ALLEGHENY COUNTY SANITARY AUTHORITY

July 8, 2021

CONTRACT NO. 1739 G & E

ELECTRICAL DISTRIBUTION SYSTEM UPGRAGE

ADDENDUM NO. 2

All bidders bidding Contract No. 1739 G & E shall read and take note of this Addendum No. 2. The Contract Documents for **Contract No. 1739 G & E** – **Electrical Distribution System Upgrade** are hereby revised and/or clarified as stated below.

Acknowledgement of Contract No. 1739 G & E Addendum No. 2

The Acknowledgement attached to Addendum No. 2 is to be signed and returned immediately via email to Kathleen P. Uniatowski at <u>contract.clerks@alcosan.org</u> and acknowledged with Bidder's Proposal.

ber

Kimberly Kennedy, P.E. Director – Engineering and Construction

ACKNOWLEDGEMENT OF

CONTRACT NO. 1739 G & E ELECTRICAL DISTRIBUTION SYSTEM UPGRADE

ADDENDUM NUMBER 2

FIRM NAME: _____

SIGNATURE: _____

TITLE:

DATE: _____

July 9, 2021

CONTRACT NO. 1739 G & E

ELECTRICAL DISTRIBUTION SYSTEM UPGRADE

ADDENDUM NO. 2

A. <u>Contract Documents – Volume 1</u>

No Revisions.

B. <u>Contract Specifications – Volume 2</u>

- 1. SUMMARY OF WORK (Section 01 11 00)
 - a) Page 011100 2, Paragraph 1.2.A.1.d.: Add "7) Demolition of concrete foundations and steel trestles for section of overhead cable tray to Bldg 410 (cable tray and conduit demolition by EC).
 - b) Page 011100 3, Paragraph 1.2.A.2.a.: Revise second sentence to read "Includes reinforcing, spacers, concrete, gravel subbase and warning tape for concrete encase ductbanks; sand fill and marking tape for direct buried conduits; and frames covers and stone subbase for manholes and handholes (where applicable).
- 2. MULTIPLE CONTRACT CONSTRUCTION SEQUENCING (Section 01 31 16)
 - c) Page 013116 8, Paragraph DCS Communication Cabling (High Priority): Remove "High Priority status from this item.
- 3. CONSTRUCTION FACILITIES TEMPROARY CONTROLS AND UTILITIES (Section 01 50 00)
 - a) Page 015000 3, Paragraph 1.6.A.3.: Delete "The Owner will pay an initial payment for plan review. This payment is approximately 20% of the Engineers estimate. This amount will be credited toward the Building Permit amount."
- 4. MULTIPLE CONTRACT CONSTRUCTION SEQUENCING
 - a) Page 013116 5, Part 4, Underground Duct and Manhole System (High Priority): General Construction; ADD "1.i. EMH028 to EM107A; 1.j. Bldg 650 to EM1.

 b) Page 013116 -5, Part 4, Underground Duct and Manhole System (Normal Priority): General Construction; DELETE "1.b Bldg 650 to EM1" and "1.d EMH028 to EM107A"

C. Contract Drawings

1. 000-G-01 (COVER SHEET)

- a) Replace cover sheet with signed cover sheet attached to this addendum.
- 2. 650-C-05
 - a) Change referenced silt sock length from 1400LF to 366LF.
- 3. 000-E-02
 - a) Add GENERAL NOTE: 37. Unless noted otherwise, all underground conduits and/or ductbanks shall be reinforced concrete encased and constructed in accordance with the typical details on Drawing 000-ED-02.
- 4. 000-ESL-02
 - a) Add "EM113" between EMH043 and OVERHEAD CABLE TRAY BLDG 410 (EXISTING)
- 5. 000-ESP-04
 - a) KEYNOTES 1 and 2 Change 4" Conduits to 3.5" Conduits
- 6. 410-ET-02

Plan 1/410-ESP-02:

- a) Change 2-5" RGS CONDUITS TO CABLE TRAY FOR NEW SWG004 FEEDERS to 4-5"
- b) Change 4-5" CONDUITS FROM EM113 (2 SPARE) to 6-5"
- c) Change "36" x 12" CONCRETE RISER STRUCTURE" to "48" x 12" CONDUIT RISER STRUCTURE"

Detail 4/410-ESP-02:

- a) Change 3'-0'' + -to 4'-0'' + -and conduit quantity from 4 to 6.
- 7. 500-ET-01

Conduit Routing Schedule:

a) Change CONDUIT FILL for CONDUIT I-500100 from (5) 2/C #18 STP to (5) 2/C #16 STP.

8. 510-ESL-01

Plan 1/510-ESL-01:

- a) Change conduit sizes on one-line for P-MCC003A-510 and P-MCC003B-510 from 4" to 3 ¹/₂".
- 9. 650-ET-02

Plan 1/650-ET-02:

- a) Move location of EX. / NEW CONTROL CABLE DUCTBANK TO EMH004 to exterior of north wall near stairs and change EMH004 to "EMH044"
- b) Add to note 4.16KV DUCTBANK TOP DUCT EL. 729'-0" the following, "12-4" PVC CONDUITS BETWEEN NEW 4.16KV VAULT AND EXISTING 13.8KV VAULT, 5 ACTIVE, 7 SPARE. (TYPICAL 2 PLACES)
- 10. 650-ET-04

Plan 1/650-ET-04:

- a) Change P-106008 to "C-106008" at upper right of SWG008-650
- b) Add Conduit "P-106008" to center section of SWG008-650
- 11. 650-ES-01

Low-Voltage Power And Control Cable Schedule (Substation):

- a) Add Cable C-08010-650; 4/C #12; 52-B4T (SWG004-650)
- b) C-08006-650: Change ROUTING FROM Column from 52-B4T to 52-A4T and ROUTING TO Column from 52-MB to 52-MA
- c) C-08007-650: Change ROUTING FROM Column from 52-A4T to 52-B4T and ROUTING TO Column from 52-MA to 52-MB

Conduit Routing Schedule (Substation):

a) Change CONDUIT NO. F-106501 thru F106512 to "F-106001thru F-106012"

Conduit Routing Schedule (Substation):

- a) Conduit No. C-106007: Change CONDUIT FILL from C-008008-650 to C-008010-650 and delete notation in FILL DESCRIPTION COLUMN
- b) Change ROUTING FROM column from CONDUIT NO. P-106001 & P106002 from SGW008 to "SGW008-650"
- c) Add: Cable No. P-106007; 1.5"; BLDG 651; 13.8KV SUB VAULT; 2-#2; DC STATION SERVICE
- d) Add: Cable No. P-106008; 1.5"; SWG008; 13.8KV SUB VAULT; 2-#2; DC STATION SERVICE

12.000-ED-02

Details 2/000-ED-02 and 3/000-ED-02:

a) Revise Note to read: "Provide 3" minimum compacted gravel ... runs."

