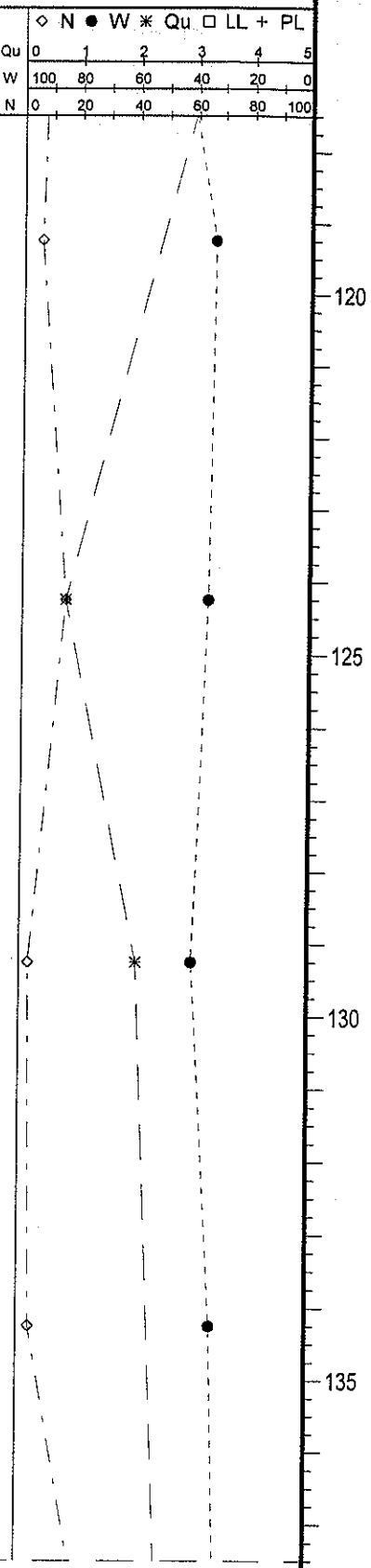
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-24.6	117.5								
			X	31	WH 1 5	6	34		As above, stiff
			X	32	3 6 9	15	36	(0.75)	As above, medium, gray
			X	33	WH 1 2	3	41	(2.00)	As above
			X	34	WH 1 3	4	34		As above



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

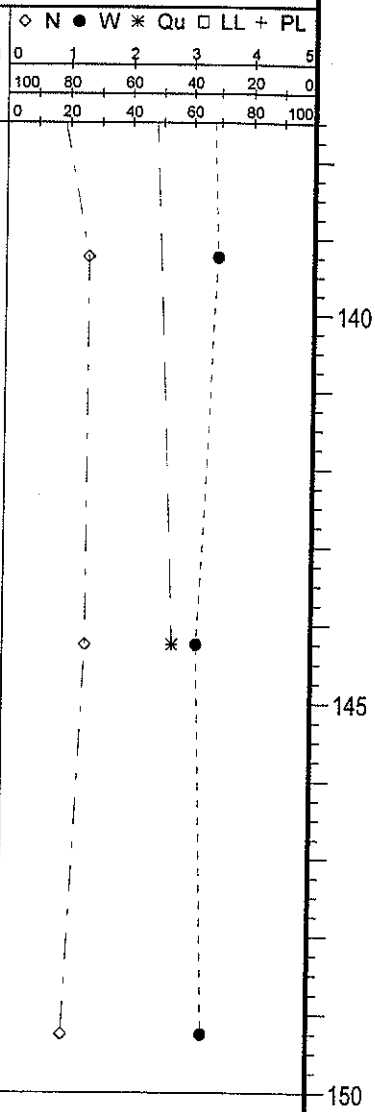
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-30.7	137.5								
				35	3 11 15	26	31		As above, soft, about 14% subangular coarse lithic sand
				36	9 13 13	26	38	(2.75) 2.70	As above
-34.0	148.5								
-34.5	150.0			37	6 8 12	20	35		Well graded SAND with silt, moist, weak cementation, medium, subangular lithic sand, no reaction with HCl, dark gray



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

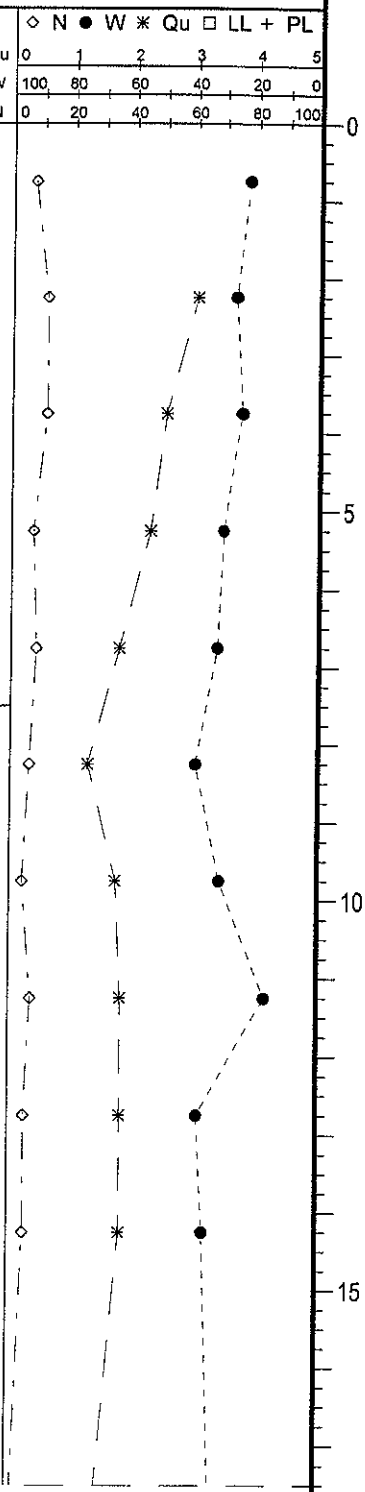
STATION COORDINATES (m): x = 406327.7839 y = 228898.0629 z = 11.25

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Angel Ferrer / CME-55 Truck Mounted
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/02/1999 — COMPLETED: 06/08/1999
GROUNDWATER: 13.5 feet	ELEVATION TOP OF HOLE: 11.25 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
11.3	0.0			1	3 3 4	7	23		Lean CLAY, no reaction with HCl, stiff, medium plasticity, dark brown
				2	4 5 6	11	27	(3.00)	As above, very stiff
				3	5 6 5	11	25	(2.50)	As above, very stiff
				4	3 3 4	7	31	(2.25)	As above, very stiff
				5	3 4 4	8	33	(1.75)	As above
9.0	7.5			6	3 2 4	6	40	(1.25)	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, brown
				7	2 2 2	4	32	(1.50) 1.71	As above, lensed with dark yellowish brown silty clay
				8	2 3 4	7	17	(1.50) 1.80	As above, lensed with dark yellowish brown silty clay, gray
				9	3 3 2	5	39	(1.50) 1.80	As above, lensed with dark yellowish brown silty clay, light gray mottled
	▼			10	1 2 3	5	37	(1.25) 1.80	As above



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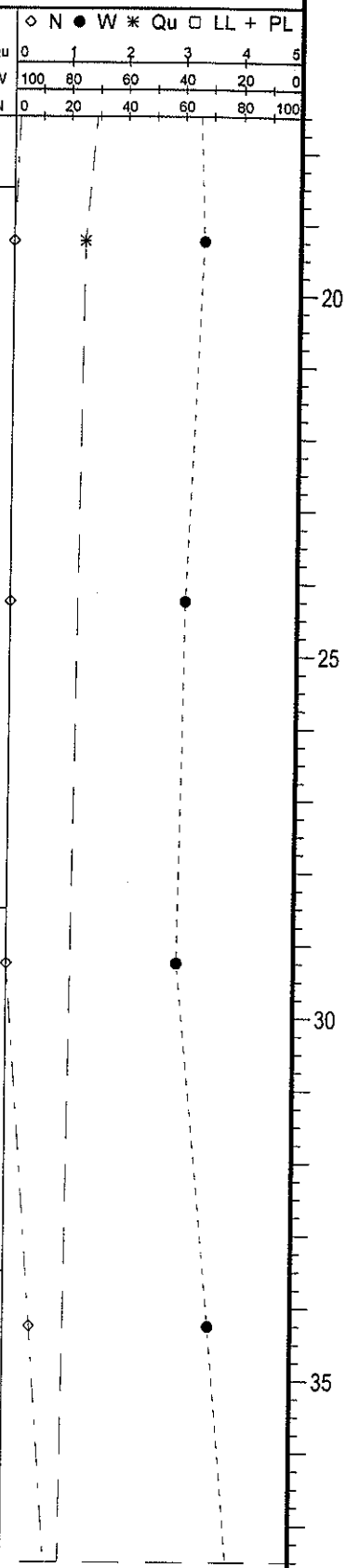
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
5.9	17.5								
5.6	18.5								
				11	WH WH WH	WH	33	(1.25)	Elastic SILT, about 6% subangular fine sand, no reaction with HCl, moist, very soft, high plasticity, dark gray
				12	WH WH WH	WH	39		As above
2.6	28.5								
				13	WH WH 1	WH	41		Well graded SAND with silt, very loose, subangular lithic sand, no reaction with HCl, moist, weak cementation, dark gray
1.0	33.5								
				14	WH 3 6	9	29		Sandy elastic silt, subangular fine lithic sand, no reaction with HCl, moist, very soft, high plasticity, dark gray



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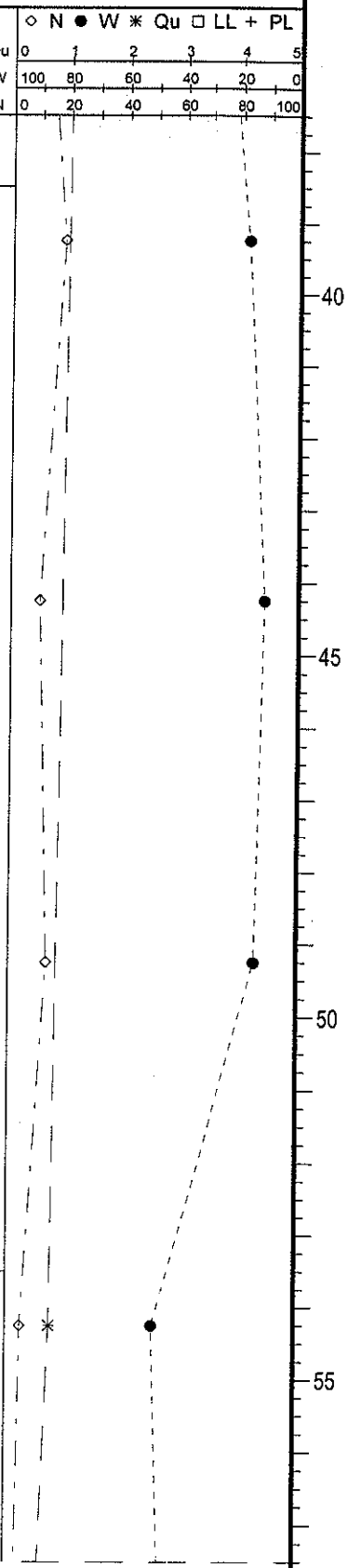
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-0.2	37.5								
-0.5	38.5								
				15	6 9 9	18	18		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
				16	6 6 4	10	12		As above
				17	6 7 6	13	15		As above
-5.1	53.5								
				18	1 2 3	5	50	(0.75)	Elastic SILT, weak reaction with HCl, moist, medium, high plasticity, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

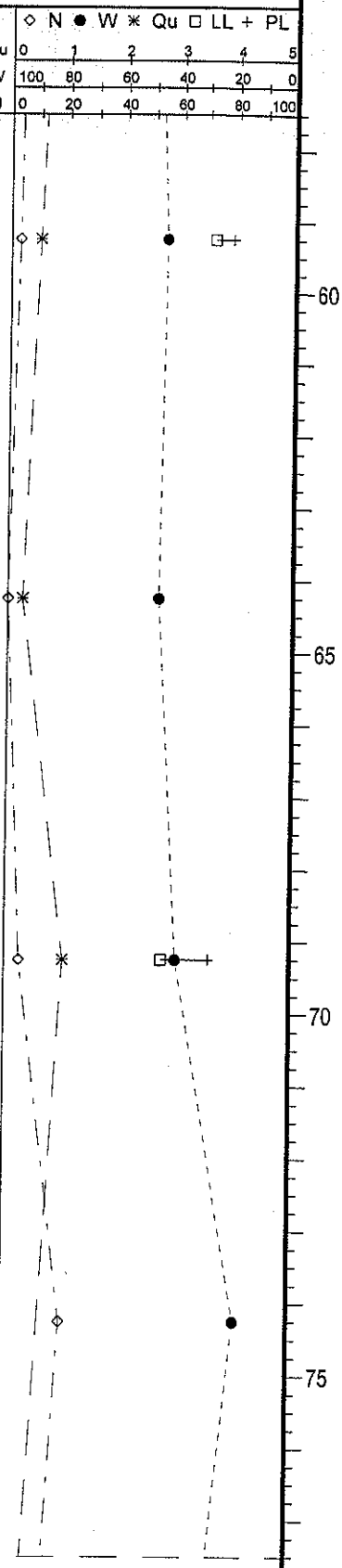
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-6.3	57.5								
			X	19	1 1 2	3	46	(0.50)	As above LL=28, PL=22, PI=6
			X	20	WH WH 2	WH	48	(0.25)	As above, soft, olive
			X	21	WH 2 3	5	41	(1.00)	As above, about 5% shell fragments, strong reaction with HCl LL=46, PL=29, PI=17
-11.2	73.5								
			X	22	9 10 10	20	19		Poorly graded SAND with silt, medium, subangular fine lithic sand, weak reaction with HCl, moist, weak cementation, dark gray



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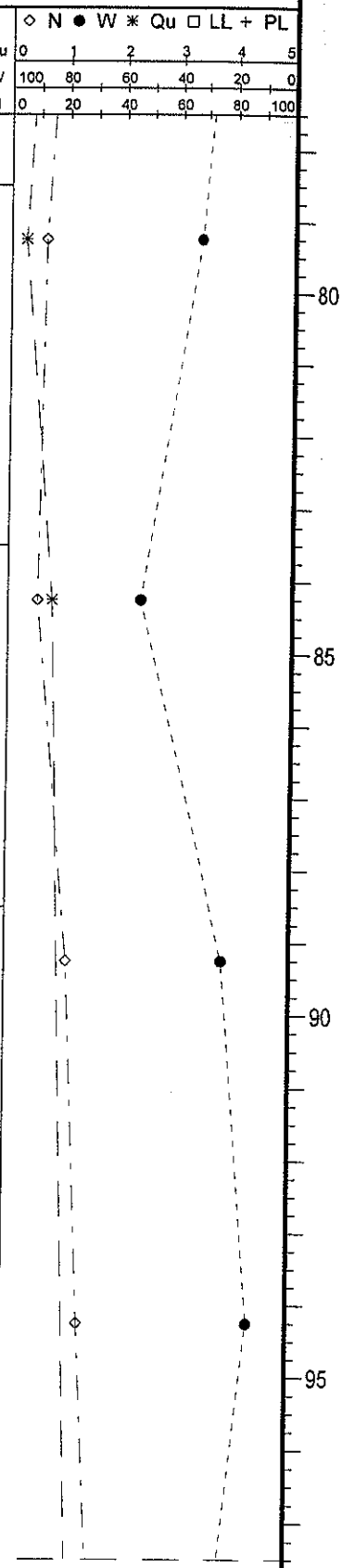
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-12.4	77.5								
-12.7	78.5								
				23	8 7 5	12	33	(0.25)	Silty SAND, medium, subangular fine lithic sand, about 4% shell fragments, strong reaction with HCl, moist, weak cementation, dark gray
-14.2	83.5								
				24	3 5 5	10	54	(0.75)	Elastic SILT, about 15% shell fragments, strong reaction with HCl, moist, medium, high plasticity, dark gray
-15.7	88.5								
				25	4 9 12	21	24		Silty SAND, medium, subangular fine lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
-17.2	93.5								
				26	8 12 14	26	14		Poorly graded SAND with silt, medium, subangular medium lithic sand, weak reaction with HCl, moist, weak cementation, gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

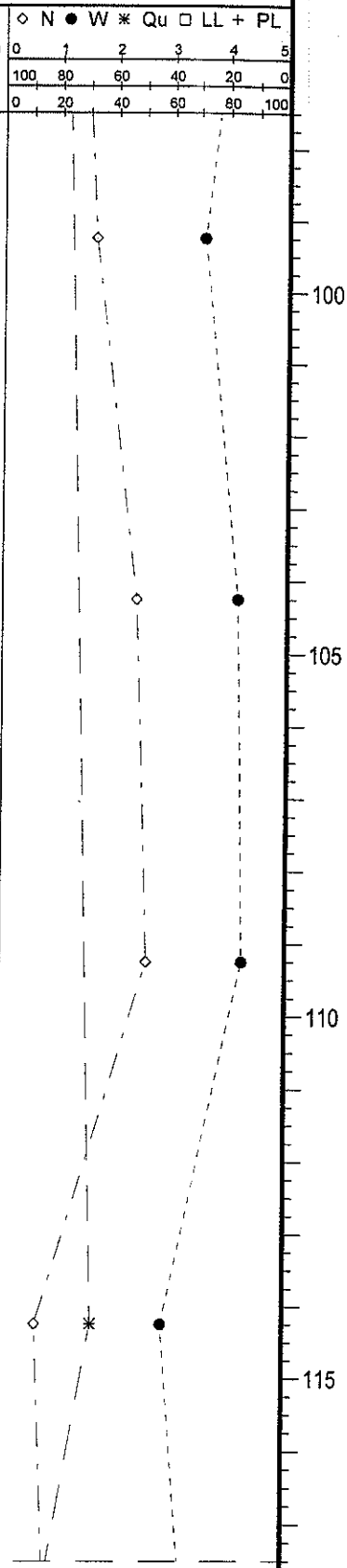
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-18.5	97.5								
				27	13 16 16	32	29		As above, dense
				28	13 22 25	47	17		As above, dense
-21.8	108.5								
				29	16 26 25	51	15		Well graded SAND with silt, very dense, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
-23.3	113.5								
				30	6 6 7	13	43	(2.00) 1.62	Elastic SILT, about 12% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray



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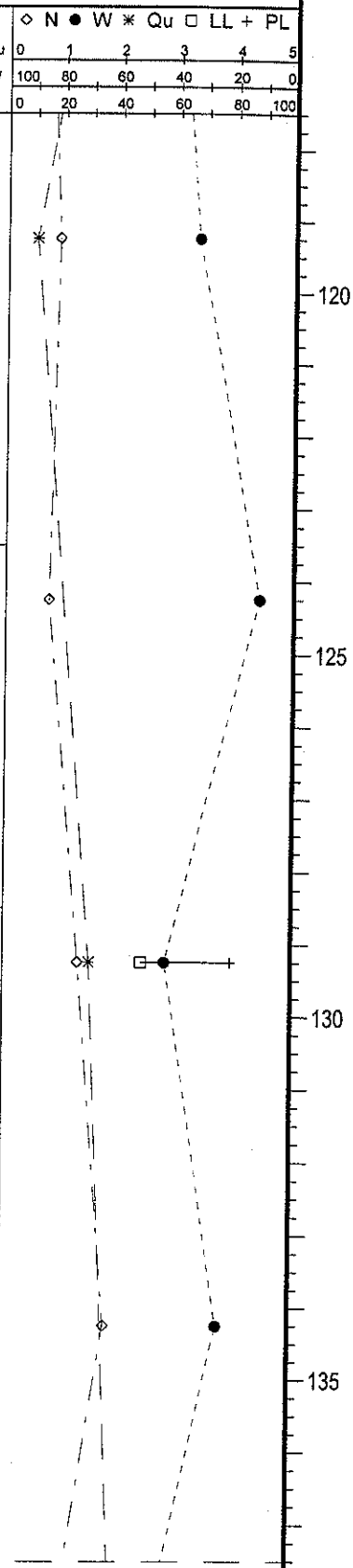
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-24.6	117.5								
				31	6 7 11	18	33	(0.50)	As above, about 5% shell fragments, medium, at bottom (2.5 in.) gray well graded sand with silt
-26.4	123.5								
				32	14 9 6	15	12		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
-27.9	128.5								
				33	10 14 12	26	44	(1.50)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray LL=52, PL=21, PI=31
-29.4	133.5								
				34	12 16 20	36	25		Well graded SAND with silt, dense, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray



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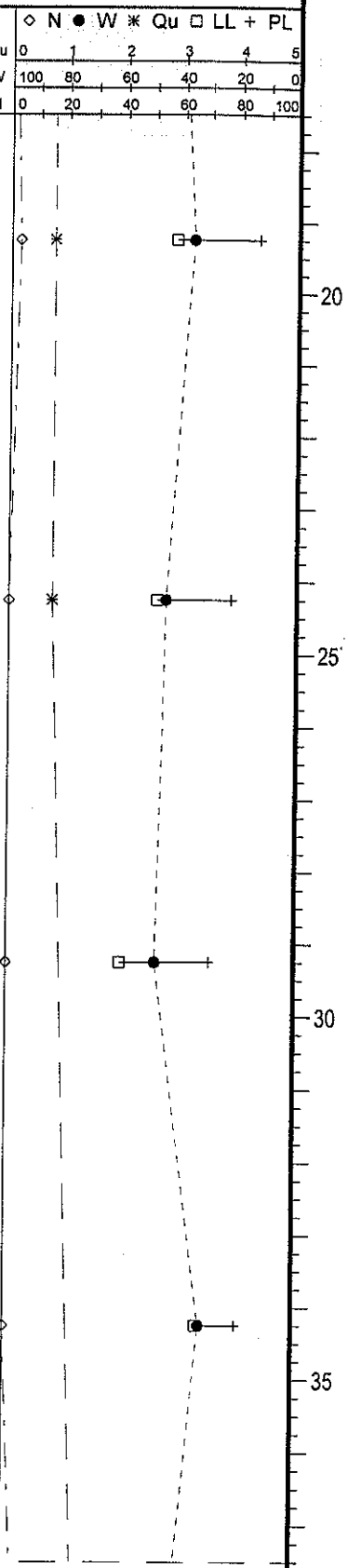
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
4.9	17.5								
				11	WH 1 2	3	37	(0.75)	As above, medium, dark gray LL=43, PL=14, PI=29
				12	WH WH 2	WH	46	(0.75)	Fat CLAY, no reaction with HCl, moist, medium, high plasticity, dark gray LL=49, PL=23, PI=26
				13	WH WH 2	WH	49		As above, soft, about 16% wood fragments LL=61, PL=30, PI=31
				14	WH WH WH	WH	33		As above, soft, about 3% wood fragments LL=34, PL=20, PI=14



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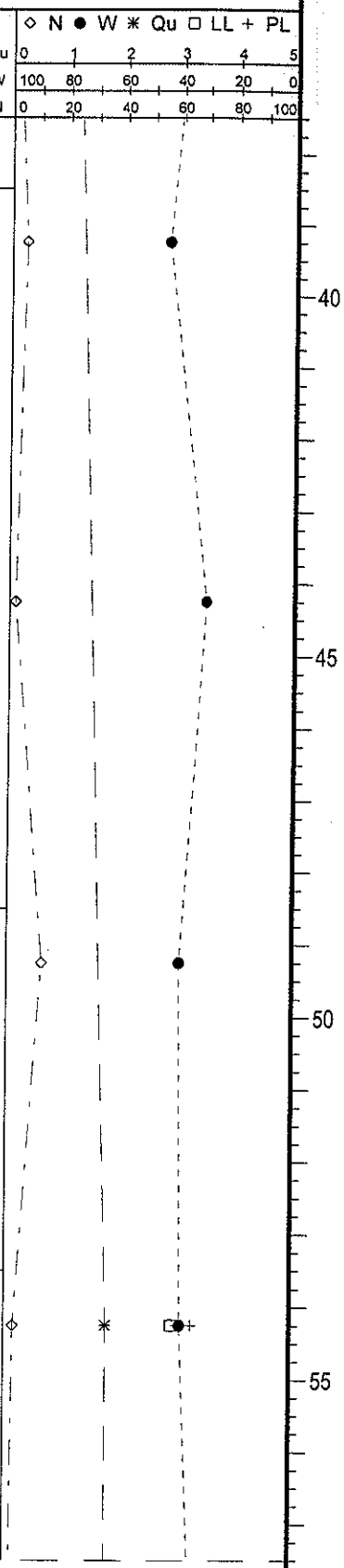
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-1.2	37.5								
-1.5	38.5								
				15	2 2 3	5	45		Sandy silty CLAY, subangular fine sand, weak reaction with HCl, moist, soft, low plasticity, dark gray
				16	2 1 1	2	31		As above, about 11% shell fragments, about 5% wood fragments, strong reaction with HCl
-4.5	48.5								
				17	5 7 5	12	40		Silty SAND, medium, subangular medium lithic sand, weak reaction with HCl, wet, weak cementation, dark gray
-6.1	53.5								
				18	2 1 2	3	39	(1.75)	Elastic SILT, lensed with dark gray silty sand (as above), about 4% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray LL=42, PL=35, PI=7