Details 5/000-ED-02 and 6/000-ED-02:

a) Add note to each detail: "All new manhole interior dimensions shall be a minimum of 6'L x 4'W x 6'D.

D. **Questions**

25. Reference Drawing 500-ET-01; There doesn't seem to be any direction as to which duct banks require concrete encasement or sand encasement. Please advise.

RESPONSE: Except for single fiber conduits to Bldgs. 130, 140 & 150, and conduits installed in pipe/stream trenches, all conduits are to be in concrete encased ductbanks. All concrete encased ductbanks shall be installed per Detail 2/000-ED-02 and 3/000-ED-02. All direct buried conduits shall be installed per Detail 1/000-ED-02.

26. Specification 01 11 00-8, section 1.13.B indicates the soil is not expected to contain hazardous substances. Drawing 20 (000-S-01) FOUNDATION AND CONCRETE NOTES item 18 indicates that the soil is "Unclassified." Article 2, section 2.15.C.4.a states "All excavated soils and other excavated materials are assumed to be Residual Waste." Past projects have considered the soil as "Residual Waste" and has required all excavated soil to be sampled, tested, permitted, and properly disposed of at an approved landfill. Please clarify what is to be considered for the excavated material on this project.

RESPONSE: Please refer to Article 2, section 2.15.C regarding excavated soil, which supersedes Specification 01 11 00-8, section 1.13.B & Drawing 20 (000-S-01) FOUNDATION AND CONCRETE NOTES item 8.

27. Specification 01 11 00-8, section 1.13.A indicates lead paint may be present at the site. Article 2, section 1.15.A states "The Owner has concluded that no lead or Chromium based paint will be disturbed during the work on this Contract. Please clarify if lead paint is to be expected and, if so, how we are to price this work. If lead paint is expected, it would be best to handle this via allowance.

RESPONSE: Refer to Addendum No. 1

28. Referencing drawing 68 (600-ETD-01), SUMMARY OF WORK indicates we are to demolish all concrete foundations. Please provide foundation details for the Metering and Control House, transformers, and 5kV switchgear.

RESPONSE: 600-ETD-01 indicates to demo foundations to 36" below grade.

29. Referencing drawing 68 (600-ETD-01), please clarify who is to modify the cable tray leading to Bldg 410, and who is to demolish the cable tray directly adjacent to the 5kV metalclad switchgear. Please provide additional information on the trestle supports and foundations.

RESPONSE: The Electrical (E) Contractor shall remove the cable tray and associated conduit and cables. General (G) contractor shall remove the trestle supports and associated foundations. Foundation removal to 36" below grade.

30. Referencing spec 01 11 00-2, section 1.2.b.2 the General contract is to install excavation support and dewatering systems. Please provide geotechnical information for this area.

RESPONSE: Geotechnical information is being furnished as part of Addendum No. 2 (see attached).

- 31. Referencing drawing 57 (410-ET-01), KEYED NOTE 6 indicates "the removal of the bldg. exterior wall panel system and light duty framing for equipment installation" may be required. This is not indicated in either the General or Electrical scope of work within section 01 11 00 SUMMARY OF WORK. Please indicate:
 - a) Are we to include this in the base pricing?

RESPONSE: Yes

b) If required, what contract (General or Electrical) is the removal and replacement of this panel system to be included?

RESPONSE: Electrical (E) Contractor

- c) If required, how much paneling and framing is to be removed?
- d) If required, please provide details of the panels and framing.

RESPONSE c) & d): Electrical (E) Contractor to determine existing site conditions and coordinate with equipment removals and installations.

32. Referencing drawing 84 (716-ET-01) there is a concrete encasement pad called out. Please note that currently the SUMMARY OF WORK has no work identified for Bldg 716 for the General Contract. In addition, the prebid indicates no specified GC work for this building. Please verify this is by the Electrical Contractor. **RESPONSE:** Concrete encasement pad is considered an extension of the concrete encased duct bank and is therefore the responsibility of the Electrical (E) Contractor.

33. Referencing drawing 58 (410-ET-02), please verify in which scope the 2 EA bollards and concrete riser structure is to be included. These are not indicated in the SUMMARY OF WORK, and the bollard detail is located in the electrical drawings, on drawing 107 (000-ED-01).

RESPONSE: Electrical (E) Contractor

34. Referencing drawing 108 (000-ED-02), note 4 indicates "Carefully remove concrete around ducts using a small chipping hammer to 23" beyond the proposed locations of the manholes outside walls." Please verify in which scope this work falls.

RESPONSE: Electrical (E) Contractor

35. Referencing drawing 11 (650-C-05), under EROSION AND SEDIMENT CONTROLS it indicates we are to install 1400 LF of 12" silt sock. The quantity indicated on the drawings is significantly less than 1400 LF. Please confirm what we are to use as the basis of our bid.

RESPONSE: Silt sock estimated length is 366'.

- 36. Reference Specification Section 01 11 00-3 and Drawings 000-ESP-06,000-ESP-07 and 000-ESP-08; In accordance with the SUMMARY OF WORK Page 01 11 00-3 2. Electrical Construction. Contract 1739E a. General Plant Site, duct and manhole systems: 1) Furnish and installing new ductbanks and manholes. Includes reinforcing and concrete for concrete encased ductbanks and frames and covers for manholes (Excavation, trenching and site restoration by General Contractor)
 - a) Should the E-Contract base its concrete encasement quantities strictly on the ductbank dimensions as detailed on Drawings 000-ESP-06, 000-ESP-07, 000-ESP-09 and 000-ESP-10?

RESPONSE: Minimum concrete encasements are described in specification 26 05 43 UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS.

b) Is the G-Contract responsible for stabilizing, de-watering and shoring of the ductbank and manhole excavations?

RESPONSE: Yes

c) Is the G-Contract responsible for the backfill required from the top of the ductbank concrete encasement to finished grade?

RESPONSE: Yes

37. Drawing 000-FS-01 and drawing 000-FS-02 shows existing duct banks between new EMH206 to EMH104 and new EMH207 to EMH105. The duct bank section drawings and site electrical drawings show no reference to these duct banks and manholes. Also, are the new EMH206 and EMH207 to intercept existing duct banks? Please clarify.