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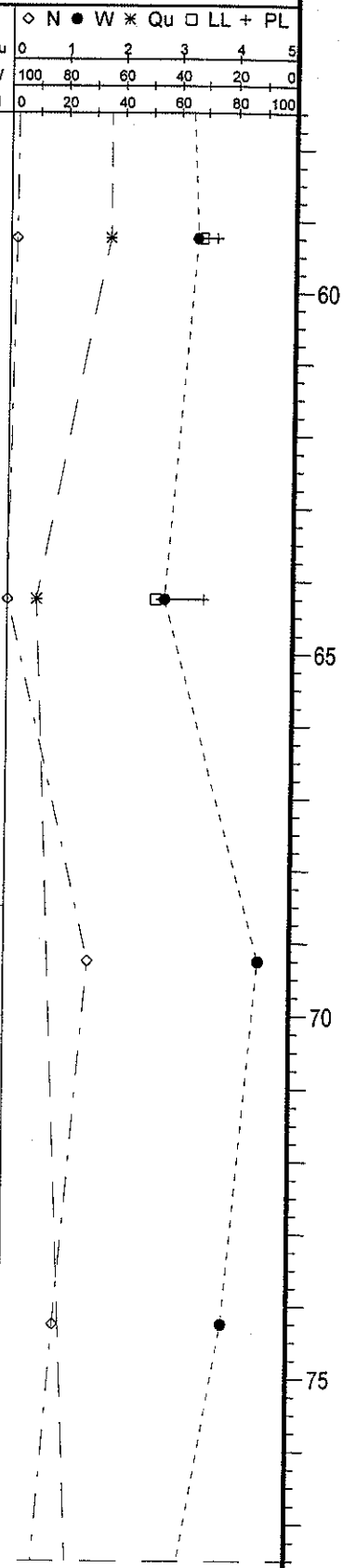
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-7.3	57.5								
				19	2 1 1	2	34	(1.75)	Elastic SILT, about 3% shell fragments, weak reaction with HCl, moist, stiff, high plasticity, dark gray LL=32, PL=27, PI=5
				20	WH WH WH	WH	45	(0.50)	As above, medium, olive gray LL=48, PL=31, PI=17
-10.6	68.5								
				21	8 13 16	29	11		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
-12.2	73.5								
				22	8 8 10	18	23		Poorly graded SAND with silt, medium, subangular fine lithic sand, weak reaction with HCl, moist, weak cementation, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

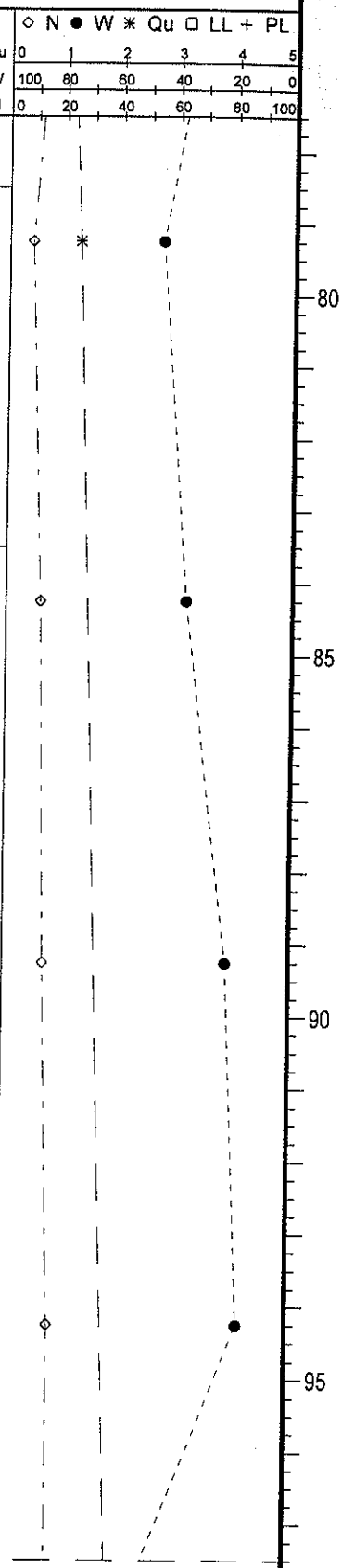
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-13.4	77.5								
-13.7	78.5								
				23	2 3 5	8	46	(1.25)	Elastic SILT, weak reaction with HCl, moist, stiff, high plasticity, dark gray
-15.2	83.5								
				24	3 5 7	12	37		Sandy SILT, subangular fine sand, weak reaction with HCl, moist, soft, low plasticity, dark gray
				25	5 5 9	14	22		As above
-18.2	93.5								
				26	8 8 9	17	17		Poorly graded SAND, medium, subangular medium lithic sand, weak reaction with HCl, moist, weak cementation, dark gray



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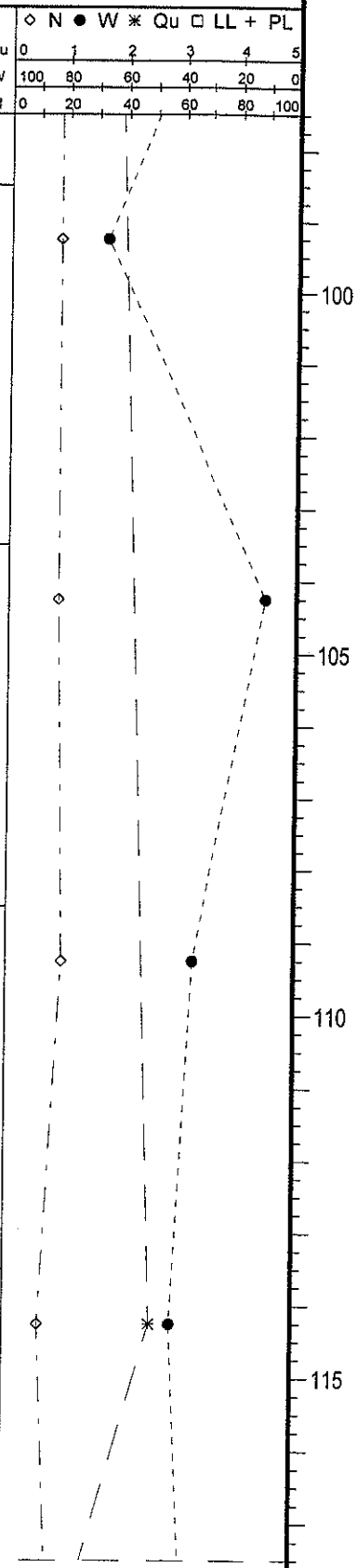
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-19.5	97.5								
-19.8	98.5								
			X	27	3 6 11	17	67		Sandy SILT, subangular fine lithic sand, weak reaction with HCl, about 3% wood fragments, moist, stiff, low plasticity, dark gray
-21.3	103.5								
			X	28	7 7 10	17	11		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
-22.8	108.5								
			X	29	4 7 12	19	36		Sandy SILT, subangular medium lithic sand, strong reaction with HCl, about 6% wood fragments, moist, very stiff, high plasticity, dark gray
-24.3	113.5								
			X	30	5 6 6	12	43	(2.50)	Elastic SILT with sand, subangular fine lithic sand, about 6% shell fragments, strong reaction with HCl, moist, very stiff, high plasticity, dark gray



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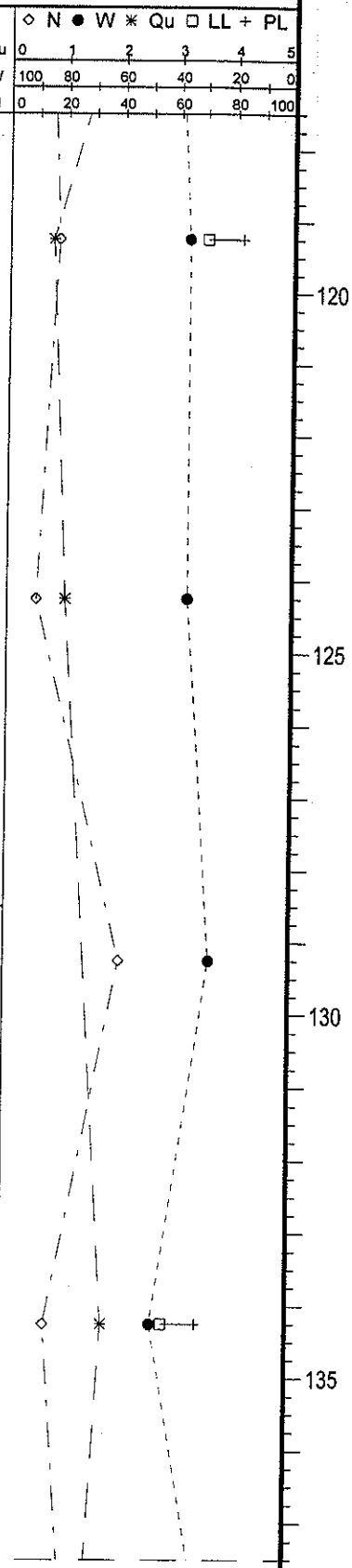
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-25.6	117.5								
			X	31	2 5 12	17	37	(0.75)	Elastic SILT, weak reaction with HCl, moist, medium, high plasticity, dark gray LL=30, PL=18, PI=12
			X	32	6 5 5	10	37	(1.00)	As above
-28.9	128.5								
			X	33	12 19 21	40	28		Poorly graded SAND with silt, dense, subangular fine sand, weak reaction with HCl, moist, weak cementation, gray
-30.4	133.5								
			X	34	5 7 8	15	48	(1.75)	Elastic SILT, weak reaction with HCl, moist, stiff, high plasticity, dark gray LL=44, PL=32, PI=12



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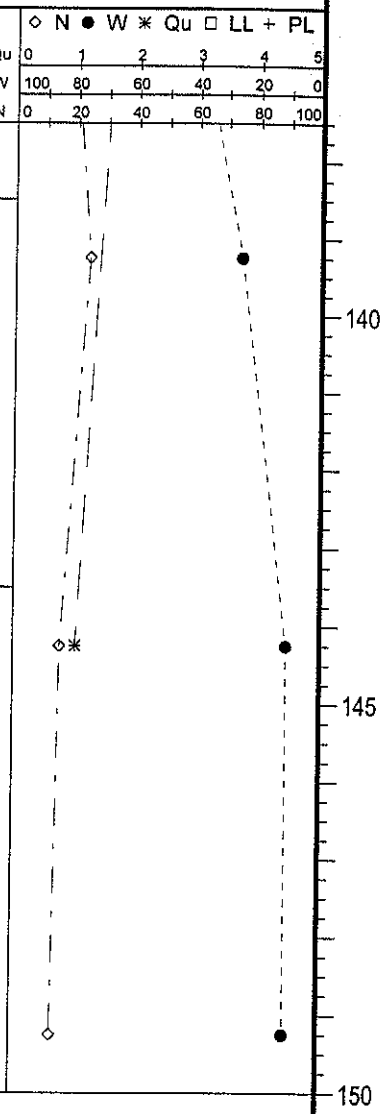
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.25 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-31.7	137.5								
-32.0	138.5								
				35	11 10 14	24	26		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
-33.5	143.5								
				36	4 6 9	15	11	(1.00)	Sandy SILT, subangular fine sand, weak reaction with HCl, moist, stiff, non plastic, dark gray
				37	5 7 6	13	11		As above, subangular medium sand
-35.5	150.0								



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.
7) Boreholes drilled with automatic SPT.

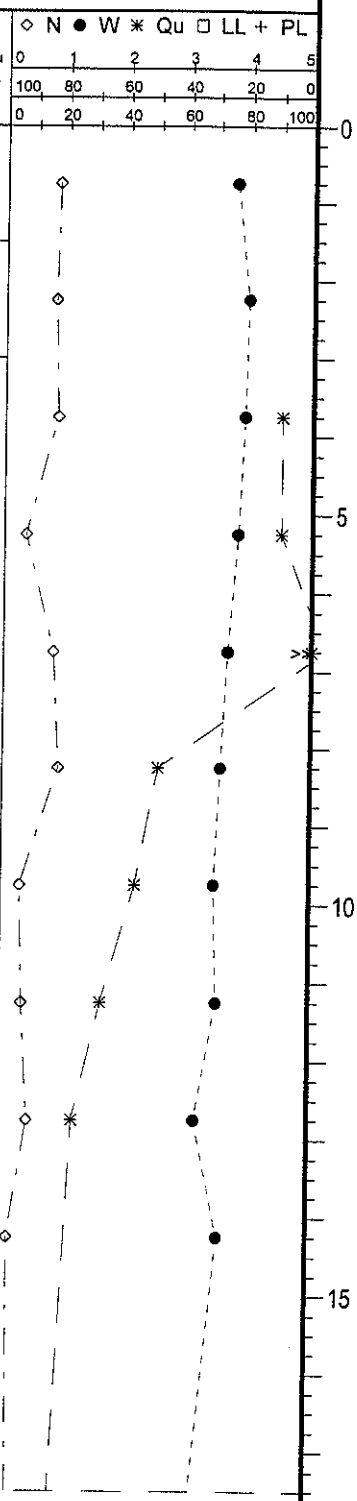
STATION COORDINATES (m): x = 406879.7579 y = 229190.2441 z = 10.25

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE: STARTED 06/09/1999 COMPLETED 06/10/1999
GROUNDWATER: 13 feet	ELEVATION TOP OF HOLE: 14.00 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
14.0	0.0								
13.5	1.5			1	10 9 8	17	25		FILL: silty CLAY, about 6% angular calcareous fine gravel, strong reaction with HCL, moist, medium, low plasticity, dark brown
13.1	3.0			2	9 8 8	16	21		Silty CLAY, no reaction with HCl, moist, medium, low plasticity, dark grayish brown
				3	9 9 8	17	22	(4.50)	Lean CLAY, no reaction with HCl, dry, hard, medium plasticity, dark grayish brown
				4	2 2 5	7	24	(4.50)	As above
				5	5 7 9	16	27	(4.50) 5.22	As above
				6	9 10 8	18	29	(2.50) 2.52	As above, moist, very stiff
10.8	10.5			7	3 3 3	6	31	(1.75) 2.16	As above, lensed with dark brown silty clay, no reaction with HCl, moist, stiff, high plasticity, yellowish brown
				8	3 3 4	7	30	(1.25) 1.62	Fat CLAY, lensed with dark brown silty clay, no reaction with HCl, moist, stiff, high plasticity, yellowish brown
9.9	13.5 ▼			9	4 4 5	9	37	(1.25) 1.17	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, dark gray
				10	WH 2 1	3	29		Sandy SILT, subangular fine sand, weak reaction with HCl, moist, very soft, non plastic, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

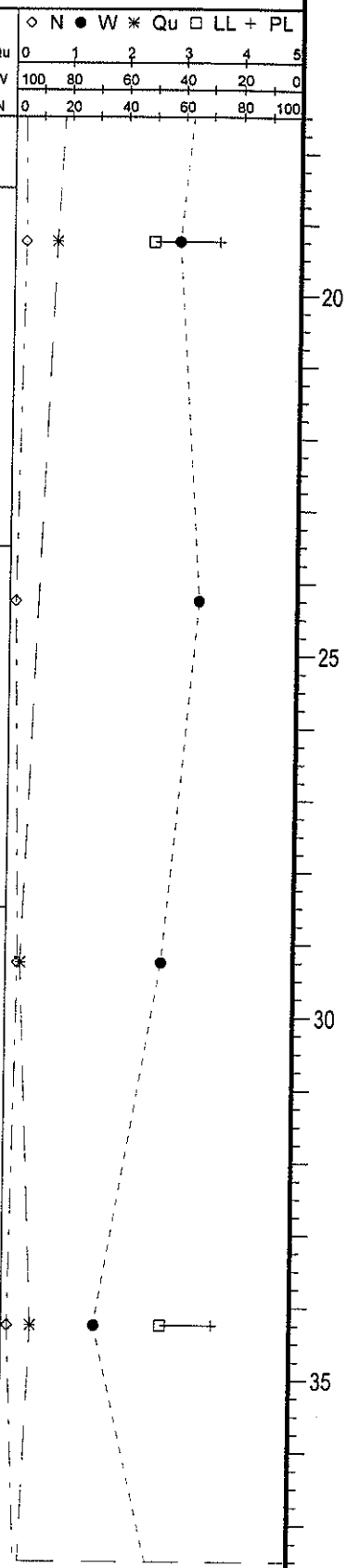
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 14.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
8.7	17.5								
8.4	18.5								
				11	1 2 2	4	42	(0.75)	Fat CLAY, no reaction with HCl, moist, medium, high plasticity, dark gray LL=51, PL=28, PI=23
6.8	23.5								
				12	1 1 1	2	34		Sandy fat CLAY, subangular fine sand, weak reaction with HCl, moist, very soft, high plasticity, dark gray
5.3	28.5								
				13	1 2 2	4	46	(0.25)	Fat CLAY, no reaction with HCl, moist, soft, high plasticity, dark gray
				14	2 1 1	2	68	(0.50)	As above LL=45, PL=27, PI=18



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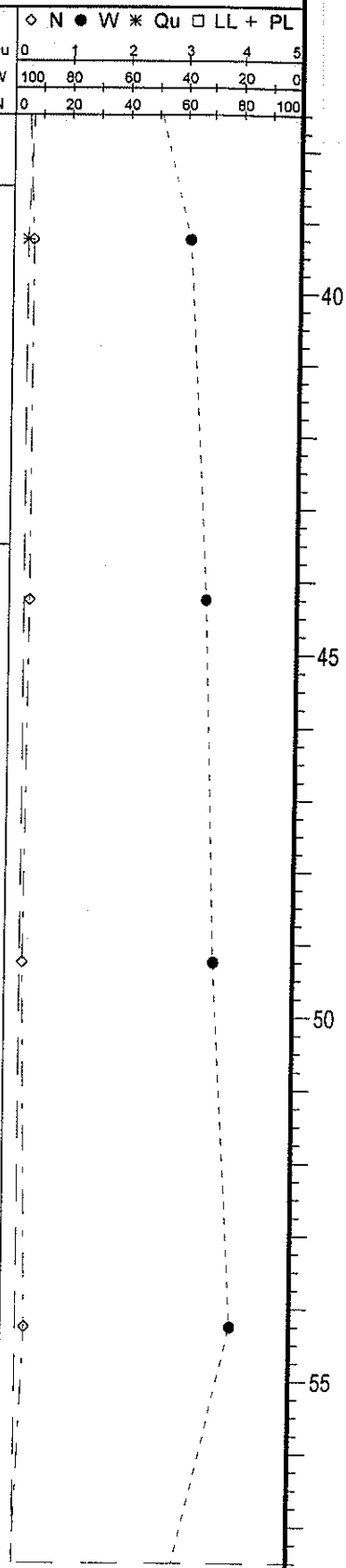
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 14.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
2.6	37.5								
2.3	38.5								
				15	2 4 3	7	39	(0.25)	Elastic SILT, no reaction with HCl, moist, soft, high plasticity, dark gray
0.7	43.5								
				16	2 3 4	7	32		Poorly graded SAND with silt, loose, subangular fine lithic sand, weak reaction with HCl, moist, weak cementation, dark gray
				17	3 3 3	6	28		As above
				18	4 4 4	8	21		As above, about 16% coarse sand shell fragments, strong reaction with HCl



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

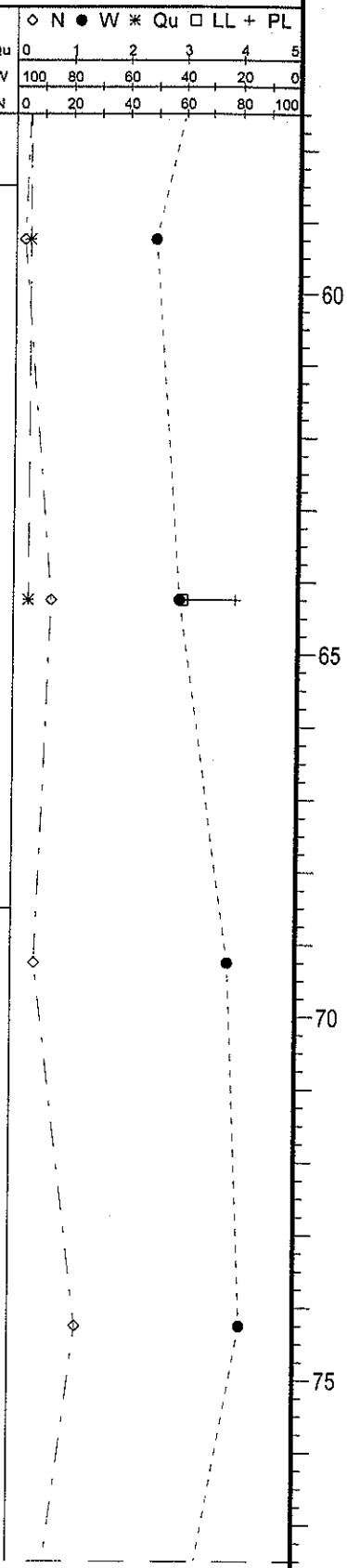
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 14.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-3.5	57.5								
-3.8	58.5								
				19	3 2 1	3	51	(0.25)	Elastic SILT, weak reaction with HCl, moist, soft, high plasticity, dark gray
				20	2 5 8	13	42	(0.25)	As above LL=41, PL=22, PI=19
-6.9	68.5								
				21	5 3 5	8	24		Poorly graded SAND with silt, loose, subangular fine lithic sand, about 18% coarse sand size, shell fragments, strong reaction with HCl, moist, weak cementation, dark gray
				22	11 12 11	23	19		As above, medium, subangular medium lithic sand



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

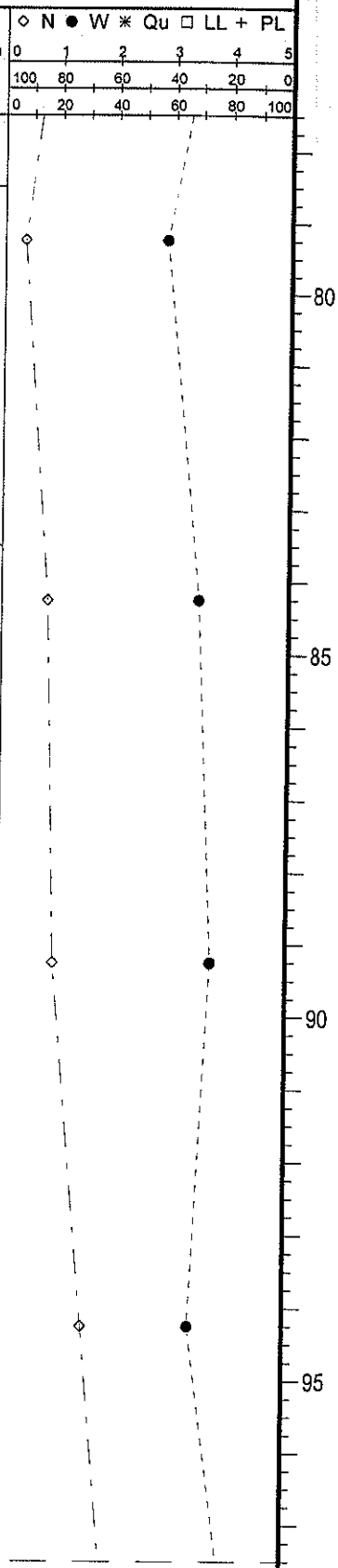
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 14.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-9.6	77.5								
-9.9	78.5								
				23	4 3 4	7	43		SILT, about 20% shell fragments, strong reaction with HCl, moist, very soft, non plastic, dark gray
-11.5	83.5								
				24	10 6 10	16	31		Poorly graded SAND with silt, medium, subangular fine lithic sand, about 16% shell fragments, strong reaction with HCl, moist, weak cementation, very dark gray
				25	9 8 11	19	26		As above
				26	16 17 13	30	33		As above, dense, subangular medium lithic sand



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

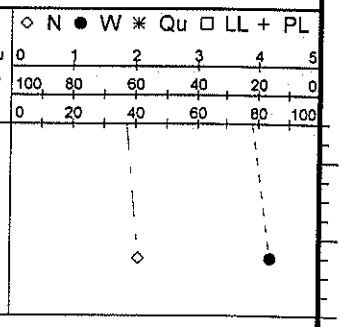
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 14.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-15.7	97.5								
-16.5	100.0			27	16 19 22	41	16		As above, dense, subangular medium lithic sand



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NOTE: 1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

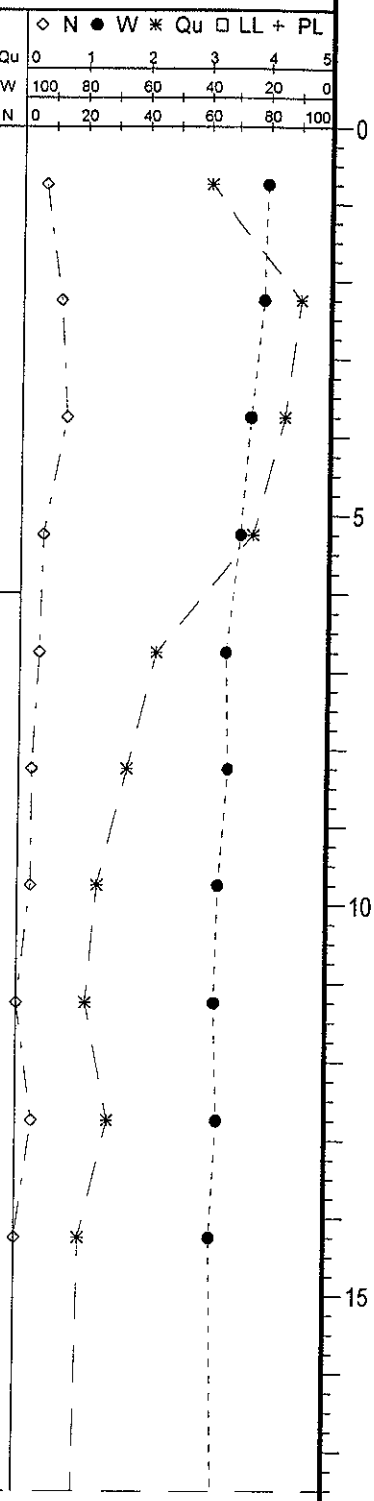
STATION COORDINATES (m): x = 406250.8779 y = 228555.1831 z = 14.00

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/16/1999 — COMPLETED: 06/18/1999
GROUNDWATER: 10 feet	ELEVATION TOP OF HOLE: 13.00 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
13.0	0.0			1	3 2 5	7	21	(3.00)	Lean CLAY, dry, very stiff, medium plasticity, strong reaction with HCl, dark yellowish brown
				2	5 6 6	12	22	(+4.5)	As above, hard, yellowish brown
				3	5 6 8	14	26	(4.25)	As above, hard, no reaction with HCl, yellowish brown
				4	3 3 4	7	29	(3.75)	As above, moist, very stiff, no reaction with HCl, yellowish brown
11.2	6.0			5	3 3 3	6	34	(2.50) 2.16	Fat CLAY, moist, very stiff, high plasticity, lensed with yellowish brown lean clay, no reaction with HCl, dark yellowish brown
				6	1 2 2	4	33	(2.00) 1.71	Fat CLAY, moist, stiff, high plasticity, dark brown mottled, lensed with brownish yellow silty clay, no reaction with HCl, yellowish brown
	▼			7	1 2 2	4	36	(1.25)	As above, brownish yellow
				8	WH WH 1	WH	37	(1.00) 1.08	As above, dark yellowish brown
				9	1 2 3	5	36	(1.25) 1.44	As above
				10	WH WH WH	WH	38	(1.00)	Fat CLAY, moist, stiff, high plasticity, about 0.5% roots, lensed with brownish yellow silty clay, no reaction with HCl, gray



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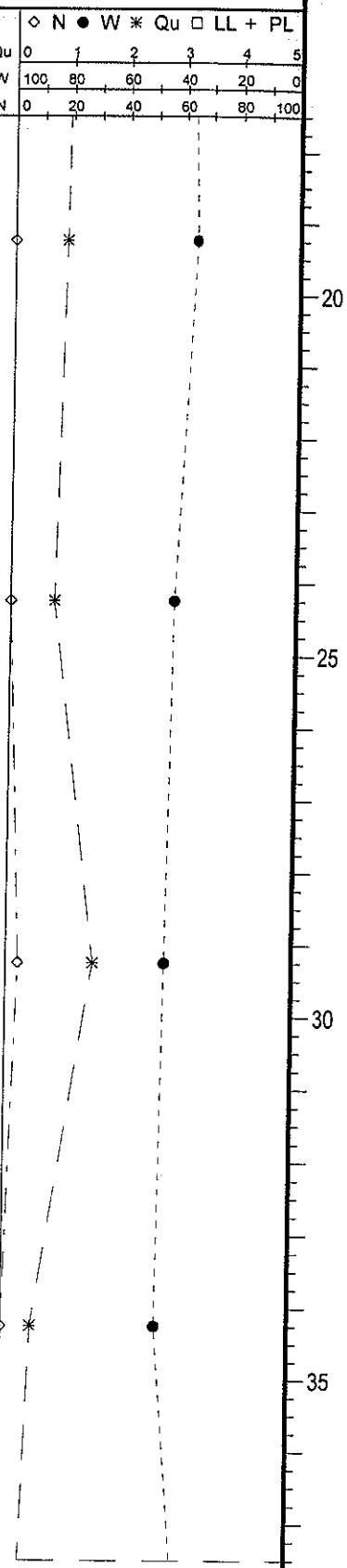
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
7.7	17.5								
				11	WH WH 2	WH	36	(1.00) 0.90	Fat CLAY, moist, stiff, high plasticity, about 1% subangular medium sand, gray
				12	WH WH 1	WH	43	(0.75)	As above, medium
				13	WH 2 2	4	45	(1.50)	As above
2.8	33.5								
				14	1 WH WH	WH	47	(0.50)	Elastic SILT, moist, soft, high plasticity, about 16% wood fragments, strong reaction with HCl, gray



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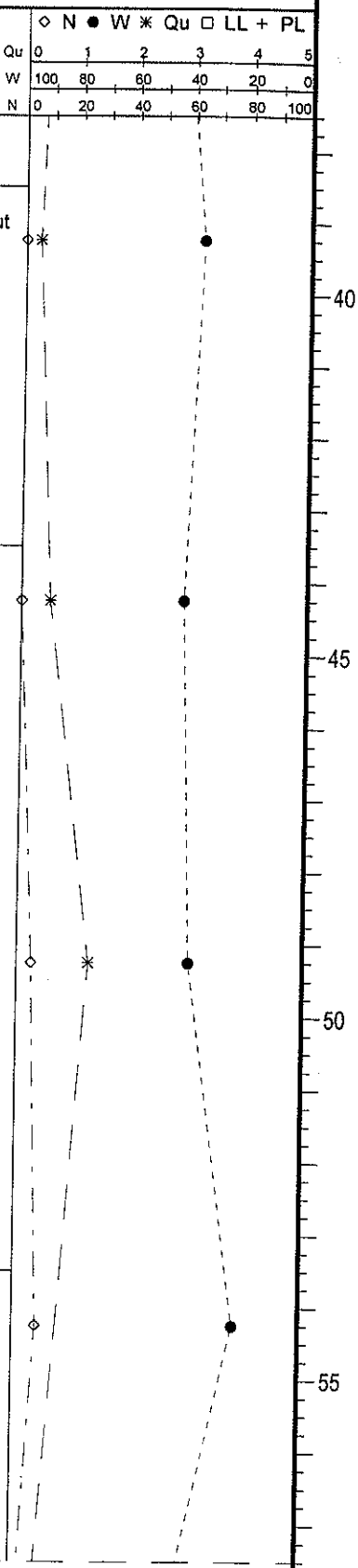
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
1.6	37.5								
1.3	38.5								
				15	WH WH WH	WH	37	(0.25)	SILT, moist, very soft, non plastic, about 2% wood fragments, no reaction with HCl, gray
-0.3	43.5								
				16	1 WH 1	WH	43	(0.50)	Elastic SILT, moist, soft, high plasticity, no reaction with HCl, gray
				17	WH 2 3	5	40	(1.25)	As above, stiff, about 10% shell fragments, strong reaction with HCl
-3.3	53.5								
				18	3 3 5	8	23		Poorly graded SAND with silt, moist, weak cementation, loose, about 10% shell fragments, subangular medium lithic sand, weak reaction with HCl, dark gray



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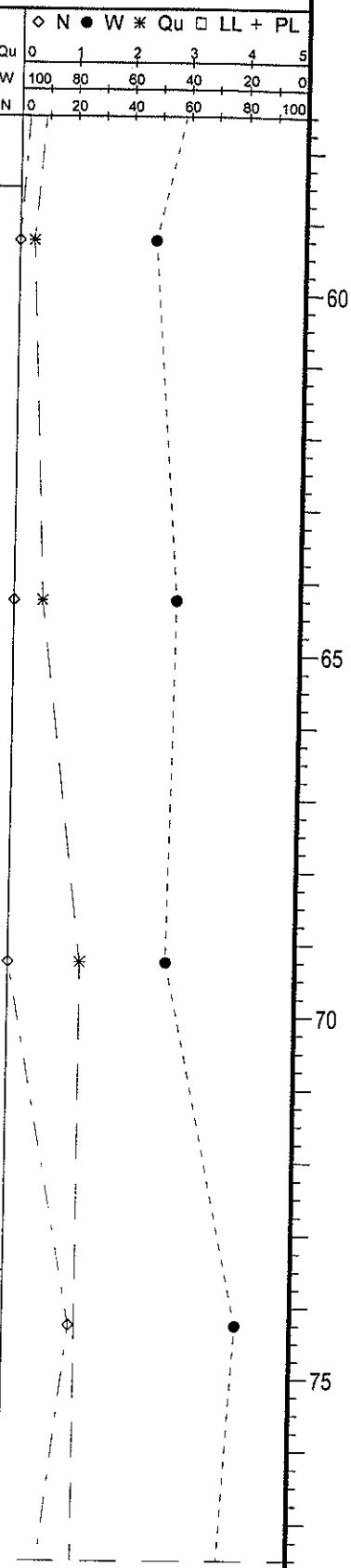
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-4.5	57.5								
-4.8	58.5								
				19	WH WH WH	WH	52	(0.25)	Elastic SILT, moist, soft, high plasticity, no reaction with HCl, gray
				20	WH WH WH	WH	43	(0.50)	As above
				21	WH WH 1	WH	45	(1.25)	Elastic SILT with sand, moist, stiff, high plasticity, about 16% shell fragments, subangular fine sand, strong reaction with HCl,very dark gray
-9.4	73.5			22	8 10 13	23	19		Poorly graded SAND with silt, moist, weak cementation, medium, subangular fine lithic sand, no reaction with HCl, gray



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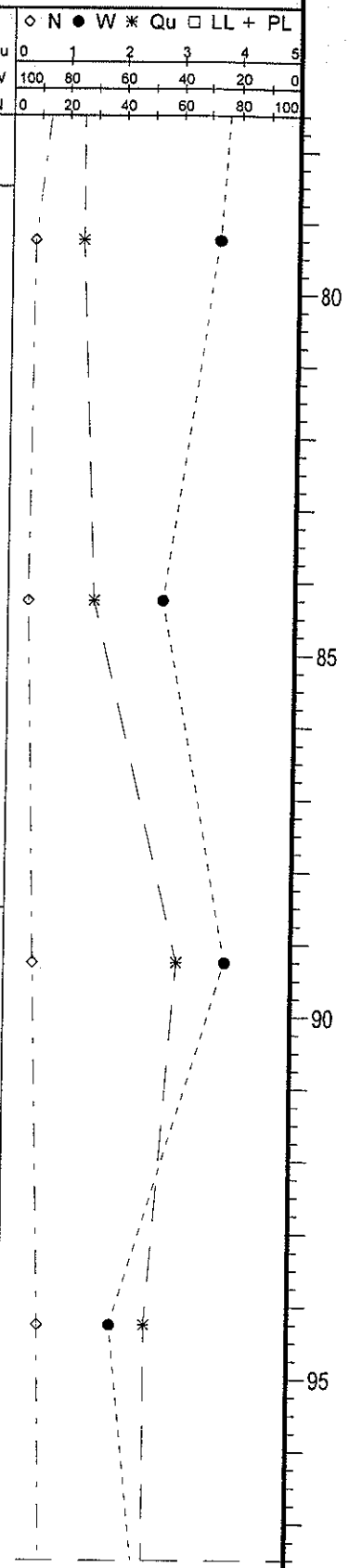
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-10.6	77.5								
-10.9	78.5								
				23	6 4 4	8	27	(1.25)	Elastic SILT, moist, stiff, high plasticity, weak reaction with HCl, dark gray
				24	3 3 4	7	46	(1.50)	As above, about 13% shell fragments, strong reaction with HCl
-14.0	88.5								
				25	3 4 6	10	23	(3.00)	Sandy SILT, moist, very stiff, non plastic, about 3% shell fragments, subangular fine sand, weak reaction with HCl, very dark gray
-15.5	93.5								
				26	3 5 8	13	62	(2.50)	Elastic SILT, moist, very stiff, high plasticity, about 1% wood fragments, no reaction with HCl, dark grayish brown



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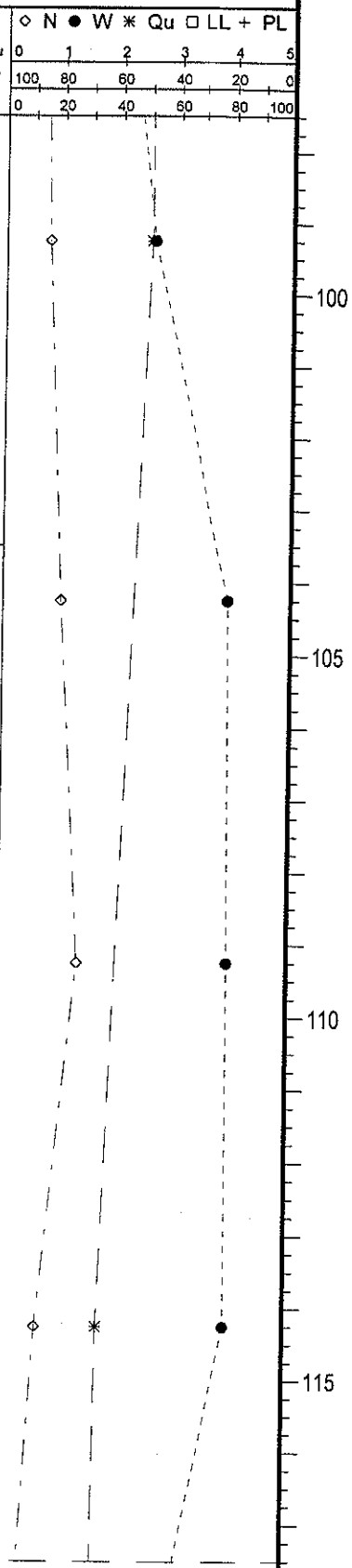
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-16.7	97.5								
				27	5 7 8	15	49	(2.50)	As above, lensed with very dark gray silty clay with sand, subangular medium sand
-18.5	103.5								
				28	6 7 13	20	22		Silty SAND, moist, weak cementation, medium, subangular fine sand, no reaction with HCl, gray
-20.1	108.5								
				29	9 13 14	27	21		Well graded SAND with silt, moist, weak cementation, medium, subangular lithic sand, no reaction with HCl, gray
-21.6	113.5								
				30	3 7 7	14	21	(1.75)	Elastic SILT, moist, stiff, high plasticity, about 5% subangular medium sand, weak reaction with HCl, dark gray



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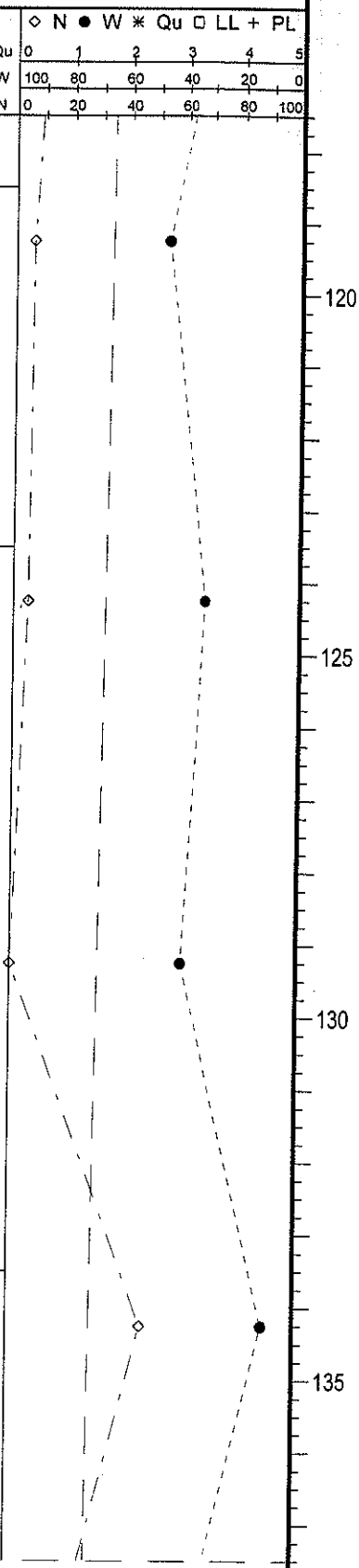
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-22.8	117.5								
-23.1	118.5								
				31	WH 4 2	6	47		Fat CLAY, moist, soft, high plasticity, no reaction with HCl, gray
-24.6	123.5								
				32	WH 3 2	5	33		Elastic SILT, moist, stiff, high plasticity, no reaction with HCl, gray
				33	WH WH 4	WH	41		As above
-27.7	133.5								
				34	13 21 25	46	11		Well graded SAND with silt, moist, weak cementation, dense, subangular lithic sand, no reaction with HCl, gray



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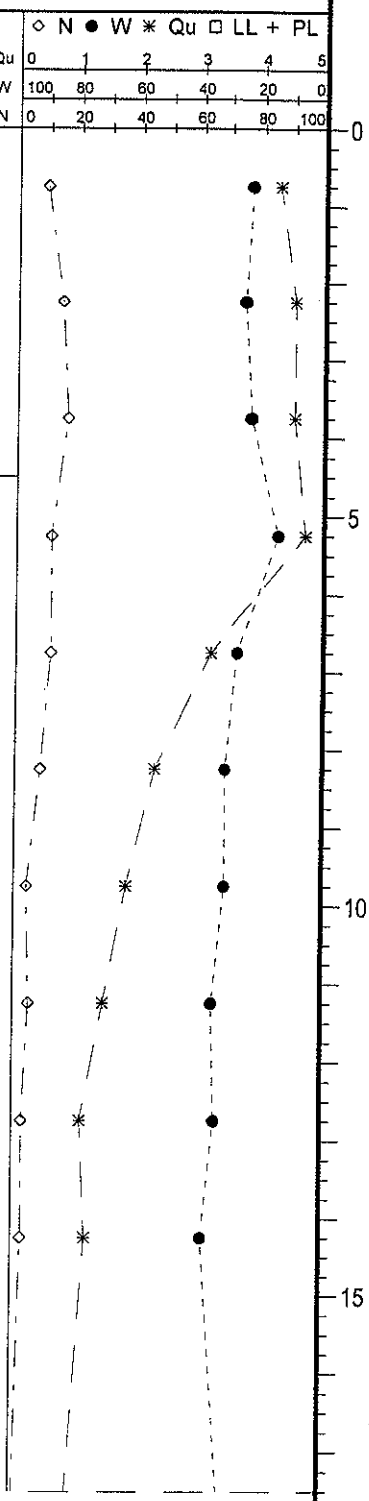
DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Angel Ferrer / CME-55 Truck Mounted
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/22/1999 — COMPLETED: 06/22/1999
GROUNDWATER: 9.5 feet	ELEVATION TOP OF HOLE: 11.75 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
11.8	0.0			1	3 4 5	9	24	(4.25)	Lean CLAY, no reaction with HCl, dry, hard, medium plasticity, yellowish brown
				2	4 6 8	14	26	(+4.5)	As above
				3	6 8 8	16	24	(+4.5)	As above
10.4	4.5			4	4 4 7	11	15	(+4.5) 4.69	Fat CLAY, no reaction with HCl, moist, hard, high plasticity, dark yellowish brown
				5	5 5 6	11	28	(2.50) 3.15	As above, very stiff, dark brown mottled, yellowish brown
				6	5 4 4	8	32	(1.75) 2.25	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, dark brown mottled, yellowish brown
	▼			7	2 2 2	4	32	(1.50) 1.80	As above, brownish yellow
				8	2 3 2	5	36	(1.00) 1.44	As above, dark brown and brownish yellow mottled, grayish brown
				9	WH 1 2	3	35	(0.75) 1.08	Fat CLAY, no reaction with HCl, moist, medium, high plasticity, brownish yellow mottled, gray
				10	WH 1 2	3	39	(0.75) 1.17	As above



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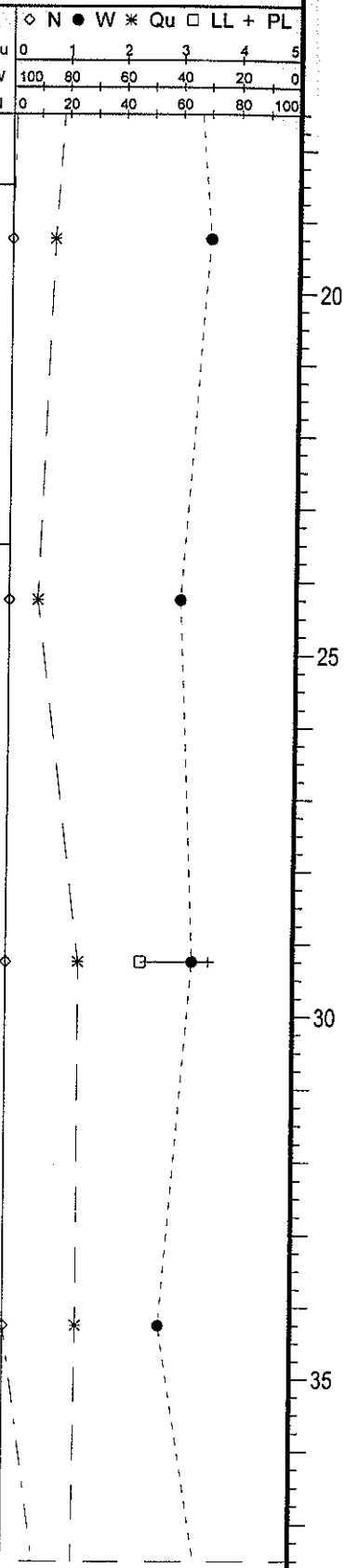
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.75 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
6.4	17.5								
6.1	18.5								
				11	WH WH 2	WH	30	(0.75)	Elastic SILT, no reaction with HCl, moist, medium, high plasticity, dark gray
4.6	23.5								
				12	WH WH WH	WH	40	(0.50)	Fat CLAY, no reaction with HCl, moist, soft, high plasticity, gray
				13	WH WH WH	WH	35	(1.00) 1.26	As above, stiff LL=53, PL=29, PI=24
				14	WH WH 2	WH	46	(1.00) 1.26	As above, stiff, black mottled