RESPONSE: Yes, new manholes EMH206 & EMH207 intercept existing duct banks. No ductbanks sections to EMH104 & EMH105 were provided. New Fiber will be pulled through existing conduits to/from EMH206 & EMH207 and EMH104 & EMH105. Existing duct bank between EMH 102 and EMH 104 consists of 8-2" conduits (3 active, 5 spare). Existing duct bank between EMH 103 and EMH 105 consists of 8-2" conduits (1 active, 7 spare).

38. Drawing 000-FS-02 (Addendum #1) shows existing raceways from the new EMH206 and EMH207, via the steam trench to the admin annex building 110. The duct bank section drawings and site electrical drawings show no reference to the duct banks. Please clarify.

RESPONSE: There are new duct banks from the existing steam trench to EMH206 and EMH207 per detail 20/000-ESP-20. 4-2" conduits to each EMH from the steam trench.

39. Drawing 000-FS-000-FS-01 and 000-FS-000-FS-01 shows system installation schematic routing plan with no scale, is it possible to have drawings to scale issued?

RESPONSE: Refer to 000-ESP drawings and Addendum No. 1 ESK-01 sketch for locations of manholes, ductbanks, and buildings.

40. In Article 3, Section 4-2E indicates substantial completion at 1,260 Calendar days. In Article 2, Page 24 in bold indicates substantial completion at 540 calendar days. Please advise which is correct?

RESPONSE: Refer to Addendum No. 1 page 4 of 12.

41. Reference Specification Section 260513 and Drawing Number 000-ESL-02 (CONDUIT ROUTING SCHEDULE FOR FEEDERS F-SWGR004-410A AND F-SWGR004-410B/NEW SUBSTATION); Can a conduit schedule be provided for new Feeders F-SWG004-410 A &B, no conduit /tray routing schedule has been provided in the EFR 410 Building Drawings to confirm the routing. On Drawings 000-ESP-09 (Sheet 44 of 108) Detail 4 shows a duct bank from EM113 to Bldg. 410 Riser. We cannot find the conduits in this duct bank on the Conduit Routing schedule.

RESPONSE: These conduits are not in the Conduit Routing Schedule. The same feeders on the Conduit Routing Schedule from EMH043 to EMH113 will continue between EMH113 to BLDG 410 leaving 2 spare conduits to BLDG 410 and will continue in new/existing cable trays to SWG004.

42. Reference Specification Section 260513 and Drawing Number 000-ESL-02 (CONDUIT ROUTING SCHEDULE FOR FEEDERS F-SWGR004-410A AND F-SWGR004-410B/NEW SUBSTATION); The conduit numbers on the Conduit Routing Schedule (Substation) on Drawing 650-ES-01 (Sheet 82 of 108) do not match the Switchgear and Transformer Templates shown on Drawing 650-ET-04 (Sheet 77 of 108). The conduit schedule has conduits F-106501-512. The templates show conduits F106001 thru 012. Can you verify that these conduits are numbered wrong on one of these drawings?

RESPONSE: Conduit numbers revised per drawing Addendum items above.

43. Reference Specification Section 260513 and Drawing Number 000-ESL-02 (CONDUIT ROUTING SCHEDULE FOR FEEDERS F-SWGR004-410A AND F-SWGR004-410B/NEW SUBSTATION); On Drawing 000-ESP-009 Ductbank Sections (Sheet 44 of 108). All existing duct banks that are scheduled to be used as part of this project are on the Conduit Schedule. There are some Existing Ductbanks that are marked (REF. Only). There are other Existing Ductbanks that are not on the Conduit schedule and are NOT MARKED (REF. Only), the Ductbanks we are referencing are shown in Detail 6, 7 and 9. Can you verify if these Ductbanks are also for reference only?

RESPONSE: That is correct

44. Reference Specification Section 260913.10 and Drawing Number 500-ET-01 (CONDUIT ROUTING SCHEDULE); The CONDUIT ROUTING SCHEDULE details the FILL DESCRIPTION for Conduits C-500100, C500101, C500103 and C500104 as being Drawing 650-ET-05. This Drawing does not exist and was not included in the Drawing Index 000-G-12; can the Conduit Fill be provided for the above conduits?

RESPONEE: See Addendum No 1 – C. Contract Drawings, 8.a)

45. Would a Blown Fiber be considered to be used in lieu of conventional copper Fiber. We feel that a properly designed and installed eABF solution would not only help with meeting schedule requirements, but would help in future projects. This product is available in fiber counts from 2-96 Strands. The blown Fiber eliminates intermediate patching which is usually equals problems and trouble shooting. The solution is faster to install.

RESPONSE: Bid as specified.

46. Under bid documents volume 2 page 01 311 16-8 DCS Communications Cabling (High Priority) No date in description. Please clarify date.

RESPONSE: DCS fiber is not a high priority and status revised per addendum item above.

- 47. The only painting/coating specification included is section 099123: INTERIOR PAINTING. Furthermore, the paint schedule provided indicates "Interior Paint Schedule" and does not indicate what areas are to receive painting, but rather indicates the painting systems to be used on various substrates. Among the substrates listed are as follows:
 - a. Concrete, Nontraffic Surfaces the only interior concrete we have for this project are equipment curbs/pads.
 - b. Concrete, Traffic Surfaces we have no interior concrete traffic surfaces on this project.
 - c. CMU we have no CMU on this project.
 - d. Steel we have no interior steel.
 - e. Galvanized-Metal the only interior galvanized metal we have on the project would be the edge angle and ladders located within the cable vaults on drawing 22 (650-S-01).

In specification 01 11 00, section 1.2.A.1.f indicates there is painting in EFW Building 900. It is unclear what painting is to be painted in this building. In addition, it is our understanding the canopy structural steel is only to be hot dipped galvanized, and does not required painting. Please verify what painting is required for this project.

RESPONSE: Only touchup painting required around area of demolition or other disturbed area.