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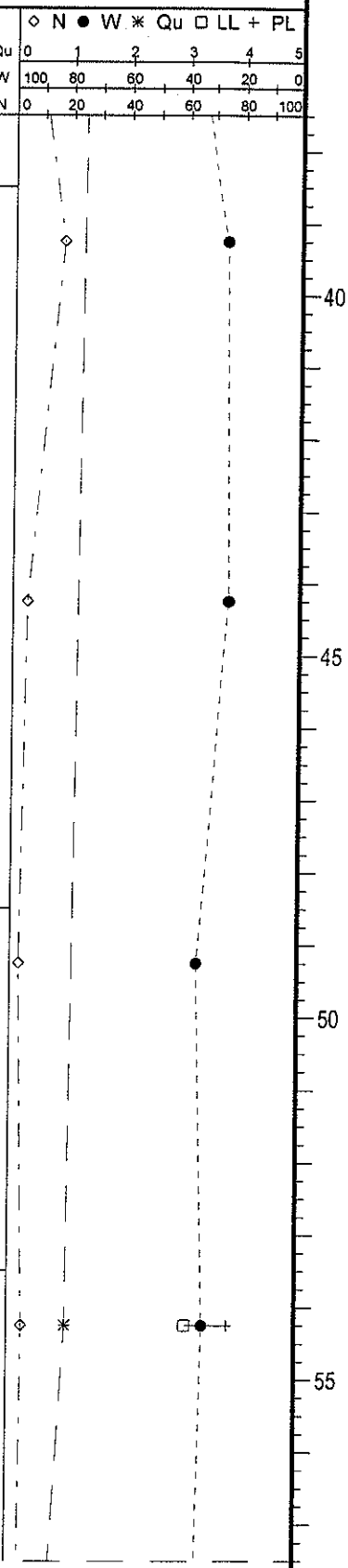
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.75 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
0.3	37.5								
0.0	38.5								
				15	8 8 9	17	26		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, moist, weak cementation, gray
				16	3 3 2	5	25		As above, loose, about 6% shell fragments, strong reaction with HCl
-3.0	48.5								
				17	2 1 2	3	36		SILT with sand, subangular fine sand, weak reaction with HCl, moist, stiff, non plastic, dark gray
-4.6	53.5								
				18	1 2 3	5	33	(1.00)	Elastic SILT, lensed with dark gray silt with sand (as above), about 4% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray LL=39, PL=24, PI=15



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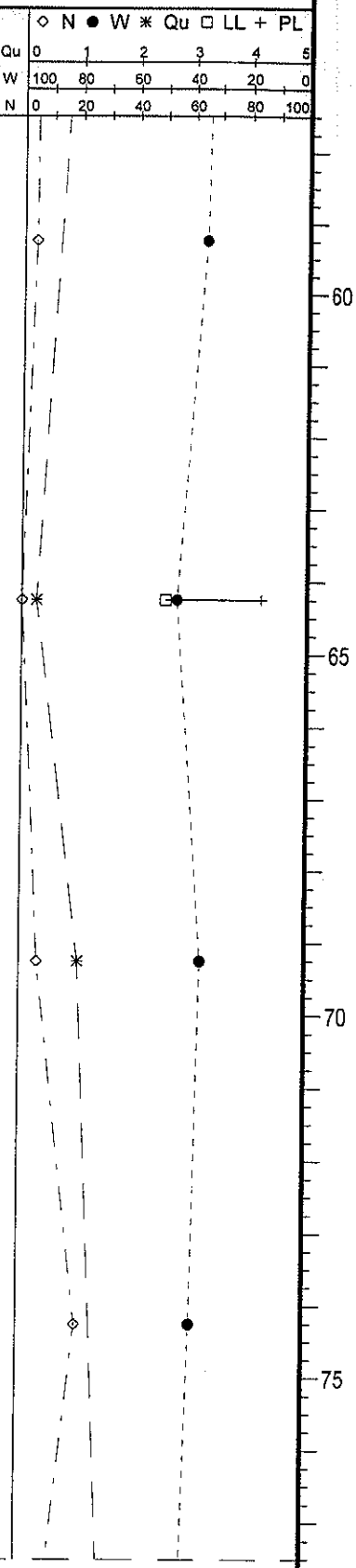
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.75 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-5.8	57.5								
			X	19	1 1 3	4	36		Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, gray
			X	20	WH WH WH	WH	46	(0.25)	As above, about 6% angular coarse sand, soft LL=50, PL=16, PI=34
			X	21	WH 2 4	6	37	(1.00)	As above, lensed with dark gray silt
			X	22	4 8 12	20	40		Sandy elastic SILT, subangular medium lithic sand, about 8% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray



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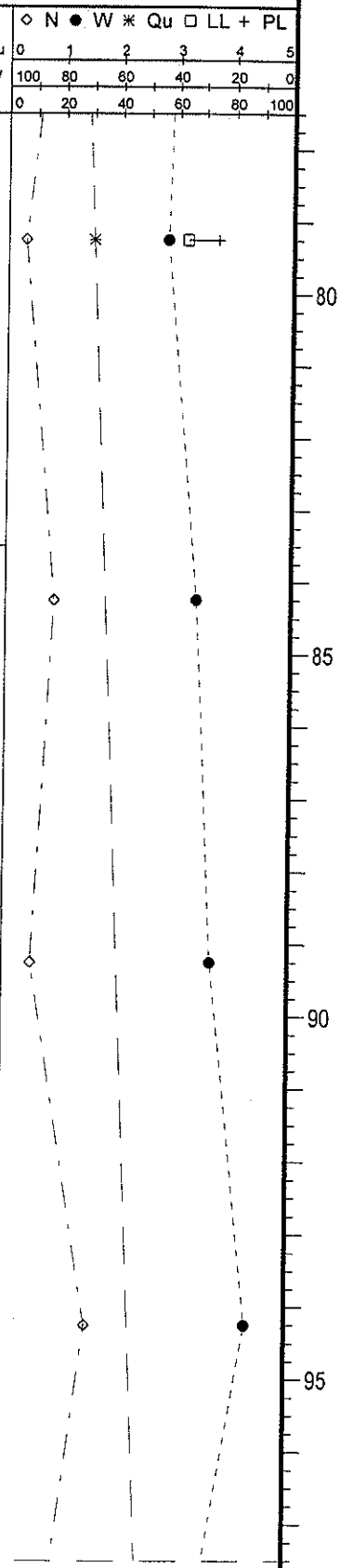
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.75 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-11.9	77.5								
				23	2 2 4	6	44	(1.50)	Elastic SILT, about 6% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray LL=37, PL=26, PI=11
-13.7	83.5								
				24	4 8 9	17	33		Sandy SILT, subangular fine lithic sand, about 4% shell fragments, strong reaction with HCl, moist, medium, non plastic, dark gray
-15.2	88.5								
				25	2 5 5	10	27		Elastic SILT, about 19% shell fragments, strong reaction with HCl, moist, medium, high plasticity, very dark gray
-16.7	93.5								
				26	15 16 14	30	14		Well graded SAND with silt, dense, subangular lithic sand, no reaction with HCl, moist, weak cementation, dark gray



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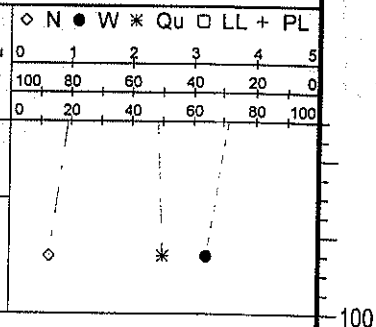
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 11.75 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-18.0	97.5								
-18.3	98.5								
-18.7	100.0			27	5 6 7	13	36	(2.50)	Elastic SILT, about 8% wood fragments, no reaction with HCl, moist, very stiff, high plasticity, dark grayish brown



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.
7) Boreholes drilled with automatic SPT.

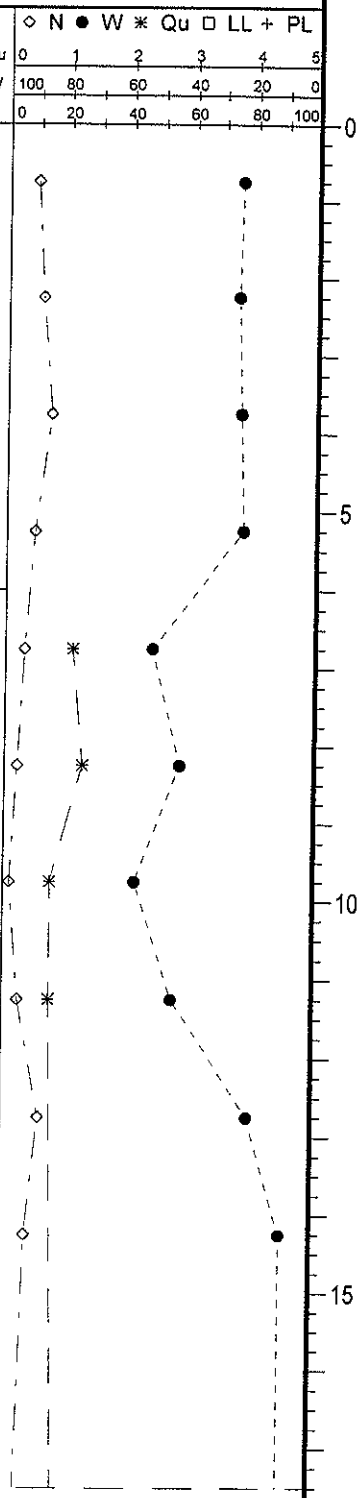
STATION COORDINATES (m): x = 406832.6615 y = 228904.5492 z = 11.75

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE: STARTED 07/01/1999, COMPLETED 07/06/1999
GROUNDWATER: 12 feet	ELEVATION TOP OF HOLE: 10.00 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
10.0	0.0			1	4 4 5	9	25		Lean CLAY with gravel, subangular calcareous fine gravel, strong reaction with HCl, moist, very stiff, medium plasticity, dark yellowish brown
				2	5 5 6	11	26		Lean CLAY, about 4% subangular calcareous fine gravel, strong reaction with HCl, moist, very stiff, medium plasticity, dark yellowish brown
				3	6 7 7	14	25		As above
8.2	6.0			4	4 5 4	9	24		As above
				5	4 4 2	6	53	(1.25) 1.08	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray
				6	2 2 2	4	44	(1.25)	As above
				7	1 1 1	2	58	(0.75)	As above
6.3	7.0			8	2 1 4	5	46	(0.75)	As above
5.9	13.5			9	5 6 6	12	21		Well graded SAND with silt, medium, subangular lithic sand, about 10% subangular fine lithic gravel, no reaction with HCl, moist, weak cementation, dark gray
				10	6 4 4	8	10		Well graded GRAVEL with silt and sand, loose, subrounded lithic gravel, subangular coarse lithic sand, no reaction with HCl, moist, weak cementation, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

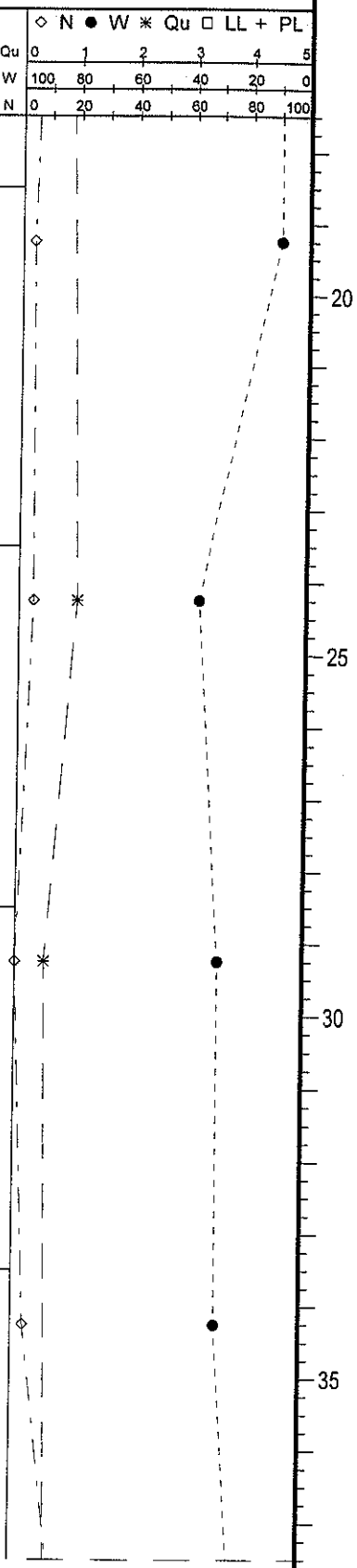
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
4.7	17.5								
4.4	18.5								
				11	2 3 1	4	10		Well graded sand with silt, very loose, subangular lithic sand, about 8% subrounded fine lithic gravel, no reaction with HCl, wet, weak cementation, gray
2.8	23.5								
				12	2 2 3	5	38	(1.00)	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, gray
1.3	28.5								
				13	WH WH WH	WH	30	(0.50)	Elastic silt with sand, subangular fine sand, weak reaction with HCl, moist, medium, high plasticity, dark gray
-0.2	33.5								
				14	1 1 3	4	30		Poorly graded SAND with silt, loose, subangular medium lithic sand, no reaction with HCl, moist, weak cementation, dark gray



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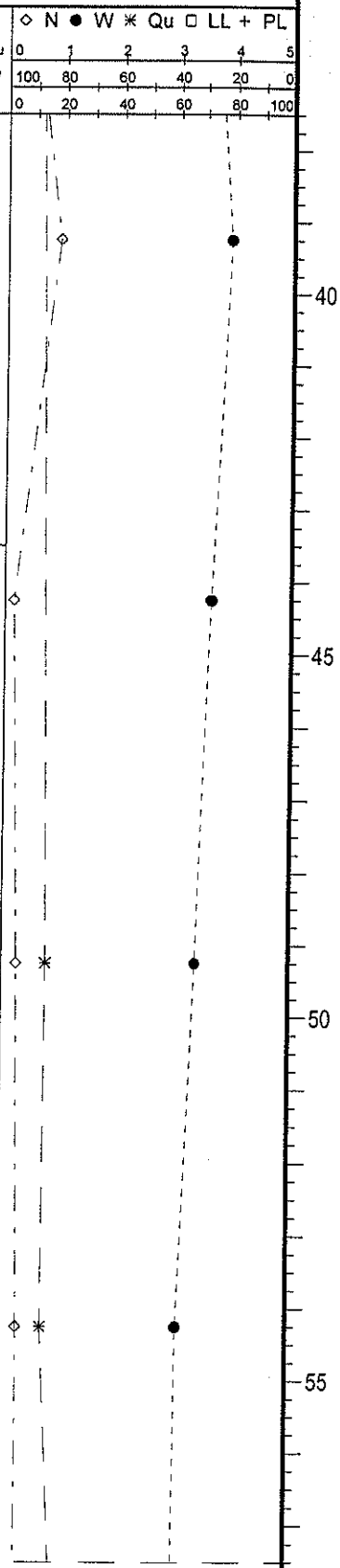
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-1.4	37.5								
				15	3 9 9	18	22		As above, medium
-3.3	43.5								
				16	1 1 2	3	28		Sandy elastic SILT, subangular fine sand, strong reaction with HCl, moist, medium, high plasticity, very dark gray
				17	3 3 2	5	33	(0.75)	As above, lensed with dark gray silty sand, subangular fine sand
-6.3	53.5								
				18	2 3 3	6	39	(0.50) 0.72	Fat CLAY, no reaction with HCl, moist, soft, high plasticity, black mottled, gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

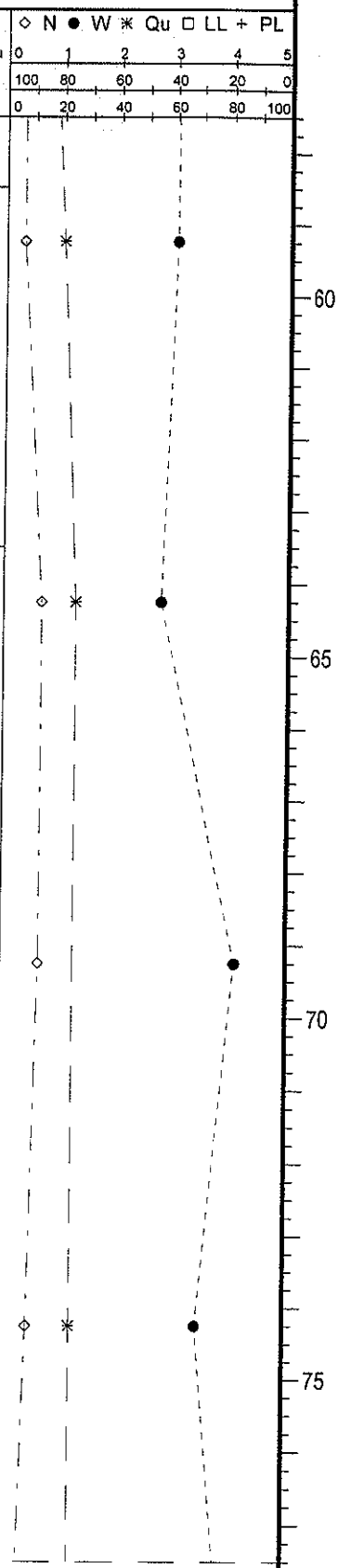
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE: 10.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-7.5	57.5								
-7.8	58.5								
				19	3 3 3	6	40	(1.00)	Elastic silt, no reaction with HCl, moist, stiff, high plasticity, dark gray
-9.4	63.5								
				20	3 2 11	13	45	(1.25)	Sandy elastic SILT, subangular fine sand, at top (2.0 in.) dark gray elastic silt (as above), about 10% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, very dark gray
-10.9	68.5								
				21	5 7 6	13	18		Well graded SAND with silt, medium, subangular lithic sand, strong reaction with HCl, moist, weak cementation, dark gray
-12.4	73.5								
				22	4 6 4	10	31	(1.25)	Elastic SILT with sand, subangular fine sand, no reaction with HCl, moist, stiff, high plasticity, dark gray



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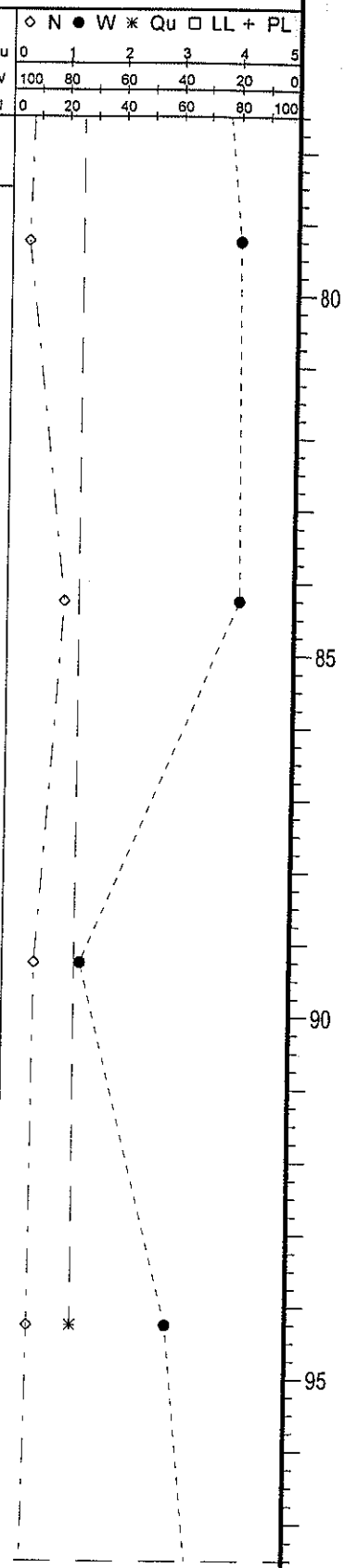
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-13.6	77.5								
-13.9	78.5								
				23	4 3 3	6	20		Silty SAND, loose, subangular medium lithic sand, about 15% shell fragments, strong reaction with HCl, moist, weak cementation, very dark gray
				24	8 9 11	20	19		As above, medium
				25	3 5 6	11	73		As above, medium, subangular fine sand, about 1% shall fragments, no reaction with HCl
-18.5	93.5								
				26	4 4 6	10	42	(1.25)	Elastic silt, lensed with very dark gray silty sand, subangular medium sand, no reaction with HCl, moist, stiff, high plasticity, very dark grayish brown



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

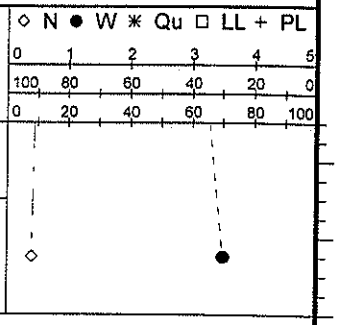
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-19.7	97.5								
-20.0	98.5								
-20.5	100.0			27	4 4 4	8	30		Poorly graded SAND, loose, subangular fine quartz sand, no reaction with HCl, moist, weak cementation, gray



100

NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

STATION COORDINATES (m): x = 406307.2065 y = 228326.7222 z = 10.00

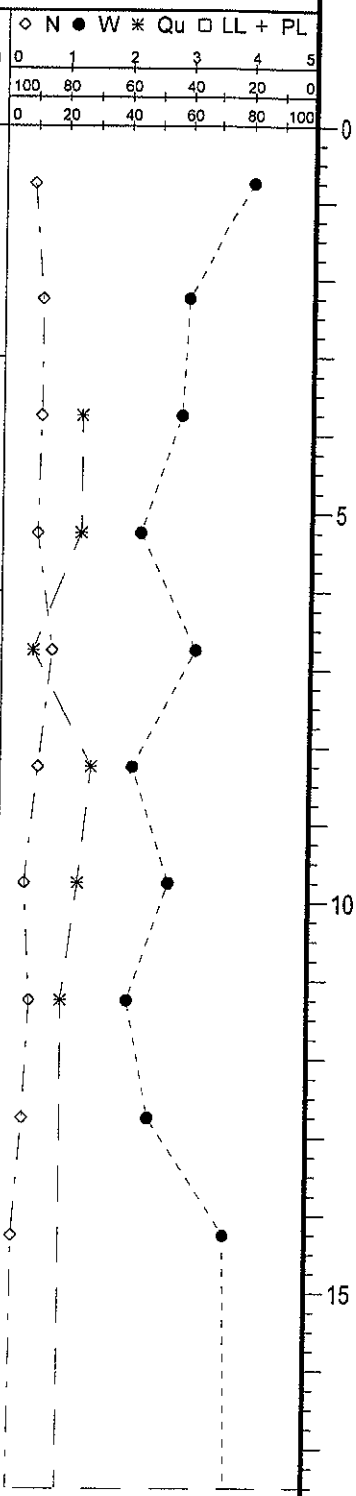
GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/29/1999 — COMPLETED: 06/30/1999
GROUNDWATER: 13 feet	ELEVATION TOP OF HOLE: 20.50 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
20.5	0.0								
				1	3 4 5	9	20		Lean CLAY with gravel, soft, dry, medium plasticity, subangular calcareous fine gravel, strong reaction with HCL, dark brown
				2	5 6 6	12	41		Lean CLAY, soft, medium plasticity, dry, about 2% roots, weak reaction with HCL, dark brown
19.6	3.0								
				3	6 6 6	12	43	(1.25)	Fat CLAY, stiff, high plasticity, moist, no reaction with HCL, gray
				4	5 5 6	11	56	(1.25)	As above
18.7	6.0								
				5	8 7 9	16	38	(0.50)	Elastic SILT, soft, high plasticity, moist, about 2% shell fragments, weak reaction with HCL, dark gray
				6	6 7 5	12	58	(1.25) 1.44	As above, about 1% shell fragments
				7	3 4 4	8	46	(1.25)	As above, stiff, high plasticity, grayish brown mottled, dark gray
				8	6 5 5	10	59	(1.00)	As above
	▼			9	5 4 4	8	52		Elastic SILT with sand, soft, high plasticity, moist, subangular fine sand, no reaction with HCL, dark gray
16.4	13.5								
				10	2 3 2	5	27		Poorly graded SAND with silt, medium, subangular medium lithic sand, weak cementation, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