Attachments:

Specifications:

1. (No Items)

<u>Drawings</u>

1. 000-G-01 Cover Sheet

Other:

1. Geotechnical Reports

* * * * END OF ADDENDUM NO. 2 * * * *

Contract No. 1739 ELECTRICAL DISTRIBUTION SYSTEM UPGRADE



MEMBERS OF THE BOARD

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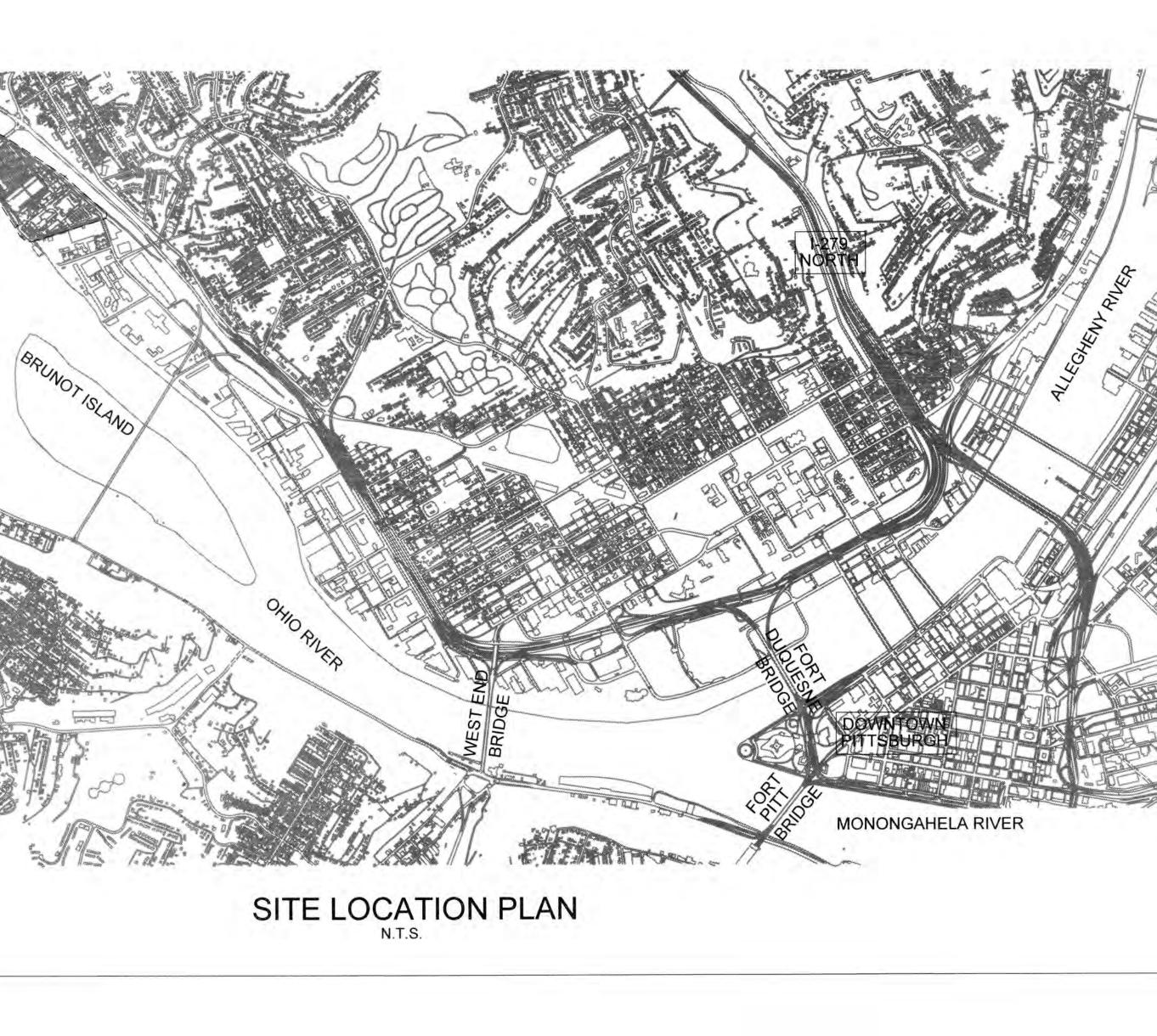
Kimberly Kennedy, P.E. - Director of Engineering and Construction

APPROVED	
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EXECUTIVE DIRECTOR Kimberly Kennedy	DATE 7/1/2021
DIRECTOR OF ENGINEERING AND CONSTRUCTION	DATE 7/1/2021
MANAGER OF CAPITAL PROJECTS	DATE 7/1/2021
PROJECT ENGINEER	DATE

ALCOSAN 17-JULY-2020

Allegheny County Sanitary Authority 3300 Preble Avenue Pittsburgh, PA 15233

> **Contract G: General Contract E: Electrical**

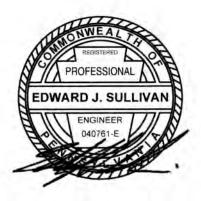


ISSUED FOR BIDS MAY 25, 2021



Architecture Engineering Environmental Services





DESIGN SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

GARVIN

BOWARD BEITKO

BUILT ON REPUTATION

CONSULTING GEOTECHNICAL, FORENSIC & ENVIRONMENTAL ENGINEERS

GEOTECHNICAL ENGINEERING ANALYSIS & REPORT

PROPOSED ADDITION TO ALCOSAN SUBSTATION BUILDING 3300 PREBLE AVENUE CITY OF PITTSBURGH, PENNSYLVANIA

For:

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QUAD3 GROUP, INC. 3495 BUTLER STREET, SUITE 102 PITTSBURGH, PENNSYLVANIA 15201

Garvin Boward Beitko Engineering, Inc. 180 Bilmar Drive Suite IV Pittsburgh, PA 15205 Phone: (412) 922-4440 Fax: (412) 922-3223

December 14, 2020 GBBE 20159



BUILT ON REPUTATION

CONSULTING GEOTECHNICAL / FORENSIC / ENVIRONMENTAL ENGINEERS

December 14, 2020

Quad3 Group, Inc. 3495 Butler Street, Suite 102 Pittsburgh, PA 15201

Attn: Edward Sullivan, P.E. Principal / Director, Pittsburgh Operations

Subject: Geotechnical Engineering Analysis and Report Proposed Addition to ALCOSAN Substation Building 3300 Preble Avenue, City of Pittsburgh, Pennsylvania Garvin Boward Beitko Project 20159

Pursuant to your authorization to proceed, we completed our geotechnical engineering analysis for the subject project. This report summarizes our engineering analysis and presents geotechnical engineering recommendations for the design and construction of foundations to support the proposed, approximately 23-ft-wide by 83-ft-long, one-story addition to the existing electrical substation building, situated at the ALCOSAN facility, as shown on the Google Earth® aerial image (Image), with the proposed addition superimposed in red, provided by you to us.

1.0 – SITE LOCATION AND CONDITIONS

The site, as shown on the <u>Site Location Plan</u> of Figure 1, is occupied by the existing electrical substation building, situated about 50 ft east of the east bank of the Ohio River, within the ALCOSAN facility in the City of Pittsburgh, Allegheny County, Pennsylvania. The ground surface within the proposed addition area, to abut the southern wall of the existing electrical substation building, varies between about elevations 720 ft and 724 feet. The site is located on the Ohio River floodplain.

Elevations discussed herein are based on ground surface elevations at the test borings, as gleaned from the *Records of Subsurface Exploration* (a.k.a. test boring logs), included in the April 1997, <u>Geotechnical Data</u> <u>ALCOSAN Capital Improvement Program</u> report (Report), by Camp Dresser & McKee CH²MHill (CDM), provided to us by you; and ground surface elevations obtained by us via the Google Earth® website. The elevations appear to be referenced to United States Geological Survey datum.

Garvin Boward Beitko Engineering, Inc. 180 Bilmar Drive Suite IV Pittsburgh, PA 15205 *Phone: (412) 922-4440 Fax: (412) 922-3223*





FIGURE 1 – SITE LOCATION PLAN (from Google Earth®)

2.0 – SUBSURFACE EXPLORATIONS

We used the aforementioned 1997 CDM Report boring logs, provided by you, as the basis to evaluate subsurface conditions at the site. Of course, as we were not present during test boring operations and did not have the opportunity to examine the boring samples, we will not assume any responsibility for the accuracy of the boring log characterizations of the subsurface strata. Such responsibility should be maintained with the author(s) of the CDM Report. For our herein-summarized engineering analysis, we used the CDM boring data in good faith with respect to its accuracy.

We approximated the CDM Report locations for Borings 273, 274, 276, 279, and 281, using the <u>Boring</u> <u>Location Plan</u> drawing from that Report, onto the aforementioned Image, herein included as Figure 2, <u>Plan of CDM Boring Locations</u>. According the CDM logs, the borings were drilled during June 10 thru 13, 1996. The CDM test boring contractor conducted standard penetration tests (SPTs) at five-foot vertical intervals in the soil mantle. It appears that the SPTs were conducted in general compliance with American Society for Testing and Materials (ASTM) standards at that time. These tests provide a measure of the shearing resistance, or strength, of cohesive soils and the relative density of granular soils; they also provide soil specimens for laboratory evaluation. Those five borings were extended to SPT or



auger refusal on bedrock, from which level 10 ft of continuous rock cores were procured from each of those borings, except for Boring 274.

As current ground surface elevations appear to differ for every CDM boring location, except Boring 281, it appears that fill was placed at the site, raising the ground surface, between 1996 (when the borings were drilled) and 2019 (the Google Earth® ground surface elevation data). It appears that between two feet and six feet of fill was placed at the locations of Borings 273, 274, 276, and 279. Using the CDM boring data, combined with the apparent additionally-placed fill at the site since the borings were drilled in 1996, it appears that the 46-ft- to 49-ft-thick soil mantle at the borings is composed, in descending order, of approximately: 21 ft to 30 ft of fill; zero to 11 ft of alluvial (relatively recent-geologically-deposited river) soil; and 13 ft to 19 ft of glacio-fluvial soil deposited during the last ice age that ended about 12,000 years ago. The fill reported in the CDM borings, but not including apparent fill placed at the site since the borings were drilled in 1996, is a heterogeneous anisotropic mixture of gravel, slag, cinders, silt, sand, brickbats, "cement" (assumed to be concrete fragments), glass fragments, and cobbles. According to our scale of soil material classifications, dependent on the "N" values determined via the SPT results, as included in the appended geotechnical terminology, the fill reported in the CDM borings varies from very loose to medium dense in relative density, a relative measure of the density and strength of predominately granular materials. The alluvial soil, composed of sand, gravel, and silt, ranges from loose to medium dense, while the glacio-fluvial soil – mostly sand, gravel, and cobbles – varies from firm to very dense. It overlies interbedded sandstone, siltstone, shale, and claystone bedrock that is soft to hard and extremely to occasionally broken. CDM reported that the bedrock core exhibited rock quality designations (RQDs) between 10 percent and 40 percent. The following table summarizes subsurface explorations at the borings.

CDM Boring	CDM-Recorded Ground Surface Elevation During 1996 (ft)	Estimated Approx. Ground Surface Elevation According to Google Earth® (9/2019) (ft)	Apparent Fill Thickness (ft)	Alluvial Soil Thickness (ft)	Glacio- Fluvial Soil Thickness (ft)	Depth to Bedrock Surface (ft)	Approx. Bedrock Surface Elevation (ft)	Groundwater Surface Elevation Reported by CDM (ft)
273	725	727	21	9	19	49	706	708
274	725	728	28	0	18	46	707	707
276	726	729	30	5	13	48	713	711
	5 0 (700	20	0	17	46	709	710
279	726	732	29	0	1 /	40	/09	/10

SUMMARY OF SUBSURFACE EXPLORATIONS



The CDM records for Borings 273, 274, 276, 279, and 281, summarizing the soils and rocks encountered and reported by CDM, are appended.

The CDM boring logs indicate that observations for groundwater were conducted during the progress of subsurface explorations and upon completion of boring operations. At the time of test drilling, the borings intercepted the phreatic surface between elevations 707 and 711. These elevations are reasonable with respect to normal pool elevation 710 of the Ohio River at this area. However, it should be understood that the groundwater surface is controlled by the nearby Ohio River. Thus, it will vary with seasonal and regional precipitation.

3.0 – DISCUSSION AND RECOMMENDATIONS

We reviewed the November 12, 1996, As-Built drawings, originally completed by CDM and L. Robert Kimball and Associates. Those drawings show that the existing electrical substation building is supported with a structural concrete mat foundation with 12-ft-square thickened slab sections, placed in a grid pattern spaced at 20 ft intervals, which are apparently intended to essentially act akin to isolated spread (column) footing foundations. The foundation system appears to extend four feet below adjacent exterior perimeter grade about the building. The building final concrete floor extends 10 ft above the top of the mat foundation via 18-in.-dia columns centered at each of the aforementioned thickened floor slab "column footings." The mat foundation subgrade was provided with compacted granular fill. The type of granular fill (i.e., crushed stone or gravel of certain size and gradation, etc.) was not specified. The graphical sections on the drawings show that the compacted granular fill was supposed to be up to five feet thick, while Dwg. No. 000-S-01, Structural Notes (Notes) indicates that the granular fill should be "6"" (sic, feet) in thickness. The Notes specify that the granular fill was to be compacted to "...a minimum of 95% of relative density per ASTM D1557." However, this is a misnomer, as ASTM D1557 specifies the procedure for the modified proctor test, which should only be used for fine-grained cohesive soils. It does not apply to granular soils. The Notes indicate that "All footings shall be supported on compacted granular fill having a net safe bearing capacity of 2,000 psf." We assume the word, "safe," is meant to portray an allowable bearing capacity, as "safe" is not typically applied to foundation bearing requirements/analyses. Finally, the structural mat foundation does not actually behave like footing foundations. Nonetheless, we used this basic design/construction condition as the basis for our initial geotechnical engineering analyses. We understand that others recommended that the addition be supported with deep pile foundations, but that project decision makers want to avoid deep foundations.