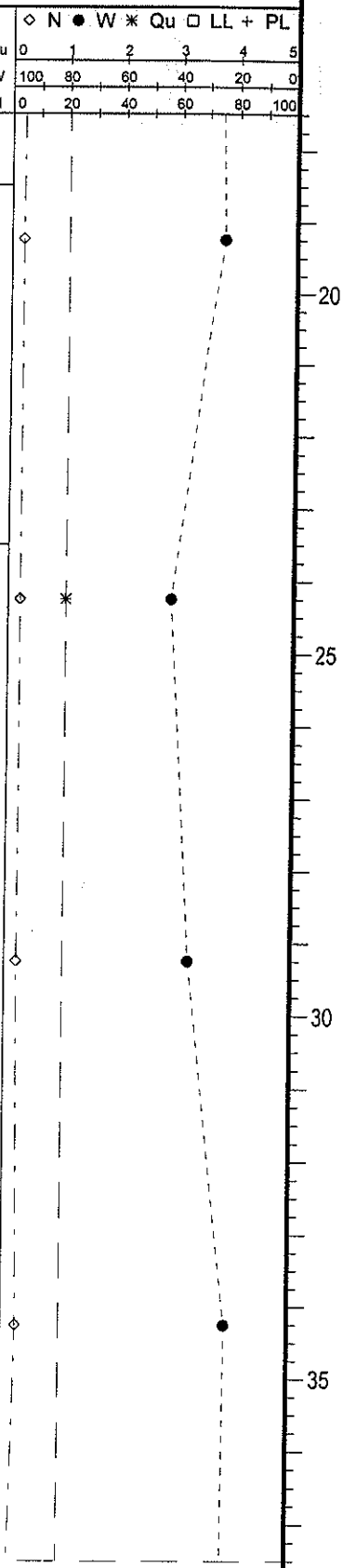
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 20.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
15.2	17.5								
14.9	18.5								
				11	1 2 2	4	25		Well graded GRAVEL with sand, medium, subrounded lithic gravel, subrounded medium sand lithic sand, weak cementation, weak reaction with HCL, gray
13.3	23.5			12	WH 2 2	4	43	(1.00)	Fat CLAY, stiff, high plasticity, moist, no reaction with HCL, gray
				13	1 2 2	4	36		As above, soft, about 15% wood fragments
10.3	33.5			14	2 3 2	5	22		Silty SAND, very loose, weak cementation, subangular medium lithic sand, weak reaction with HCL, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

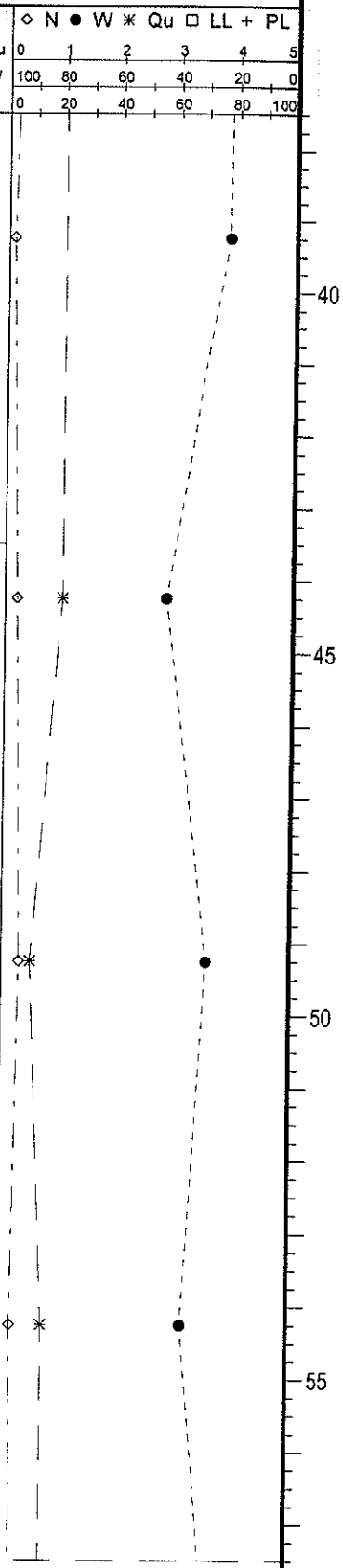
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 20.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
9.1	37.5								
				15	2 1 1	2	23		As above, loose, wet
7.2	43.5								
				16	2 2 2	4	44	(1.00)	Elastic SILT, stiff, high plasticity, moist, about 20% shell fragments, strong reaction with HCL, very dark gray
5.7	48.5								
				17	3 2 4	6	29	(0.50)	Sandy SILT, soft, nonplastic, subangular fine sand, about 4% shell fragments, strong reaction with HCL, very dark gray
4.2	53.5								
				18	2 1 3	4	37	(0.75)	Elastic SILT,



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

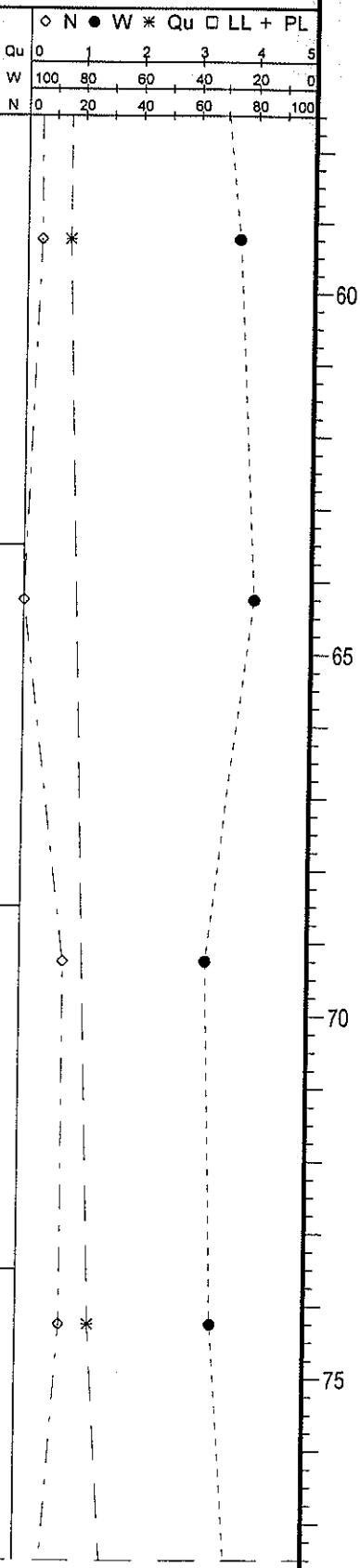
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 20.50 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
3.0	57.5								
				19	3 2 3	5	26	(0.75)	As above, dark gray
1.1	63.5								
				20	WH WH WH	WH	20		Poorly graded SAND with silt, medium, weak cementation, subangular lithic sand, dark gray
-0.4	68.5								
				21	6 9 6	15	36		SILT with sand, soft, nonplastic, moist, subangular fine sand, strong reaction with HCL, dark gray
-1.9	73.5								
				22	3 6 9	15	33	(1.25)	Elastic SILT, stiff, high plasticity, moist, about 3% shell fragments, strong reaction with HCL, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

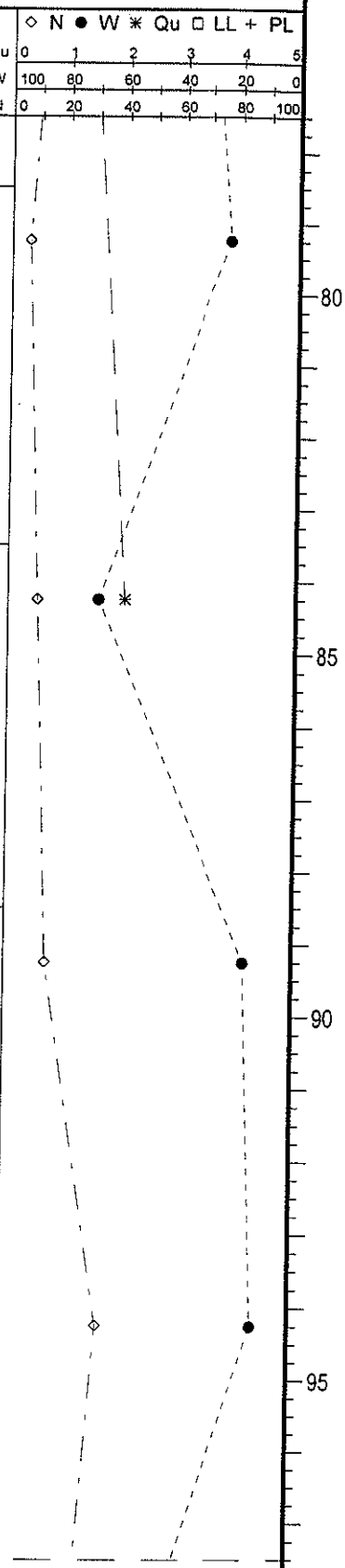
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 20.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-3.1	77.5								
-3.4	78.5								
				23	3 3 3	6	24		Well graded SAND with silt, medium, weak cementation, subangular lithic sand, dark gray
-5.0	83.5								
				24	4 5 5	10	69	(2.00)	Elastic SILT, very stiff, high plasticity, moist, weak reaction with HCL, dark grayish brown
-6.5	88.5								
				25	2 4 10	14	17		Well graded SAND with silt, medium, weak cementation, subangular lithic sand, no reaction with HCL, dark gray
-8.0	93.5								
				26	15 16 17	33	13		Poorly graded SAND with silt, medium, weak cementation, subangular lithic sand, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

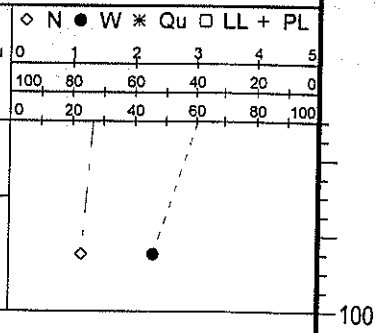
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 20.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-9.2	97.5								
-9.5	98.5								
-10.0	100.0			27	9 11 12	23	54		Elastic SILT, soft, high plasticity, no reaction with HCL, dark gray



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

STATION COORDINATES (m): x = 406351.7733 y = 228106.2962 z = 20.50

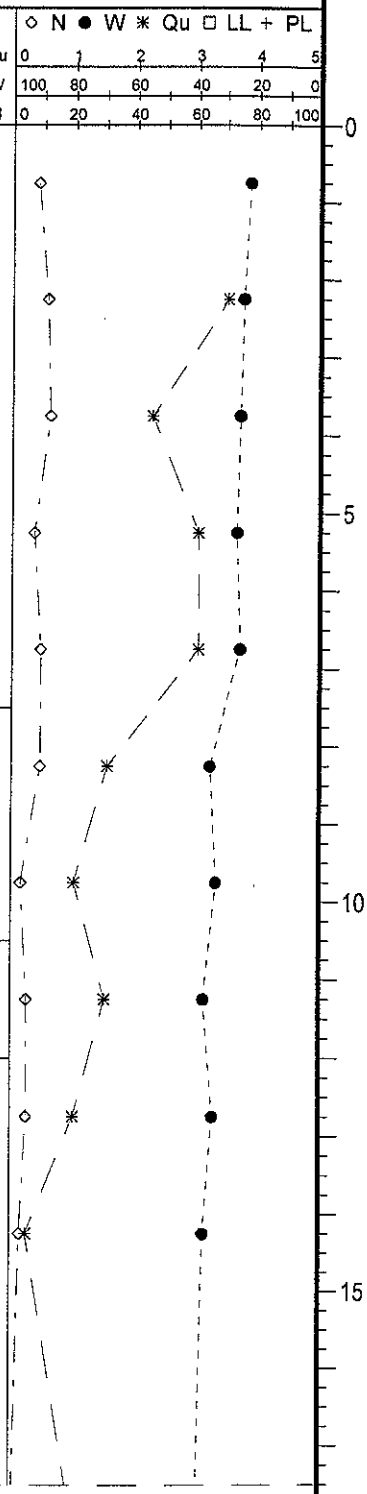
GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Angel Ferrer / CME-55 Truck Mounted
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 07/01/1999 — COMPLETED: 07/06/1999
GROUNDWATER: 8.5 feet	ELEVATION TOP OF HOLE: 21.00 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
21.0	0.0			1	4 3 5	8	23		Lean CLAY, strong reaction with HCl, moist, hard, medium plasticity, yellowish brown
				2	4 5 6	11	25	(3.50)	As above, very stiff
				3	5 6 6	12	26	(2.25)	As above, very stiff, no reaction with HCl
				4	3 3 4	7	27	(3.00)	As above, very stiff, no reaction with HCl
18.7	7.5			5	4 5 4	9	26	(3.00)	As above, very stiff, no reaction with HCl, dark yellowish
	▼			6	4 4 5	9	36	(1.25) 1.53	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, dark brown mottled, yellowish brown
17.8	10.5			7	2 2 1	3	34	(1.00)	Fat CLAY, lensed with brownish yellow silty clay, no reaction with HCl, moist, stiff, high plasticity, yellowish brown
17.3	12.0			8	3 2 3	5	38	(1.50)	Lean CLAY, no reaction with HCl, moist, stiff, medium plasticity, dark brown mottled, brownish yellow
				9	2 3 2	5	35	(1.00)	Fat CLAY, lensed with brownish yellow silty clay, no reaction with HCl, moist, stiff, high plasticity, dark brown mottled, yellowish brown
				10	1 2 1	3	38	(0.25)	As above, lensed with yellowish brown silty clay, dark yellowish brown



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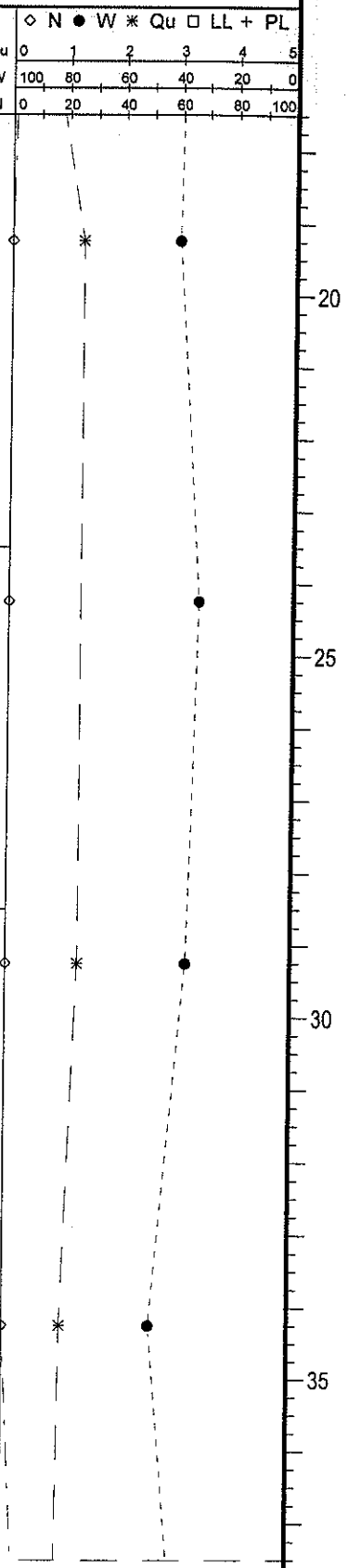
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
15.7	17.5								
				11	WH WH WH	WH	41	(1.25)	Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, brownish yellow mottled, olive gray
13.8	23.5								
				12	WH WH 2	WH	33		Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray
12.3	28.5								
				13	WH WH 1	WH	37	(1.25)	Fat CLAY, about 2% wood fragments, no reaction with HCl, moist, stiff, high plasticity, dark gray
10.8	33.5								
				14	WH WH WH	WH	49	(1.00)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

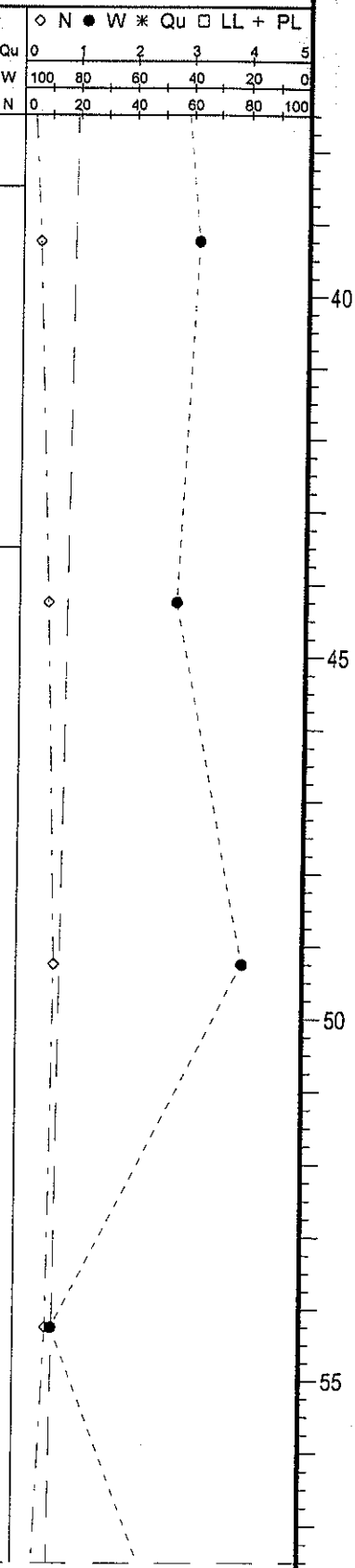
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
9.6	37.5								
9.3	38.5								
				15	2 3 3	6	38		Silty SAND, subangular fine sand, no reaction with HCl, moist, weak cementation, dark gray
7.7	43.5								
				16	2 3 7	10	45		Sandy SILT, subangular fine sand, no reaction with HCl, wet, soft, nonplastic, dark gray
				17	4 5 8	13	21		Sandy SILT, subangular medium sand, about 14% shell fragments, strong reaction with HCl, moist, soft, nonplastic, very dark gray
				18	6 5 6	11	87		As above, subangular fine sand



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

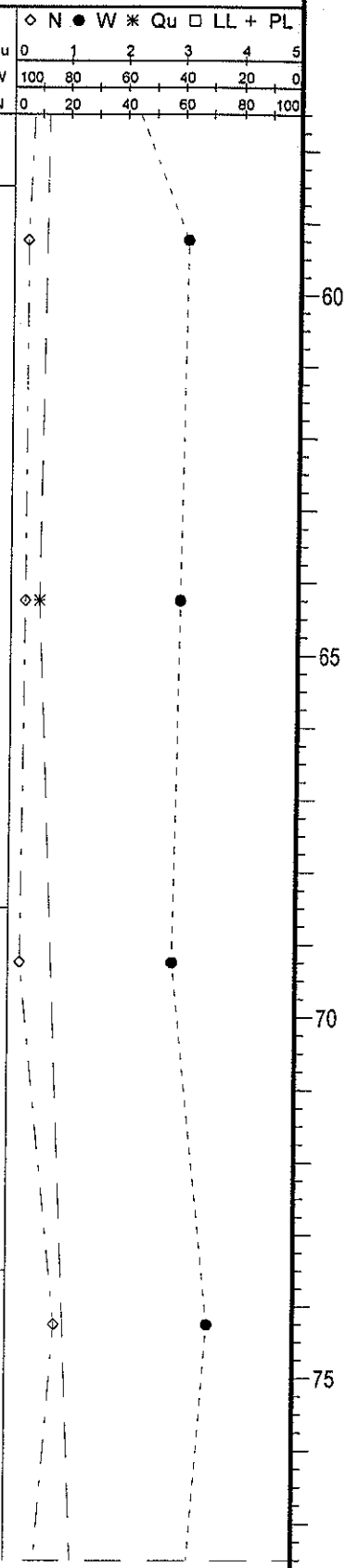
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
3.5	57.5								
3.2	58.5								
				19	2 2 3	5	39		Elastic SILT, weak reaction with HCl, moist, stiff, high plasticity, dark gray
				20	2 3 2	5	41	(0.50)	As above, lensed with gray silt, medium
0.1	68.5								
				21	WH 1 3	4	43		Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, gray
-1.4	73.5								
				22	7 7 10	17	30		Silty SAND, medium, subangular fine sand, no reaction with HCl, moist, weak cementation, dark gray



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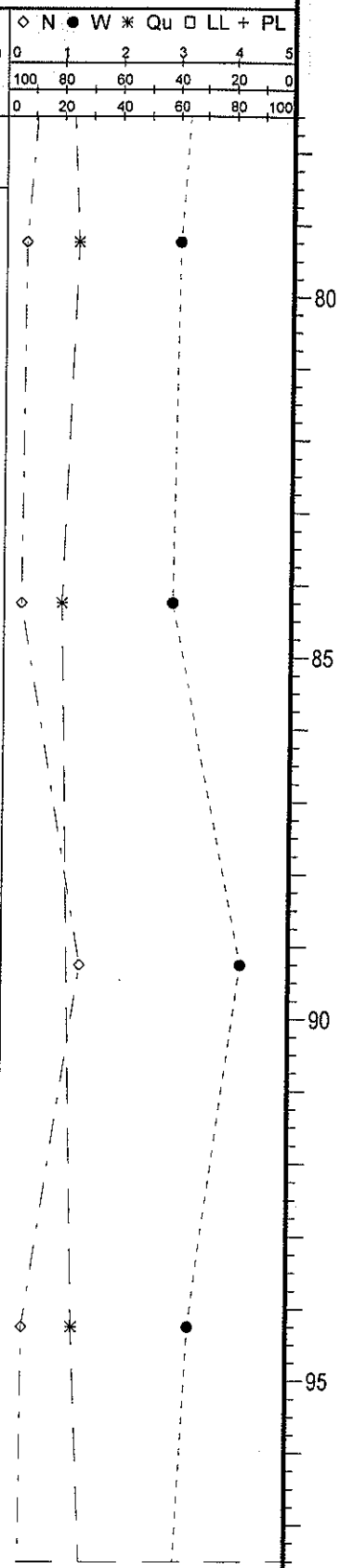
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-2.6	77.5								
-2.9	78.5								
				23	2 3 4	7	40	(1.25)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray
				24	2 3 3	6	42	(1.00)	As above, about 7% shell fragments, about 10% subangular fine sand, strong reaction with HCl
-6.0	88.5								
				25	6 12 15	27	17		Silty SAND, medium, subangular fine sand, weak reaction with HCl, moist, weak cementation, dark gray
-7.5	93.5								
				26	4 4 4	8	35	(1.25)	Elastic SILT, about 16% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, very dark gray