GARVIN BOWARD BEITKO

Thus, we initially considered shallow foundation support for the proposed building addition, as discussed in Section 3.1 of this report.

Regardless of the type of foundation system chosen to support the proposed building addition, it should be designed to resist uplift forces imposed on it via the 100-yr flood level of the nearby Ohio River.

3.1 – Shallow Foundation Considerations

We analyzed the proposed building addition based on support via a conventional shallow foundation system, bearing on an undercut zone backfilled with properly-compacted crushed stone. As the existing subgrade, as well as the undercut and backfilled zone, are predominately granular, we analyzed this foundation option using the Schmertmann immediate settlement method. Although the desired allowable net total combined (dead and live) load maximum contact bearing pressure (CBP) of 2000 lb/sq ft, as was used for the exiting building as discussed above, can be readily achieved via undercutting and backfilling the foundation subgrade with crushed stone, the addition will experience settlements. Our analysis indicates that the addition, supported with conventional isolated spread (column) and continuous line (wall) footings, will experience a maximum total settlement on the order of about two inches and differential settlements, across its width, approaching one and one-half inch. "Floating" structural mat foundation support, similar to that used for the existing building, should somewhat reduce the addition differential settlement, possibly to as little as one inch, although it may reach 1.25 in. based on some variables that can only be assumed. A factor worth noting and considering is that granular material typically experiences what is termed, "immediate settlement," akin to elastic compression, although this is only a loosely-applied relative term. As such, typically between 20 and 50 percent of foundation subgrade settlements occur during building construction. Unfortunately, the settlement can, nonetheless, detrimentally impact building addition design and performance. It should be realized that settlements will be concentrated at the interface of the existing building, which years ago should have stopped settling, and the addition. Thus, the existing building to addition interface will experience on the order of two inches of settlement, which will likely be beyond typical structural tolerances. Therefore, we recommend that any structural members spanning from the existing building to the addition, as well as connections between the two, be designed to withstand such movements/strains, and resulting stresses, or the addition and existing building be structurally divorced. If such members are not designed to withstand such movements then both the addition and existing building may experience associated distresses. Regardless of structural design actions taken, differential settlements will potentially result in tripping hazards at the



interface of the addition to existing building floors, although floor settlements will likely be of lesser magnitude than those predicted and presented in this report.

If fill is placed to raise the proposed addition floor elevation, settlements will be greater than herein predicted. Further, such fill placed adjacent to the existing building could result in down-drag forces on its foundations, leading to distresses to it.

If conventional column and wall footing support is chosen for building addition support, their "footprint," plus a minimum three-foot-wide perimeter strip, should be undercut to a depth of at least five feet below final footing bearing elevation. The exposed undercut surface should be evaluated by our personnel via proof-rolling with a suitable vibratory roller compactor exerting a minimum compactive centrifugal force of 3500 pounds. All loose or soft surfaces revealed via proof-rolling, as delineated by us, should be undercut to a competent subgrade, as determined by us, or to an additional depth of two feet, whichever is first encountered. All slag and materials deemed unsuitable by us should be removed from the undercut zones. All undercut surfaces should be compacted to a condition approved by us. The vacated volumes should be backfilled to final footing bearing level with suitable inert (non-expansive) crushed limestone meeting the size and grading for AASHTO No. 57. All structural backfill should be placed in maximum eight-inch-thick loose lifts, compacted to at least 70 percent relative density as by ASTM Test Designations: D4253-16 and D4254-16. With proper implementation of footing bearing subgrade enhancement, as described above, the proposed addition may be supported with conventional column and wall footings designed for a CBP of 2000 lb/sq foot. Addition perimeter footings, as well as any other footings potentially exposed to below-freezing ambient air temperatures, should extend at least 42 in. below final adjacent exterior grade for frost protection.

Should the project decision makers choose to support the addition with a structural mat foundation, the same undercut and backfill procedure, as above described for the conventional footing option, should be implemented. The structural mat, bearing on a properly-prepared bearing subgrade, should be designed for a CBP of 2000 lb/sq foot. It should be provided with perimeter frost walls extending at least 42 in. below final adjacent exterior grade for frost protection.

Due to the above-predicted settlements, we recommend that utilities between the existing building and the addition, as well as utilities extending from the addition, be provided with flexible couplings that are able to withstand the settlement-induced deformations/movements.

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With either of these shallow foundation options, the undercut zone will extend below the existing building foundation system. Hence, temporary existing foundation underpinning and/or shoring and bracing of the excavation sidewalls – at least those adjacent to the existing building, as well as any other excavations nearby movement-sensitive structures/utilities/pavements/appurtenances – should be installed to prevent sidewall collapse and undermining of the existing foundations and site elements of concern. Temporary shoring and bracing should be designed based on the following estimated soil parameters.

Soil Density, $\gamma = 130$ lb/cu ft Soil Angle of Internal Friction, $\phi = 28^{\circ}$ Soil Cohesion, c = 0

As the ground surface at and about the proposed addition area appears to be relatively flat, temporary shoring and bracing can be designed for an equivalent fluid density of 47 lb/cu ft (based on the active retaining wall force condition), plus any applicable surcharge loads, including existing building foundation pressures. Likewise, appropriate hydrostatic pressures should be included in the temporary shoring and bracing design.

Regardless of the shallow foundation system potentially chosen, the footings should extend to the same elevation of the existing building footings to prevent superimposition of proposed footing pressures onto them.

3.2 – Alternative Subgrade Improvement Option

In lieu of the undercutting and backfilling scheme presented in Section 3.1, the addition subgrade can be enhanced, and settlements further mitigated, by installing rammed aggregate piers (RAPs) in the existing subgrade after any necessary fill is placed. However, we recommend minimizing fill placement with this option.