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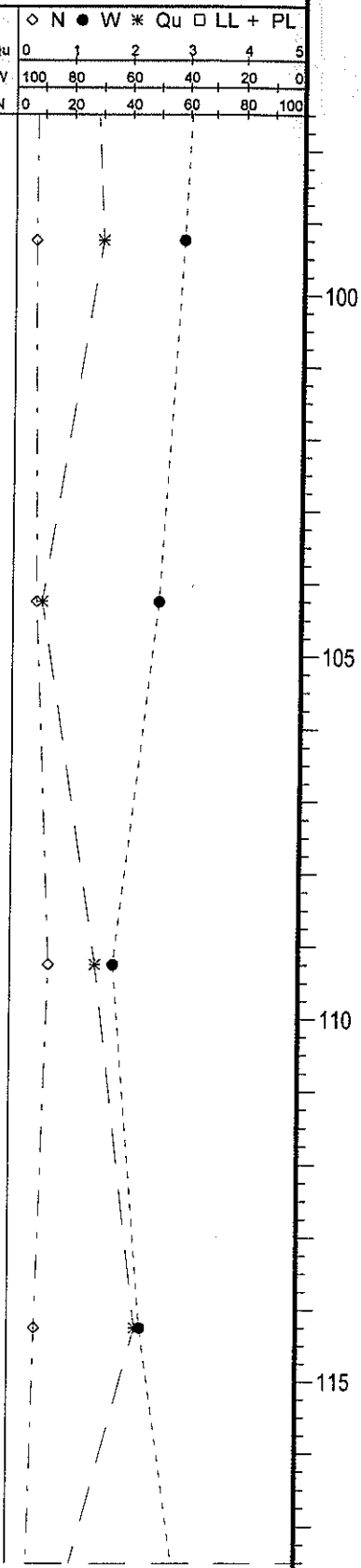
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-8.7	97.5								
			X	27	3 3 4	7	42	(1.50)	Elastic SILT, lensed with very dark gray sandy silty, subangular fine sand, no reaction with HCl, moist, stiff, high plasticity, very dark grayish brown
			X	28	3 4 4	8	50	(0.50)	As above, medium, very dark gray
			X	29	4 6 7	13	65	(1.50) 1.44	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, very dark gray
			X	30	4 5 4	9	55	(2.00) 2.16	As above



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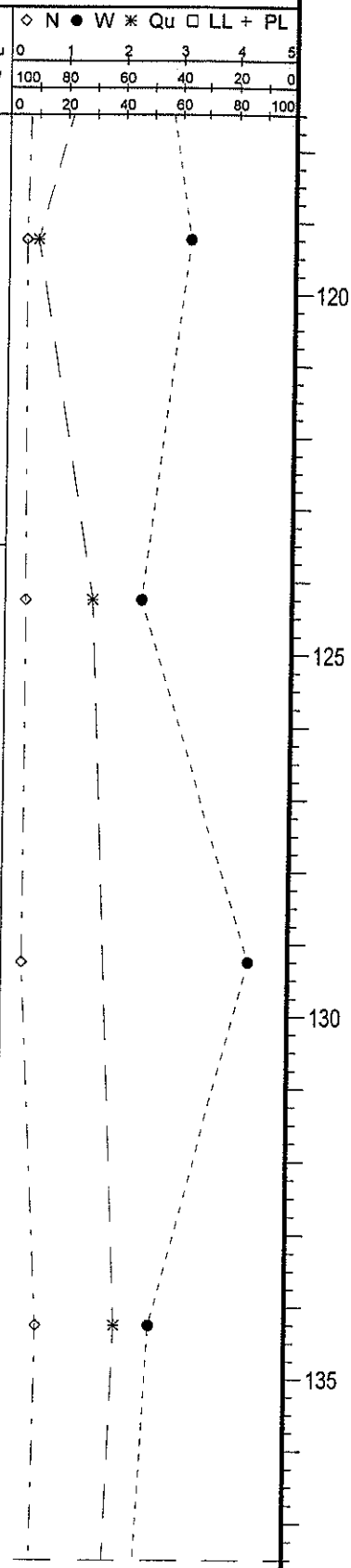
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-14.8	117.5								
				31	3 1 5	6	37	(0.50)	As above, soft, dark gray
-16.6	123.5								
				32	1 4 3	7	53	(1.50)	Fat CLAY, lensed with gray silty sand, subangular fine sand, about 2% wood fragments, no reaction with HCl, moist, stiff, high plasticity, dark gray
-18.2	128.5								
				33	3 3 4	7	14		Silty SAND, loose, subangular fine sand, no reaction with HCl, moist, weak cementation, gray
-19.7	133.5								
				34	4 6 7	13	48	(2.00)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

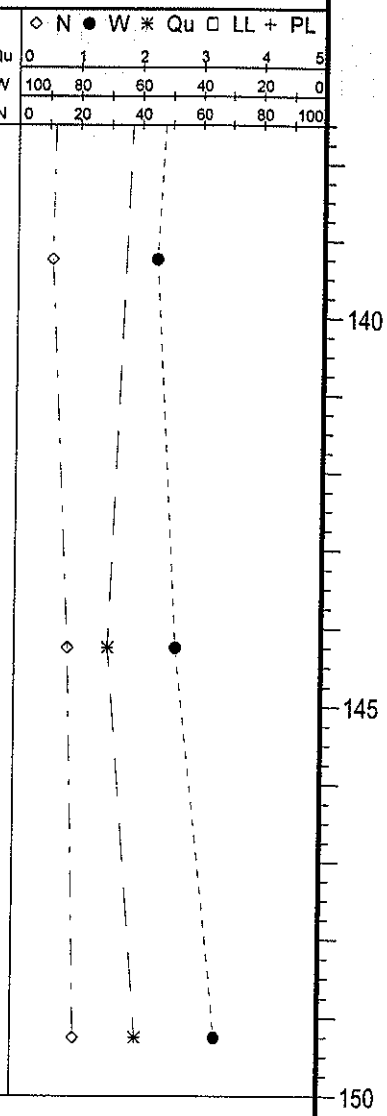
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 21.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-20.9	137.5								
				35	7 6 5	11	55		As above, about 4% wood fragments, soft
				36	5 7 10	17	48	(1.50)	As above
				37	7 12 8	20	34	(2.00)	As above
-24.7	150.0								



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.
7) Boreholes drilled with automatic SPT.

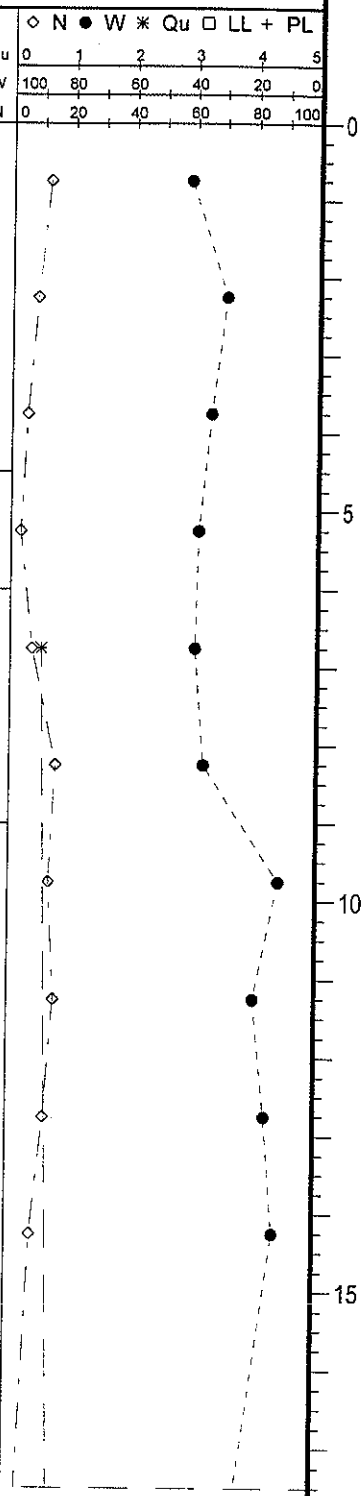
STATION COORDINATES (m): x = 406653.7773 y = 228290.0031 z = 21.00

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE: STARTED 07/07/1999, COMPLETED 07/10/1999
GROUNDWATER: 4.5 feet	ELEVATION TOP OF HOLE: 10.00 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
10.0	0.0								
				1	5 8 4	12	42		Lean CLAY, about 2% subangular fine quartz sand, strong reaction with HCl, dry, soft, medium plasticity, dark yellowish brown
				2	4 5 3	8	30		As above
				3	3 3 2	5	35		As above, no reaction with HCl
8.6	4.5								
				4	2 1 2	3	39		Fat CLAY, no reaction with HCl, moist, stiff, high plasticity, gray
8.2	6.0								
				5	4 4 3	7	40	(0.50)	Elastic SILT, no reaction with HCl, moist, soft, high plasticity, dark gray
				6	4 3 12	15	37		As above, lensed with dark gray sandy silt, subangular fine sand
7.3	9.0								
				7	7 7 6	13	12		Well graded SAND with silt, medium, subangular lithic sand, no reaction with HCl, wet, weak cementation, dark gray
				8	5 7 8	15	20		As above
				9	8 6 6	12	16		As above, moist
				10	7 4 4	8	13		Well graded SAND with silt and gravel, loose, subrounded lithic sand, subrounded fine lithic gravel, no reaction with HCl, wet, weak cementation, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

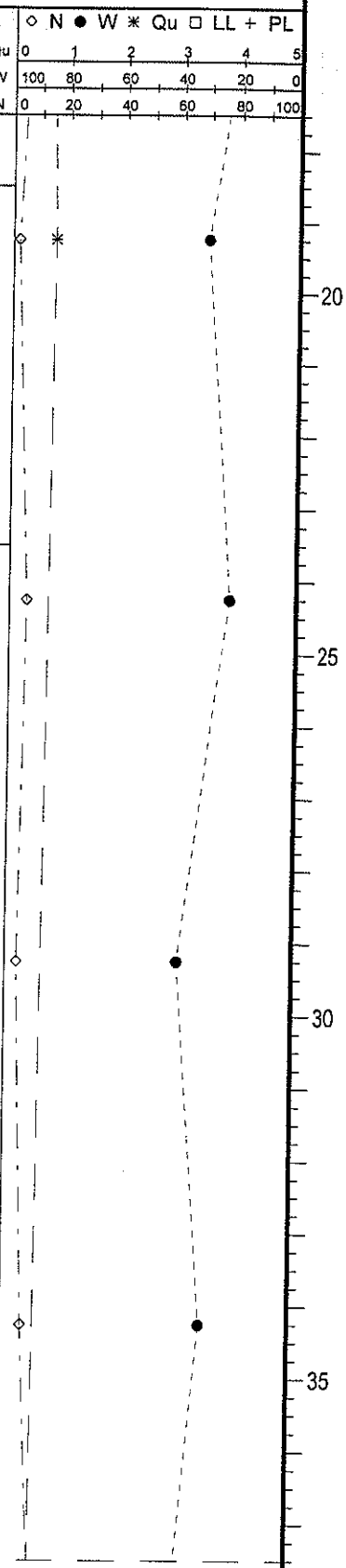
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE: 10.00 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
4.7	17.5								
4.4	18.5								
				11	2 1 1	2	31	(0.75)	Elastic SILT, no reaction with HCl, moist, medium, non plasticity, gray
2.8	23.5								
				12	2 1 5	6	23		Well graded SAND with silt, loose, subangular lithic sand, no reaction with HCl, wet, weak cementation, dark gray
				13	1 2 2	4	40		Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, gray
-0.2	33.5								
				14	3 4 3	7	31		SILT with sand, subangular sand, no reaction with HCl, moist, soft, nonplastic, dark gray



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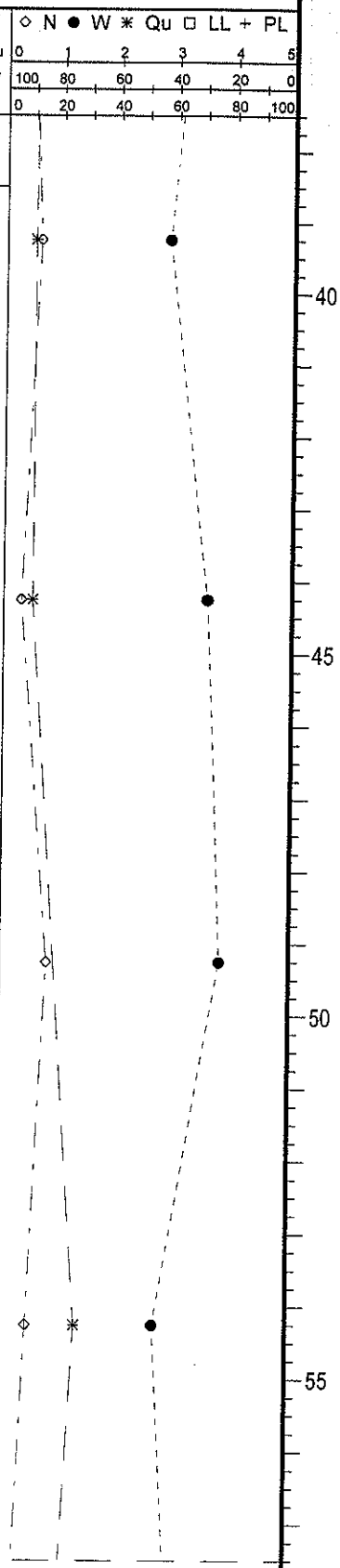
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-1.4	37.5								
-1.7	38.5								
				15	2 3 9	12	43	(0.50)	Elastic SILT, no reaction with HCl, moist, soft, high plasticity, gray
				16	5 3 3	6	29	(0.50)	As above, lensed with dark gray sandy elastic silt, subangular medium sand, about 7% shell fragments, strong reaction with HCl
-4.8	48.5								
				17	5 8 8	16	24		Poorly graded SAND with silt, medium, subangular medium lithic sand, about 3% shell fragments, weak reaction with HCl, wet, weak cementation, dark gray
-6.3	53.5								
				18	4 5 5	10	46	(0.50) 1.35	Elastic SILT, no reaction with HCl, moist, soft, high plasticity, gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

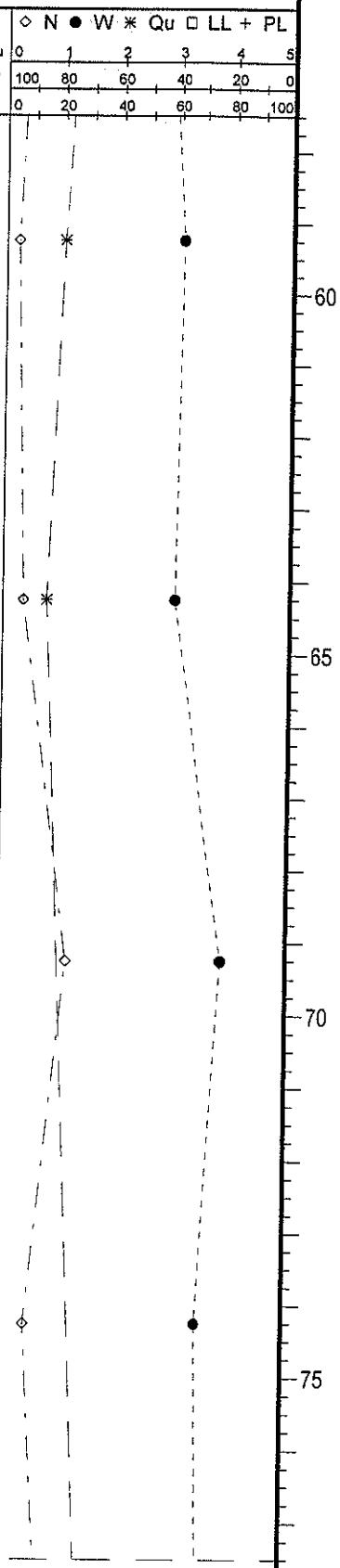
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-7.5	57.5								
				19	1 2 2	4	39	(1.00)	As above, stiff
				20	WH 2 5	7	41	(0.75)	As above, about 10% shell fragments, strong reaction with HCl, medium, dark gray
-10.9	68.5								
				21	5 11 12	23	23		Well graded SAND with silt, medium, subangular lithic sand, about 7% shell fragments, weak reaction with HCl, moist, weak cementation, dark gray
-12.4	73.5								
				22	3 4 6	10	31		Sandy SILT, subangular fine sand, about 5% shell fragments, strong reaction with HCl, moist, stiff, non plastic, very dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

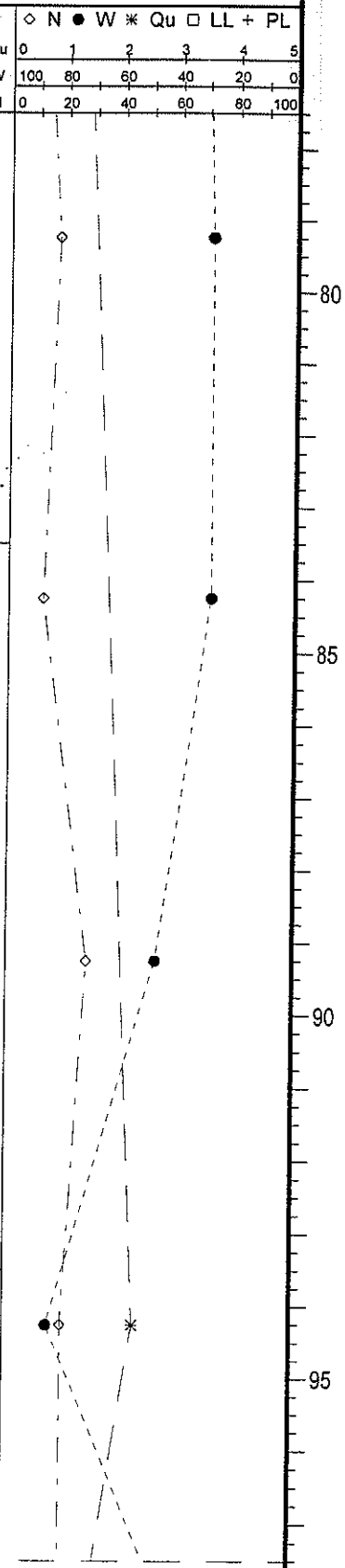
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-13.6	77.5								
				23	5 9 8	17	29		As above
-15.5	83.5								
				24	5 6 6	12	29		Silty SAND, medium, subangular medium lithic sand, about 1% shell fragments, weak reaction with HCl, moist, weak cementation, dark gray
				25	10 15 13	28	48		Silty SAND, subangular fine sand, at top (2.25 in.) dark grayish brown elastic silt, no reaction with HCl, moist, weak cementation, very dark gray
-18.5	93.5								
				26	7 9 11	20	85	(2.25)	Peat, no reaction with HCl, moist, very stiff, low plasticity, fibrous texture, very dark grayish brown



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

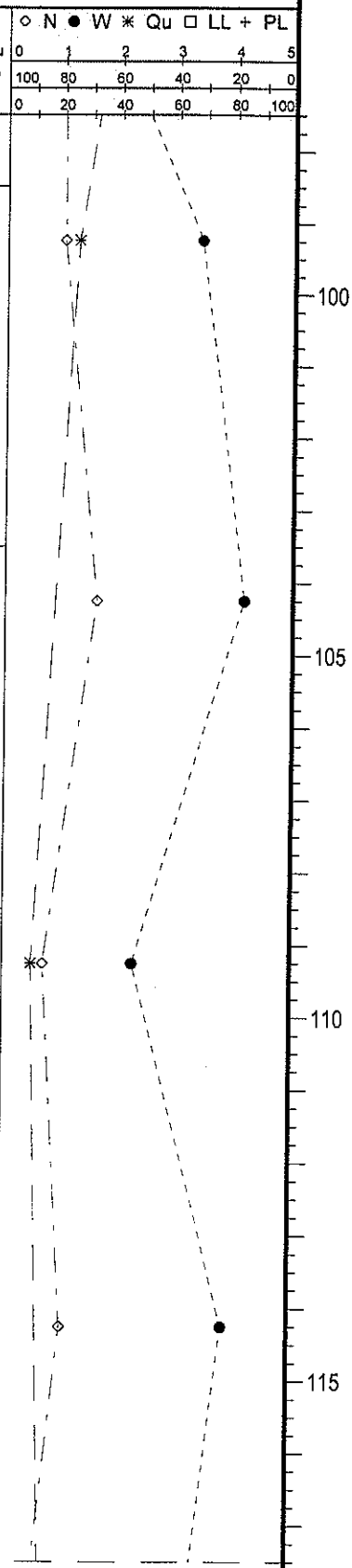
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-19.7	97.5								
-20.0	98.5								
				27	6 10 10	20	32	(1.25)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray
-21.5	103.5								
				28	13 16 16	32	17		Silty SAND, dense, subangular fine lithic sand, no reaction with HCl, moist, weak cementation, dark gray
-23.1	108.5								
				29	5 7 7	14	55	(0.50)	Elastic SILT, no reaction with HCl, moist, soft, high plasticity, dark gray
-24.6	113.5								
				30	4 8 13	21	23		Silty SAND, medium, subangular fine lithic sand, no reaction with HCl, moist, weak cementation, dark gray



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

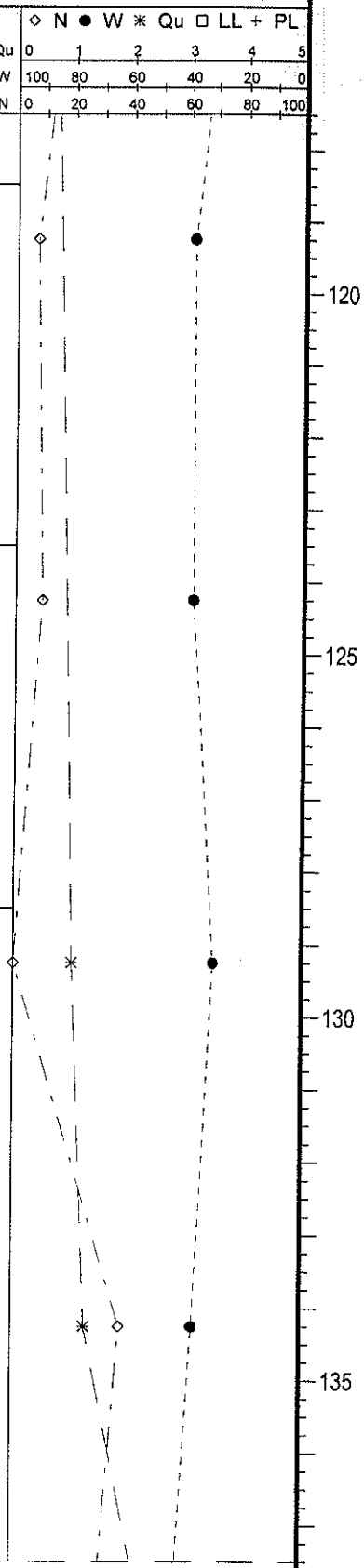
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-25.8	117.5								
-26.1	118.5								
				31	WH 2 5	7	39		Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray
-27.6	123.5								
				32	2 2 7	9	39		SILT with sand, subangular fine sand, weak reaction with HCl, moist, stiff, nonplastic, dark gray
-29.2	128.5								
				33	WH WH 3	WH	31	(1.00)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark gray
				34	9 17 20	37	38	(1.25)	Elastic SILT with sand, subangular fine sand, at top (2.0 in.) black peat, no reaction with HCl, moist, stiff, high plasticity, dark gray



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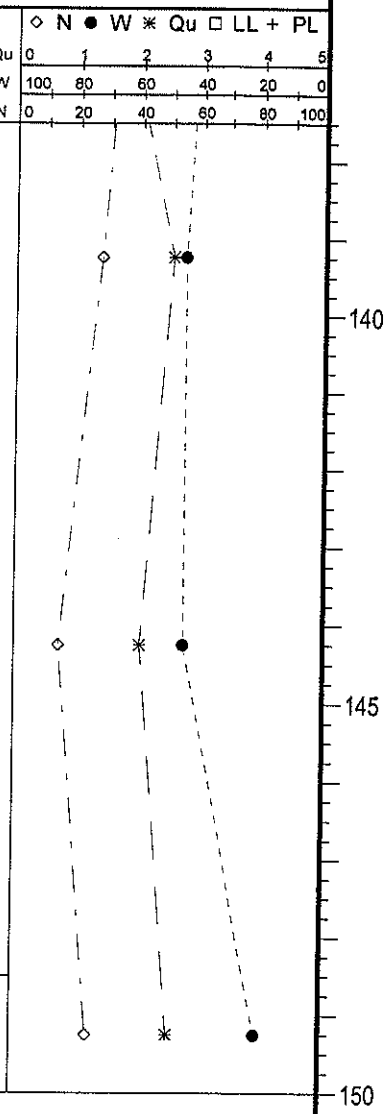
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 10.00 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-31.9	137.5								
				35	9 11 16	27	46	(2.50)	Sandy elastic SILT, subangular medium sand, no reaction with HCl, moist, very stiff, high plasticity, very dark gray
				36	4 6 8	14	46	(2.00)	Elastic SILT, lensed with gray silt, about 2% wood, no reaction with HCl, moist, very stiff, high plasticity, dark gray
-35.3	148.5								
-35.7	150.0			37	7 9 15	24	21	(2.50)	Silty SAND, medium, subangular fine lithic sand, weak reaction with HCl, moist, weak cementation, dark gray



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

STATION COORDINATES (m): x = 406525.2835 y = 227875.7717 z = 10.00

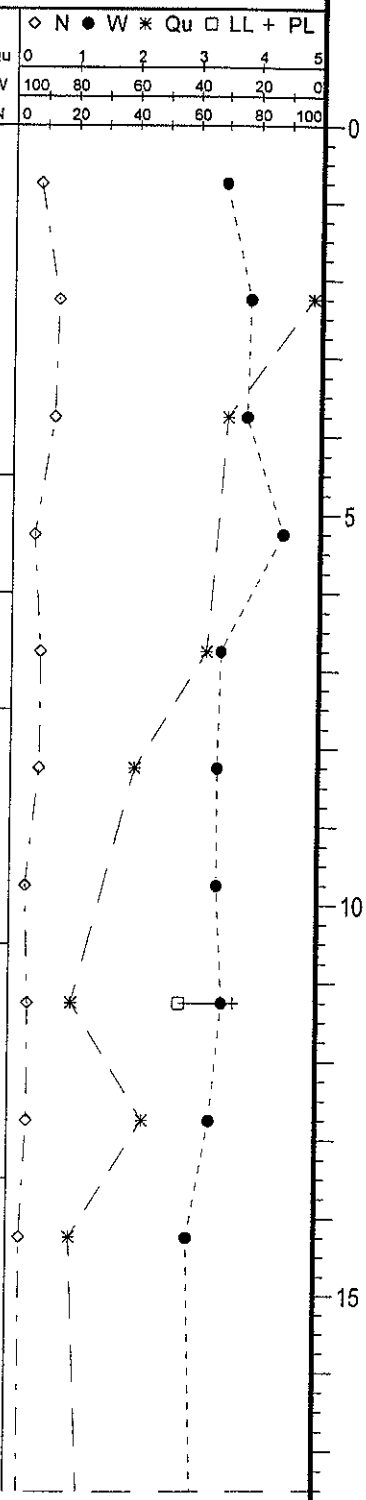
GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Angel Ferrer / CME-55 Truck Mounted
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/29/1999 — COMPLETED: 07/01/1999
GROUNDWATER: 8.5 feet	ELEVATION TOP OF HOLE: 24.50 feet
TOTAL DEPTH OF HOLE: 150 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
24.5	0.0			1	3 3 5	8	31		Lean CLAY, about 1% subangular calcareous fine gravel, strong reaction with HCL, moist, very stiff, medium plasticity, dark yellowish brown
				2	5 6 8	14	23	(4.00) 4.86	Lean CLAY, no reaction with HCL, moist, very stiff, medium plasticity, dark yellowish brown
23.1	4.5			3	5 6 7	13	24	(4.00) 3.50	As above, about 5% roots
22.7	6.0			4	3 3 4	7	12		SILT, no reaction with HCL, dry, soft, nonplastic, strong brown
22.2	7.5			5	4 4 5	9	32	(3.25) 3.15	Fat CLAY, no reaction with HCL, moist, very stiff, high plasticity, dark brown mottled, dark yellowish brown
	▼			6	5 5 4	9	33	(2.00)	Lean CLAY, no reaction with HCL, moist, stiff, medium plasticity, dark yellowish brown
21.3	10.5			7	2 3 2	5	33		As above, wet, medium, brownish yellow
				8	2 3 3	6	31	(1.00)	Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, dark brown mottled, brownish yellow LL=45, PL=27, PI=18
20.4	13.5			9	3 3 3	6	35	(1.75) 2.16	As above, dark brown and gray mottled, yellowish brown
				10	1 2 2	4	42	(1.00)	Fat CLAY, lensed with brownish yellow silty clay, no reaction with HCl, moist, stiff, high plasticity, dark brown mottled, dark gray



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

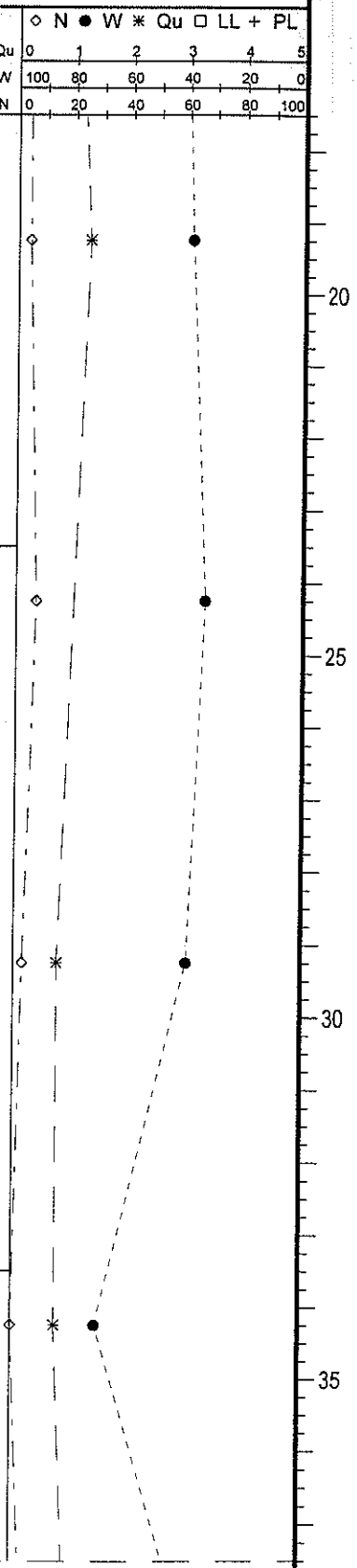
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
19.2	17.5								
				11	1 3 1	4	39	(1.25)	As above, reddish brown mottled, olive gray
17.3	23.5								
				12	WH 4 3	7	34		Elastic SILT, lensed with gray sandy elastic silt, subangular coarse lithic sand, no reaction with HCl, moist, soft, high plasticity, dark gray
				13	2 2 1	3	40	(0.75)	As above, medium
14.3	33.5								
				14	WH WH WH	WH	71	(0.75)	Fat CLAY, about 14% wood fragments, no reaction with HCl, moist, medium, high plasticity, dark gray



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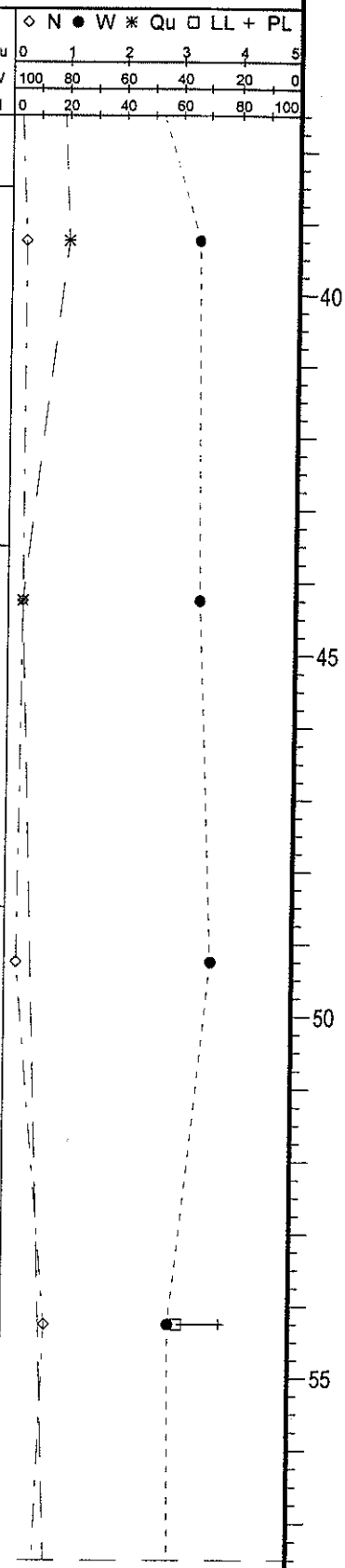
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
13.1	37.5								
12.8	38.5								
				15	2 2 3	5	34	(1.00)	Sandy SILT, subangular fine sand, lensed with dark grayish brown elastic silt, no reaction with HCl, moist, stiff, nonplastic, dark gray
11.2	43.5								
				16	WH 1 4	5	33	(0.25)	Elastic SILT with sand, subangular fine sand, no reaction with HCl, moist, soft, high plasticity, dark gray
9.7	48.5								
				17	2 2 2	4	28		Silty SAND, loose, subangular medium sand, about 5% shall fragments, weak reaction with HCl, moist, weak cementation, very dark gray
				18	7 7 8	15	42		Silty SAND, medium, subangular fine lithic sand, about 16% leaf fragments, no reaction with HCl, moist, weak cementation, dark gray LL=39, PL=24, PI=15



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

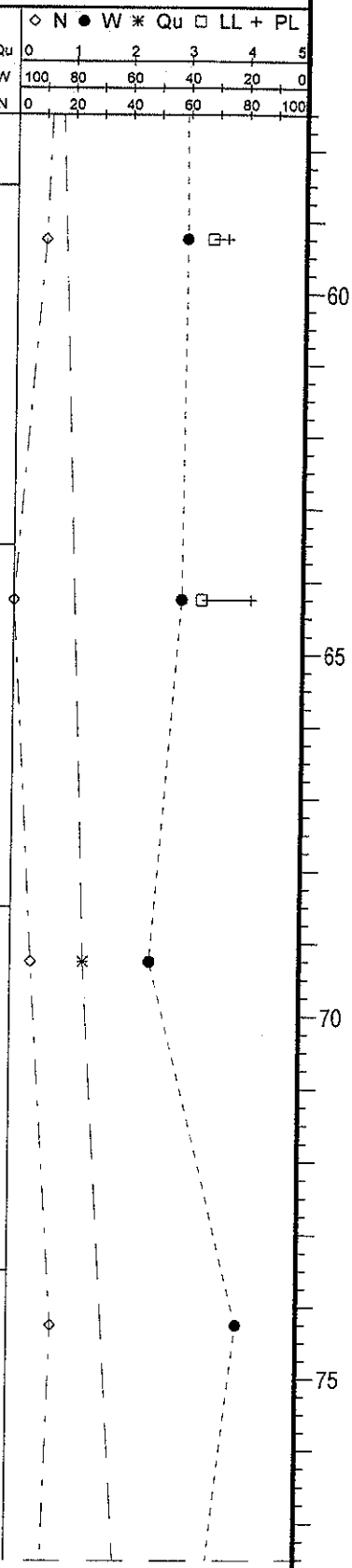
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
7.0	57.5								
6.7	58.5								
				19	3 4 6	10	41		SILT, no reaction with HCl, moist, stiff, nonplastic, dark gray LL=32, PL=27, PI=5
5.1	63.5								
				20	WH WH 2	WH	42		Fat CLAY, no reaction with HCl, moist, soft, high plasticity, gray LL=35, PL=18, PI=17
3.6	68.5								
				21	WH 1 6	7	52	(1.25)	Elastic SILT, about 15% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, dark gray
2.1	73.5								
				22	7 9 6	15	21		Poorly graded SAND with silt, medium, subangular medium lithic sand, weak reaction with HCl, moist, weak cementation, dark gray



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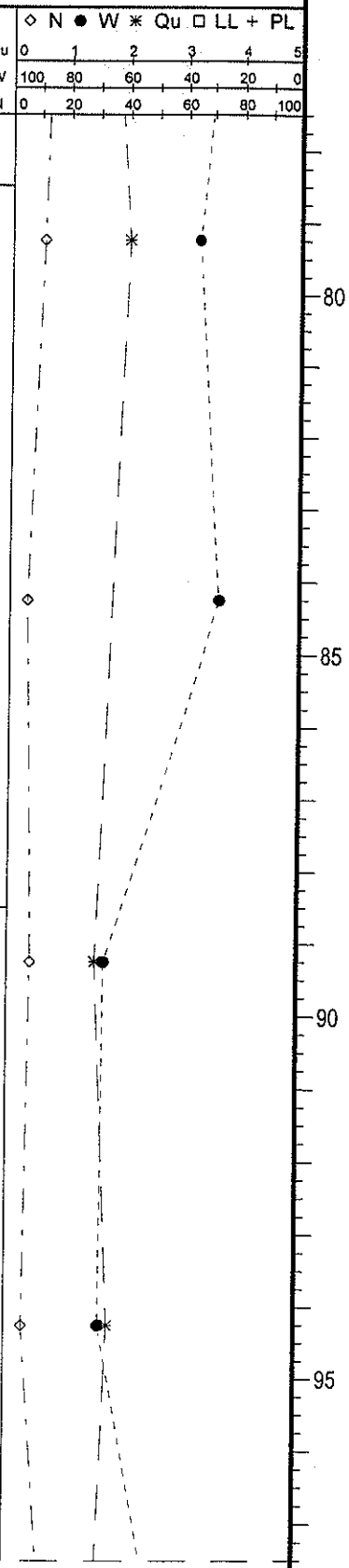
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
0.9	77.5								
0.6	78.5								
				23	3 4 7	11	36	(2.00)	Sandy SILT, subangular fine sand, strong reaction with HCl, moist, very stiff, nonplastic, dark gray
				24	3 2 4	6	28		As above, medium, about 16% shell fragments
-2.5	88.5								
				25	3 5 3	8	67	(1.50)	Fat CLAY, about 15% shell fragments, strong reaction with HCl, moist, stiff, high plasticity, very dark grayish brown
				26	2 3 3	6	68	(1.75)	As above, about 10% shell fragments, about 1% wood fragments, weak reaction with HCl



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

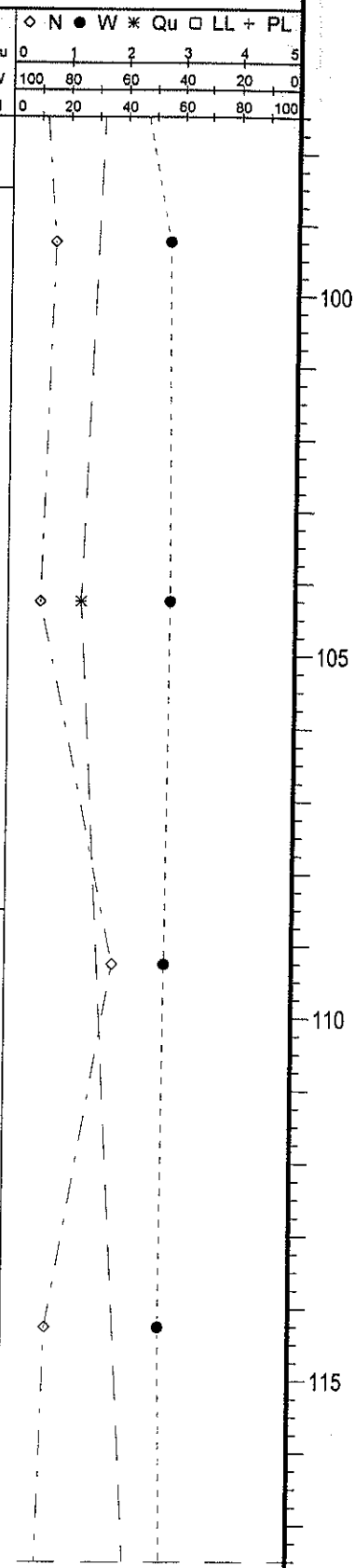
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-5.2	97.5								
-5.5	98.5								
				27	5 3 12	15	45		Elastic SILT, no reaction with HCl, moist, stiff, high plasticity, gray
				28	5 5 6	11	44	(1.25)	As above
-8.6	108.5								
				29	13 15 22	37	45		Poorly graded SAND with silt, dense, subangular fine lithic sand, no reaction with HCl, moist, moderate cementation, dark gray
-10.1	113.5								
				30	5 7 8	15	46		Elastic SILT, weak reaction with HCl, moist, very stiff, high plasticity, very dark gray



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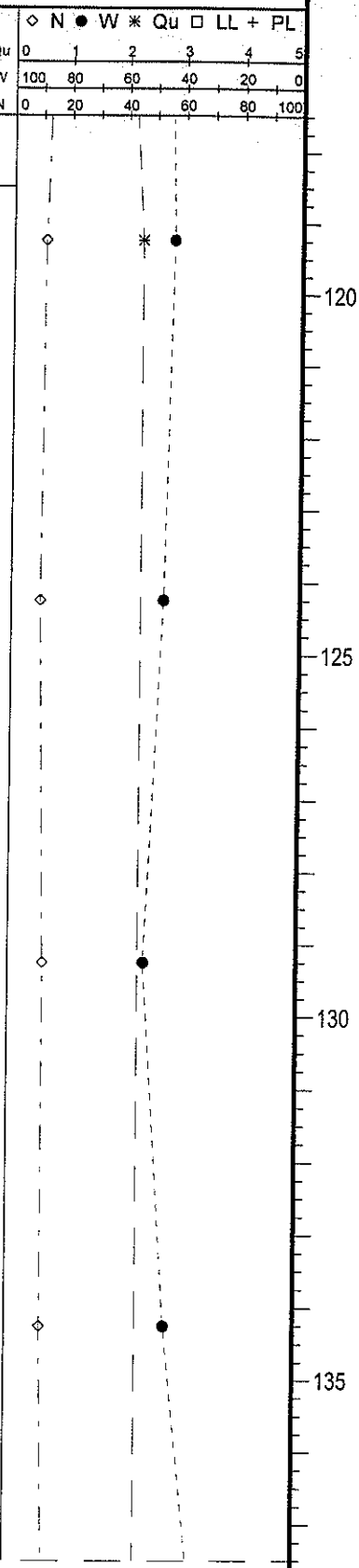
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-11.3	117.5								
-11.6	118.5								
				31	5 5 6	11	44	(2.25)	Fat CLAY, no reaction with HCl, very stiff, high plasticity, dark gray
				32	3 4 6	10	47		As above
				33	2 5 7	12	53		As above
				34	4 6 6	12	45		As above, lensed with gray poorly graded sand, subangular fine quartz sand



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GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

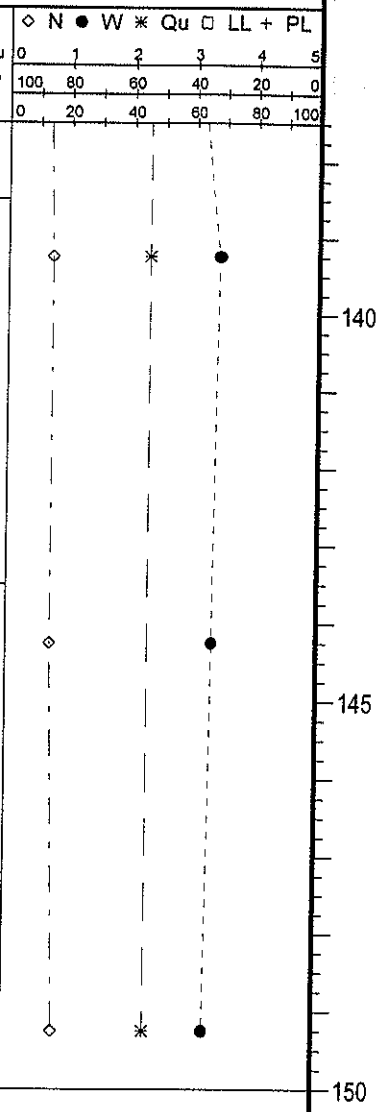
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 24.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-17.4	137.5								
-17.7	138.5								
				35	7 8 6	14	32	(2.25) 2.25	Silty CLAY, no reaction with HCl, moist, very stiff, low plasticity, dark gray
-19.2	143.5								
				36	5 6 8	14	34		Poorly graded SAND with silt, medium, subangular medium lithic sand, no reaction with HCl, moist, weak cementation, gray
-20.8	148.5								
				37	5 7 9	16	36	(2.25) 2.25	Elastic SILT, no reaction with HCl, moist, very stiff, high plasticity, dark gray
-21.2	150.0								



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.
7) Boreholes drilled with automatic SPT.

STATION COORDINATES (m): x = 406725.3651 y = 228161.9883 z = 24.50

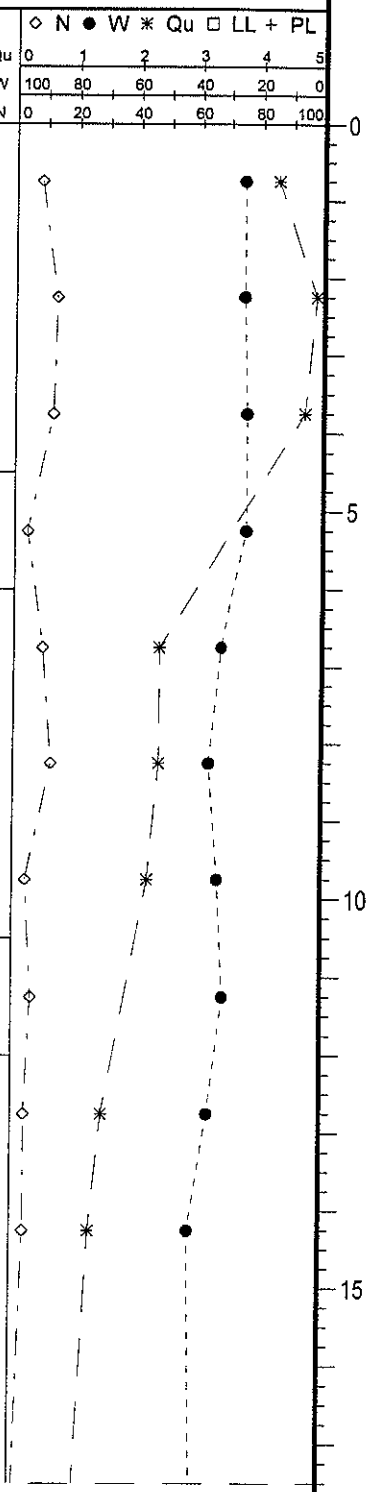
GEOCON2 2182-99.GPJ GEOCON1.GDT 8/27/99

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Angel Ferrer / CME-55 Truck Mounted
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/28/1999 — COMPLETED: 06/28/1999
GROUNDWATER: 8 feet	ELEVATION TOP OF HOLE: 13.50 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
13.5	0.0			1	3 4 4	8	26	(4.25)	Lean CLAY, hard, medium plasticity, no reaction with HCL, dark yellowish brown
				2	4 6 7	13	26	(+4.5) 4.87	As above
12.1	4.5			3	5 7 5	12	25	(+4.5) 4.69	As above
11.7	6.0			4	3 2 2	4	25		Silty CLAY with sand, moist, soft, low plasticity, subangular fine sand, no reaction with HCl, yellowish brown
				5	3 4 5	9	33	(2.50) 2.34	Fat CLAY, moist, very stiff, high plasticity, no reaction with HCl, yellowish brown
	▼			6	4 6 6	12	37	(2.25) 2.34	As above, dark brown mottled
10.3	10.5			7	2 2 2	4	34	(2.00) 2.16	As above, dark brown mottled
9.8	12.0			8	2 3 3	6	32		Silty CLAY, moist, stiff, low plasticity, no reaction with HCl, brown
				9	1 2 2	4	37	(1.25) 1.44	Fat CLAY, moist, stiff, high plasticity, gray mottled, no reaction with HCl, yellowish brown
				10	1 2 2	4	43	(1.25)	As above, lensed with dark brown silty clay