RAPs are considered "intermediate foundation systems" to enhance poor subgrade conditions. RAP elements are conventionally constructed by densely compacting successive lifts of high-quality crushed rock – or similar aggregates – in 18-in.- to 36-in.-dia shafts of varying depths using patented ramming equipment. The vertical ramming action increases the lateral stress within the subgrade, reportedly improving the soils between the RAPs. Proper implementation of RAP installation can control foundation settlement and provide enhanced bearing capacity for design. RAPs are typically installed in a



grid pattern throughout poor subgrade areas designated for proposed structure construction. The final configuration/geometry/quantity/details of RAP requirements should be determined by a specialty RAP designer. Typically, RAPs are concentrated at proposed shallow footing foundation areas. Once the RAPs are installed, conventional footings are constructed atop them, as planned. RAPs can, and often are, used to enhance proposed floor slab subgrade conditions, as well. When RAPs are used to enhance floor subgrades, the RAP designer is typically involved with floor slab design. In those cases, the floor slab is often designed to be slightly thicker than a conventional floor slab-on-grade, but not as thick/reinforced as a structural floor slab. However, for this case, considering the granular nature of the soil mantle and the relatively shallow groundwater regimen, Impact® Piers appear to be a better option than conventional RAPs. Impact® Piers, developed by Geopier, create RAP elements using a patented vertical ramming process. The Geopier Impact system uses a displacement mandrel to reinforce relatively poor soils, including loose sand, soft silt, and clay, mixed soil layers, uncontrolled fill, contaminated soils, and soils below the groundwater table. The displacement process allows for installation with no spoils and eliminates the need for casing. Its performance and cost-effective qualities make it an ideal solution for soils that are subject to caving, such as the looser granular soils, and soils below the groundwater table, at this site. The RAP elements are constructed by applying direct vertical ramming energy to densely-compacted successive lifts of high-quality crushed stone to form high-stiffness engineered elements. The vertical ramming action also increases the lateral stress and improves the soils surrounding the cavity, which results in foundation settlement control and greater foundation design bearing pressures. During installation, cement grout is introduced into the hollow mandrel and filled to a prescribed depth. Aggregate is then placed into the mandrel and the combined grout/aggregate solution is used in RAP element construction. The ramming of the grouted aggregate causes pre-stressing and pre-straining of the matrix soils, improves the density of the granular materials, and increases the lateral stress in surrounding soil. Based on our experience with RAPs, we suspect that they will decrease total settlements to as little as one-half inch. However, this may continue to present challenges at the existing building to proposed addition interface, where settlements will be concentrated. Consultations with GeoStructures, a specialty design-build contractor that installs RAPs and Impact Piers, and with whom we have collaborated with before on similar projects, reveals that this project would likely require 20-in.-dia Impact Piers extending to about 30 ft deep. With proper design, by a specialty design-build contractor such as GeoStructures, it preliminarily appears that the footings can be designed based on a composite Impact Pier and soil subgrade bearing CBP of 5000 lb/sq foot. The structural mat option will require the installation of more piers than the conventional footing support option.



An advantage of Impact Piers is that they will avoid the undercut excavation required for the conventional footing foundation option presented in Section 3.1. This will, correspondingly, avoid the temporary shoring and bracing and/or underpinning of existing building foundations.

GeoStructures estimates that Impact Piers for conventional footings will entail costs between \$100,000 and \$150,00 to install for the addition at this site.

Proposed additions to existing buildings can, and often do, present challenges with respect to RAP installation. It is sometimes essentially impossible to access the area closest to the existing building with the pier installation equipment. Further, it is obvious that Impact Piers cannot be installed below the existing building, which would be required to fully control settlements at the addition to existing building interface. Therefore, another specialty design-build contractor option is available to address these challenges, as presented in Section 3.3 of this report.

3.3 – Ductile Iron Pipe Piles

Although we understand that the project decision makers are interested in avoiding a deep foundation system, ductile iron piles (DIPs) are substantially less expensive than tradition driven piles. DIPs are a pre-fabricated driven pile system utilizing high-strength ductile iron pipes that transfer the load from a footing or pile cap, or heavily-loaded slabs, including a structural mat foundation, to a stiff soil or rock layer to control settlement of a structure. DIPs can be designed for end-bearing or skin friction depending on the stratigraphy and loading conditions. In this case, considering that the only strata considered reliable for skin friction is the glacio-fluvial soil, which is as little as 13 ft thick prior to reaching bedrock, we recommend that the DIPs extend to suitable competent bedrock.

DIPs can be used in conjunction with conventional footings, or combined with typical pile caps and grade beams. Its high-frequency tamper exerts marginal vibrations, which is an advantage when compared to the significantly higher vibrations caused by conventional driven pile foundations. DIPs can be the most cost-effective option for foundation support of buildings when:

■ Access is limited,

• Vibrations are a concern, which will likely be a consideration with respect to driving piles adjacent to the existing building,

- New footing construction abuts existing footings, which is clearly a concern for this project, and
- New foundations abut existing or future utilities.



As with the Impact Pier option, an advantage of DIPs is that they will avoid the undercut excavation required for the conventional footing foundation option presented in Section 3.1. This will, correspondingly, avoid the temporary shoring and bracing and/or underpinning of existing building foundations.

Consultations with GeoStructures reveals that DIPs for this project will likely be on the order of 4.5 in. in diameter and driven to refusal on bedrock, where they can be preliminarily designed for a working capacity of 40 tons each. The DIPs should extend through soft claystone and soft shale layers.

We would be pleased to further consult with you and your specialty design-build contractor regarding this option, if you are interested.

3.4 – Conventional Driven Piles

The addition can also be supported with conventional end-bearing driven pile foundations, including Hpiles or pipe piles. Drilled piles, such as micropiles, could also be used for proposed building addition support. However, these options will likely be substantially more expensive than Impact Piers or DIPs, presented in Sections 3.2 and 3.3 of this report, respectively. We understand that the project decision makers want to avoid conventional driven pile foundations. Hence, we are not further discussing this option in this report. However, should you want to further explore this option, we would be pleased to discuss the engineering analysis and associated costs required to address it.

3.5 – Below-Grade Structural Walls

As described in Section 3.0, the existing building is supported with a structural mat foundation that extends below grade by about four feet. The existing building floor slab, supported on columns extending between it and the structural mat, is set approximately 10 ft above the mat base. Hence, its below-grade "foundation walls" are subjected to lateral earth pressures. Should such below-grade walls be included with proposed addition construction, they should be provided with full-face aggregate foundation drains, as depicted on Figure 3. However, as they may be subjected to flood conditions from the nearby Ohio River, they should be able to sustain flood-driven hydrostatic pressures. Hence, they should be designed as retaining walls able to sustain an equivalent fluid density of 98 lb/cu ft, plus any applicable surcharge loads. This value is based on the at-rest lateral earth pressure condition, as the below-grade walls will be pinned at the top and bottom, such that they will not be able to mobilize the active lateral earth pressure case.