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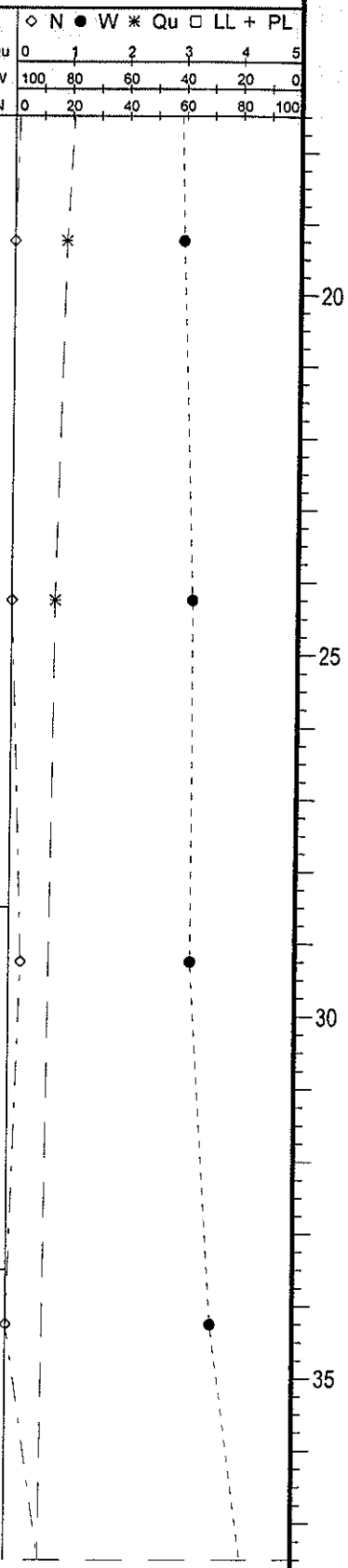
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.50 feet

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
8.2	17.5								
				11	WH WH 1	WH	41	(0.75) 0.90	Fat CLAY, moist, medium , high plasticity, olive gray mottled, no reaction with HCl, dark gray
				12	WH WH WH	WH	37	(0.75)	As above
4.8	28.5								
				13	2 2 2	4	37		Sandy silty CLAY, moist, soft, low plasticity, at top (1.5 in.) dark gray fat clay, subangular fine sand, no reaction with HCl, dark gray
3.3	33.5								
				14	WH WH WH	WH	29		Fat CLAY, moist, soft, high plasticity, about 16% wood fragments, no reaction with HCl, dark gray



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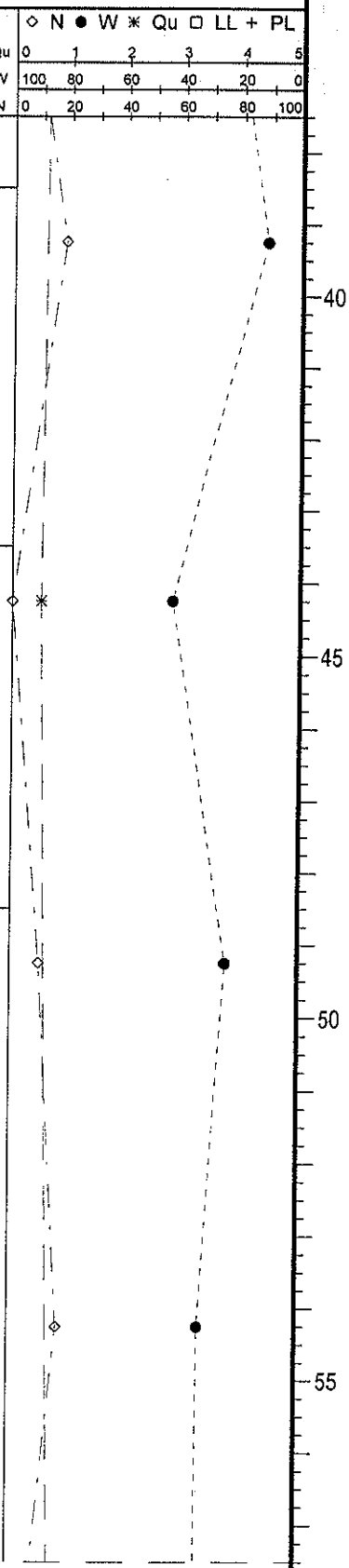
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
2.1	37.5								
1.8	38.5								
				15	10 9 9	18	12		Well graded SAND, moist, weak cementation, medium, subangular lithic sand, weak reaction with HCl, dark gray
0.2	43.5								
				16	WH WH 3	WH	44	(0.50)	Elastic SILT, moist, soft, high plasticity, no reaction with HCl, dark gray
-1.3	48.5								
				17	3 2 8	10	25		Silty SAND, moist, weak cementation, subangular medium lithic sand, about 17% shell fragments, dark gray
				18	5 7 10	17	34		As above, subangular fine lithic sand



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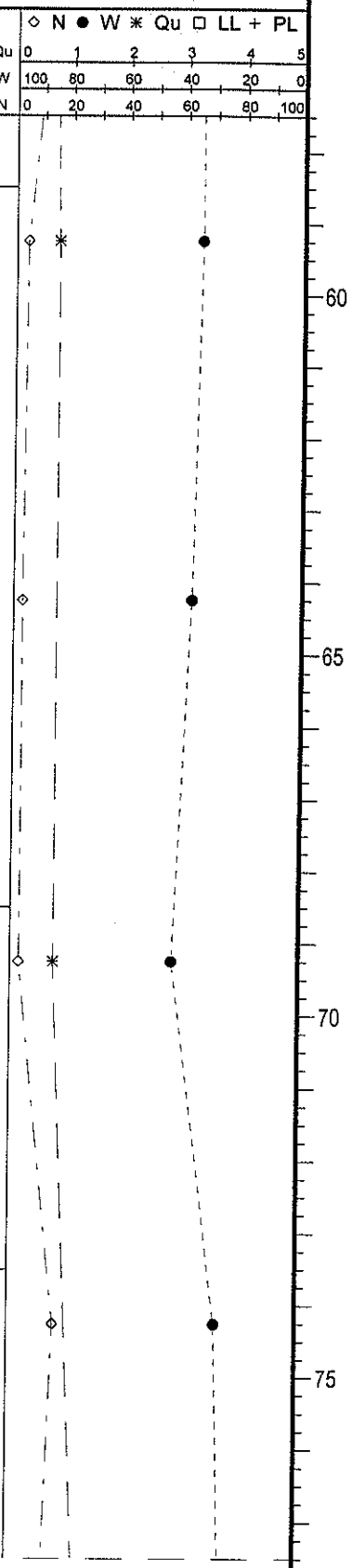
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-4.0	57.5								
-4.3	58.5								
				19	2 2 2	4	35	(0.75)	Elastic SILT, moist, high plasticity, medium, no reaction with HCl, gray
				20	2 2 1	3	38		As above
-7.4	68.5								
				21	1 2 1	3	44	(0.75)	Fat CLAY, moist, high plasticity, medium, no reaction with HCl, gray
-8.9	73.5								
				22	4 4 12	16	28		Sandy silty CLAY, moist, low plasticity, subangular fine lithic sand, weak reaction with HCl, dark gray



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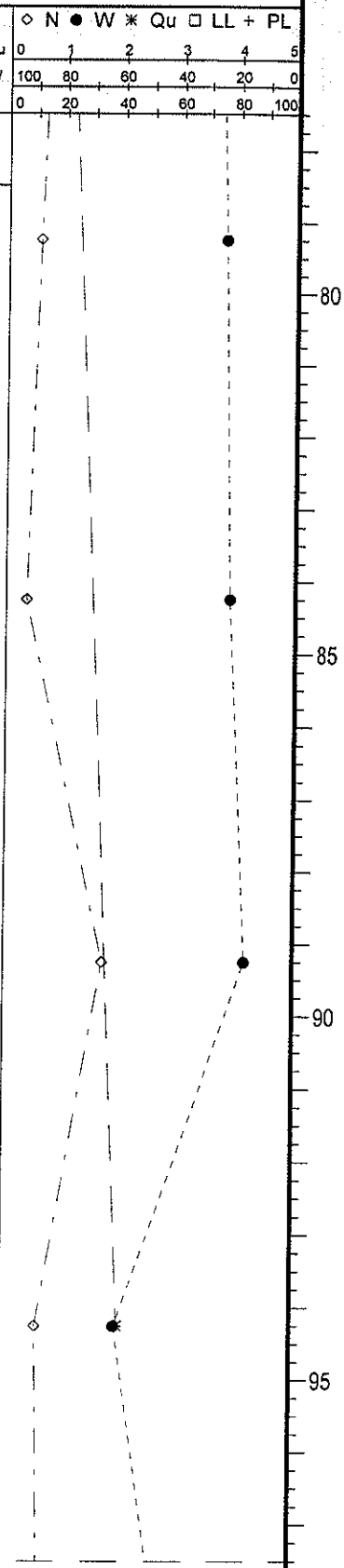
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-10.1	77.5								
-10.4	78.5								
				23	3 4 7	11	25		Silty SAND, moist, weak cementation, medium, subangular fine lithic sand, weak reaction with HCl, dark gray
				24	4 3 4	7	23		As above, about 16% shell fragments, loose, subangular medium lithic sand, strong reaction with HCl
				25	9 16 18	34	17		As above, dense, subangular medium lithic sand, gray
-15.0	93.5								
				26	5 6 6	12	61	(2.00)	Elastic SILT, moist, very stiff, high plasticity, about 10% shell fragments, strong reaction with HCl, very dark grayish brown



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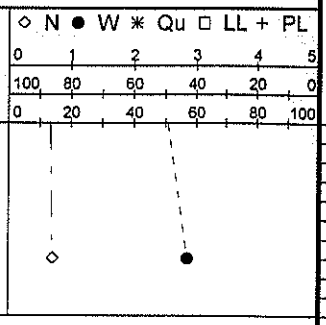
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 13.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-16.2	97.5								
-17.0	100.0		X	27	3 5 9	14	43		As above, about 4% subangular fine sand, dark gray



100

NOTE:
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2) Qu in tons per square foot
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4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
5) These logs were prepared for a specific project and specific purpose. They should not be separated from the geotechnical engineering report.
6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.
7) Boreholes drilled with automatic SPT.

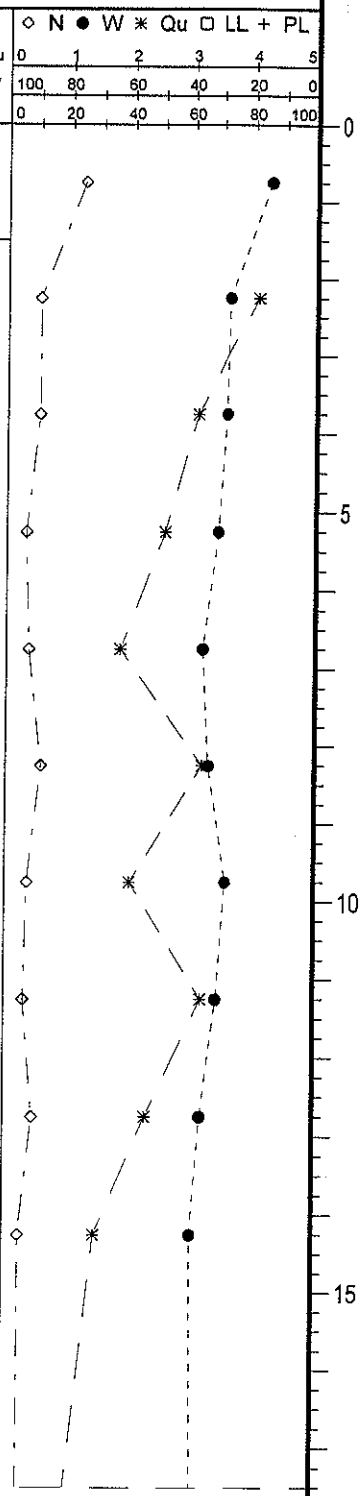
STATION COORDINATES (m): x = 406782.76 y = 228021.5949 z = 13.50

DRILLING LOG

PROJECT: RECOVERY SOLUTIONS, INC.

LOCATION: Arecibo, P.R.	DRILLER / DRILL DESIGNATION: Steven Perez / CME-45C
DESCRIPTION BY: Jorge I. Wichy	DATE HOLE — STARTED: 06/11/1999 — COMPLETED: 06/15/1999
GROUNDWATER: 13 feet	ELEVATION TOP OF HOLE: 12.50 feet
TOTAL DEPTH OF HOLE: 100 feet	INSPECTOR: Alan R. Crumley

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
12.5	0.0								
12.0	1.5			1	13 12 12	24	15		SILT (calcareous), strong reaction with HCl, dry, medium, nonplastic, very pale brown
				2	9 5 5	10	28	(3.75) 4.05	Fat CLAY, no reaction with HCl, dry, very stiff, high plasticity, very dark grayish brown
				3	5 5 5	10	29	(3.00) 3.06	As above, dark gray
				4	2 3 3	6	32	(2.50) 2.52	As above, dark brown
				5	2 4 3	7	37	(1.75) 1.80	Fat CLAY, lensed with yellowish brown, silty clay, no reaction with HCl, moist, stiff, high plasticity, dark gray
				6	4 5 6	11	35	(2.75) 3.15	Fat CLAY, no reaction with HCl, moist, very stiff, high plasticity, dark brown mottled, dark yellowish brown
				7	3 3 4	7	29	(1.75) 1.98	As above, stiff, brownish yellow
				8	3 3 3	6	32	(3.25) 3.15	As above
				9	4 4 5	9	37	(2.00) 2.25	As above, stiff, dark brown and gray mottled, yellowish brown
				10	3 2 3	5	40	(1.00) 1.44	As above, stiff, dark brownish gray mottled, yellowish brown



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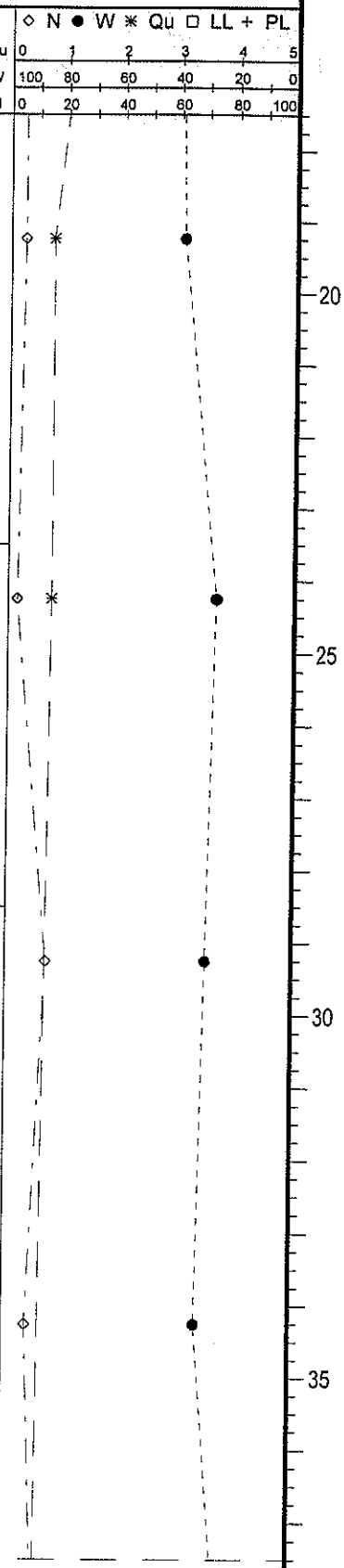
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
7.2	17.5								
				11	3 2 3	5	39	(0.75)	Fat CLAY, no reaction with HCl, moist, medium, high plasticity, gray
5.3	23.5								
				12	1 1 2	3	27	(0.75)	Elastic SILT, about 9% subangular fine sand, no reaction with HCl, moist, medium, high plasticity, gray
3.8	28.5								
				13	4 6 8	14	30		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, wet, weak cementation, light gray
				14	6 5 3	8	33		Poorly graded SAND with silt, loose, subangular lithic sand, weak reaction with HCl, wet, weak cementation, gray



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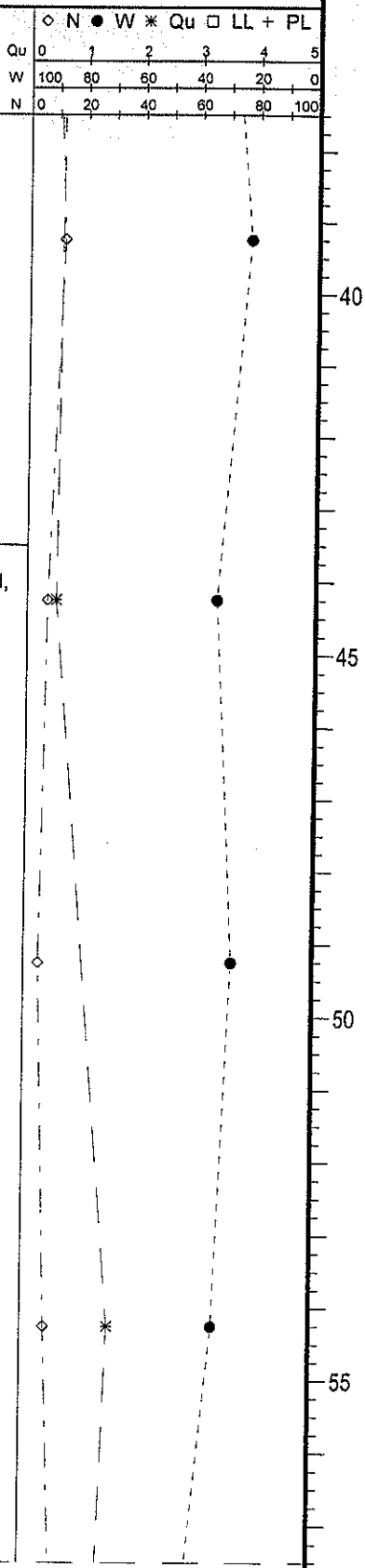
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
1.1	37.5								
				15	3 7 5	12	23		Well graded SAND with silt, medium, subangular lithic sand, weak reaction with HCl, weak cementation, gray
-0.8	43.5								
				16	WH 2 5	7	34	(0.50)	Sandy silty CLAY, subangular fine sand, no reaction with HCl, moist, soft, low plasticity, dark gray
				17	1 2 3	5	28		As above, weak reaction with HCl
				18	3 4 4	8	34	(1.50)	As above, about 13% shell fragments, strong reaction with HCl, stiff, black



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

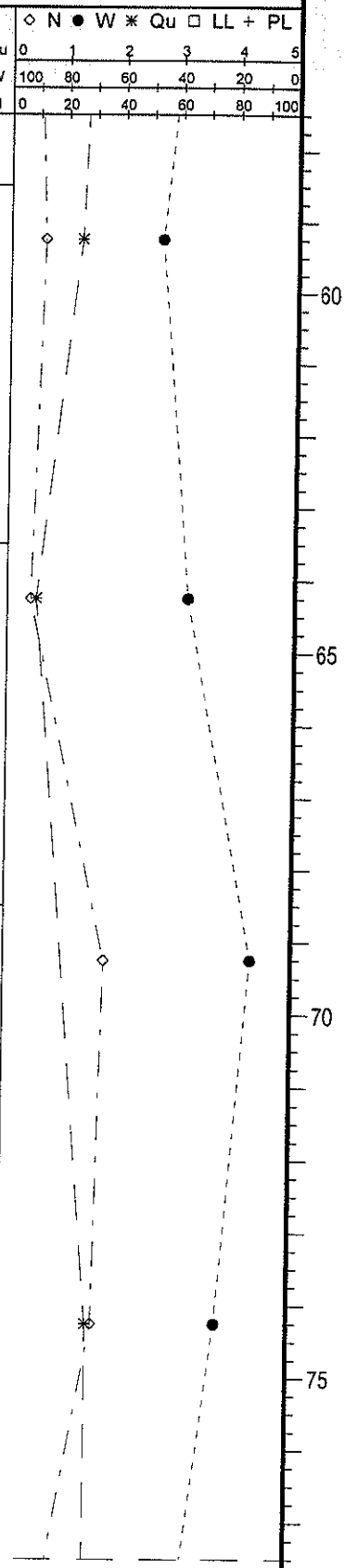
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-5.0	57.5								
-5.3	58.5								
				19	4 5 7	12	47	(1.25)	SILT, about 4% shell fragments, strong reaction with HCl, moist, stiff, nonplastic, dark gray
-6.9	63.5								
				20	3 3 5	8	37	(0.50)	Elastic SILT, weak reaction with HCl, moist, soft, high plasticity, gray
-8.4	68.5								
				21	10 12 23	35	14		Sandy SILT, subangular fine sand, weak reaction with HCl, moist, soft, nonplastic, dark gray
				22	10 15 17	32	25	(1.50)	As above



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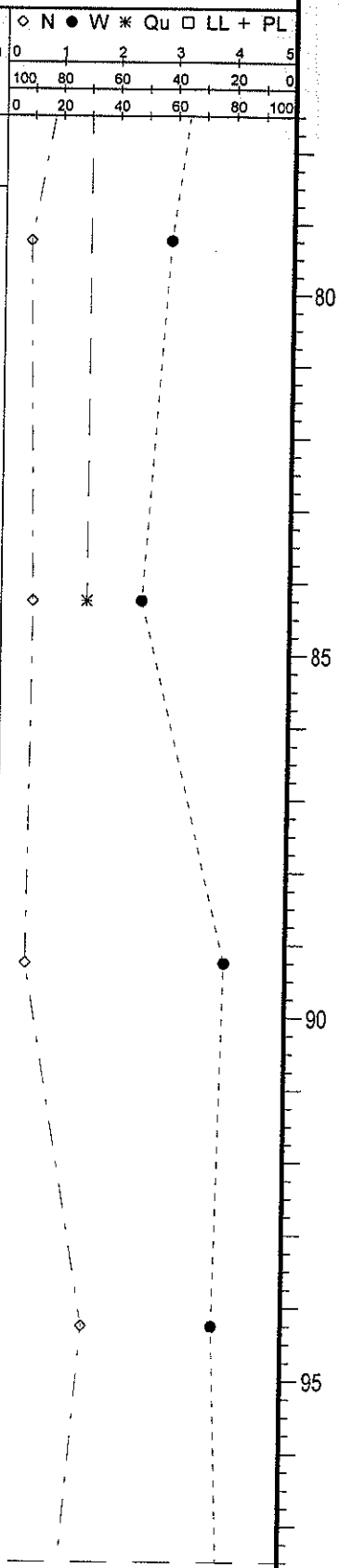
DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-11.1	77.5								
-11.4	78.5								
				23	3 4 5	9	42		Elastic SILT, weak reaction with HCl, moist, soft, high plasticity, dark gray
				24	6 5 6	11	51	(1.50)	As above, about 16% shell fragments, strong reaction with HCl
-14.5	88.5								
				25	4 5 5	10	21		Silty SAND, medium, subangular fine sand, weak reaction with HCl, moist, weak cementation, gray
				26	10 16 15	31	24		As above



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GEOCON1 2182-99.GPJ GEOCON1.GDT 8/27/99

DRILLING LOG (Cont. Sheet)

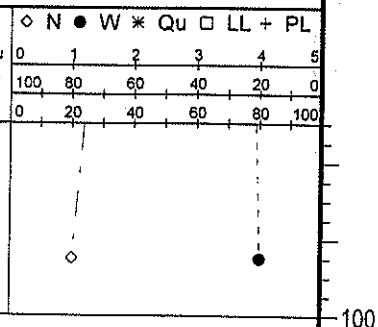
ELEVATION TOP OF HOLE 12.50 feet

PROJECT RECOVERY SOLUTIONS, INC.

LOCATION Arecibo, P.R.

ELEV. [m]	DEPTH [feet]	LEGEND	TYPE	SAMPLE OR RUN	BLOWS OR CORE DATA	SPT N	W	Qu	DESCRIPTION AND CLASSIFICATION
-17.2	97.5								
-18.0	100.0			27	9 10 10	20	20		As above, subangular medium sand

◇ N ● W ✳ Qu □ LL + PL



NOTE:
1) ( ) penetrometer value
2) Qu in tons per square foot
3) N - values obtained from Standard Penetration Test, ASTM D 1586
4) The stratification lines represent approximate boundaries between soil types and the transition may be gradual.
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6) Groundwater levels reported in this log were measured during drilling and may differ from the true location of groundwater table.

STATION COORDINATES (m): x = 407019.9019 y = 228758.8998 z = 12.50