3.6 – Slab-On-Grade and Fill/Backfill Recommendations

The conventional footing foundation option, as well as the DIP option, will require the installation of a conventional floor slab-on-grade for the proposed addition area. The Impact Pier option may include piers for the floor area, in which case the recommendations herein presented for the floor slab will not apply. If, however, the floor subgrade area is not stabilized with Impact Piers, then this report section will apply.

To provide for conventional floor slab-on-grade construction, all topsoil, pavements, organics, potentially expansive materials (i.e., carbonaceous materials, pyrite, marcasite, and slag), wet and/or soft soils, frozen materials, water, rubble, debris, trash, rock fragments larger than three inches, and all other deleterious materials should be removed from the exposed floor subgrade area, as judged adequate by our field personnel. The floor subgrade should be proof-rolled, to the satisfaction of our field personnel monitoring it, with a suitable ten-ton (static weight) steel-wheeled vibratory roller compactor, such as a Raygo 400A, Caterpillar CS563D, or equal compacting equipment accepted by us. Compactor vibrators should be disengaged when within about 10 ft of the existing building to avoid excessive vibrations imposed on it. All loose or soft zones delineated by proof-rolling should be undercut to competent material or to a depth of three feet below final floor subgrade elevation, whichever is first encountered. If our field personnel deem the exposed undercut surface as incompetent to receive backfill, it should be enhanced by "punching" suitable inert (non-expansive, non-slag) crushed limestone, meeting the size and grading requirements for AASHTO No. 1, into it until adequate shear strength is achieved, as approved by us. This may require backfilling part, or all, of the vacated voids with crushed limestone. The AASHTO No. 1 crushed limestone should be capped with at least six inches of suitable inert AASHTO No. 57 crushed limestone. The remaining vacated voids should be backfilled to final floor subgrade elevation with suitable inert on- or off-site fill materials. We should be provided with the opportunity to evaluate all proposed fill materials, whether obtained from on- or off-site sources. Fill materials should be free of organics, topsoil, wet soils, ice, potentially expansive materials, carbonaceous materials, pyrite, marcasite, frozen materials, high plasticity (fat; Unified Soil Classification System CH) clay, trash, boulders, rock fragments larger than three inches, slag, and all other deleterious materials. Further, fill and backfill materials should consist of low-plasticity soil with a liquid limit less than 45 and a plasticity index of less than 25. All cohesive fill/backfill should be compacted to at least 95 percent of its maximum modified proctor dry density as determined by ASTM Test Designation: D1557-12e1, at water contents within three percent $(\pm 3\%)$ of the optimum water content established by that test. Granular fill/backfill, including crushed stone, should be compacted to a minimum of 70 percent relative density as



recommended in Section 3.1 of this report. Depending on the exposed subgrade condition, a portion or all of the undercut volume may need to be backfilled with crushed stone to achieve adequate strength, as approved by our field personnel. Prior to fill/backfill placement, all subgrades should be scarified, as approved by us. Loose lifts of fill should not exceed eight inches in thickness, except where approved by our field personnel. All fill and backfill should be placed so that they can be quantitatively tested for compaction with conventional field-testing equipment, such as nuclear densometers. At least one field compaction test should be performed for every 2000 sq ft of area in each lift of fill or backfill. At least two tests should be performed for each lift, regardless of the area it encompasses. Tests should be completed at 50 ft intervals in each lift of backfill in narrow trenches, such as utility trenches.

With proper subgrade preparation, floor areas should be suitable for conventional floor slab-on-grade construction designed for a modulus of subgrade reaction of 100 lb/cu inch. Non-bearing partition walls may be supported directly on thickened floor slab sections. The floor slabs and non-bearing elements should be divorced from all load-bearing members with isolation joints. Concrete floor slabs should be provided with properly-spaced and -constructed control joints.

The surfaces of fill/backfill lifts should be near horizontal or retrograde to the proposed final slope grade. At the end of each day of earthwork operations, fill surfaces should be graded with adequate fall to an area that will allow potential storm runoff to drain or collect so that the entire lift of fill is not detrimentally affected. Such water should be removed and the saturated fill zone reworked and/or the wet/saturated fill material removed, as required to achieve proper compaction. Further, it would be prudent for the earthmoving contractor to "seal" the surface of the final lift of fill at the end of each work day with a smooth-drum roller compactor, or equal means, to mitigate infiltration of potential precipitation into the fill.

All subgrade areas disturbed by construction equipment/activities and/or precipitation should be recompacted. However, depending on the degree of "damage" inflicted on such subgrade areas, additional measures - such as deeper cuts, crushed stone backfill and/or geotextile stabilization fabric - may be required to properly repair them. It is not possible at this time to determine remedial measures required for such potential subgrade damage until the actual damage occurs. All such disturbed subgrade areas should be evaluated by us in the field.

GARVIN BOWARD BEITKO

3.7 – Seismic Considerations

Our evaluation indicates that the foundation subgrade material for the proposed structures correlates to "stiff soil," or Site Class "D," according to the International Building Code.

3.8 – Field Verification Recommendations

It is imperative that all foundation construction and earthwork operations be monitored on a full-time basis by our field personnel to verify that the recommended foundation bearing horizons, subgrade preparations/enhancements, and fill/backfill compaction are consistently achieved. All recommendations herein are contingent upon such field verifications.

4.0 – REPORT CONSIDERATIONS

This report has been prepared using field and laboratory techniques and analysis methods conforming to commonly accepted geotechnical engineering practices. All recommendations and/or conclusions herein, which should be verified by us in the field, pertain only to this specific project and should not be used or interpreted by others for modifications to this project, or for other projects or sites. Even within the project context, subsurface conditions depicted herein are representative only at the boring locations; actual conditions between/beyond the borings will vary. Due in part to such variability in subsurface conditions, the implementation of recommended measures must be field-evaluated by our personnel under the direction of one of our professional (licensed) geotechnical engineers to confirm that the subsurface conditions encountered during construction are consistent with the test borings and our engineering analysis, and verify that the subgrades and all other geomaterials used are behaving as anticipated. Some conditions or material/subgrade behavior and/or performance may require modifications to our recommendations, which can typically only be determined "on-the-spot" by one of our engineers. Therefore, we will assume **no** responsibility or professional liability for the performance and/or suitability of any slopes, foundations, structures, slabs, appurtenances, or related project areas affected by geotechnical elements inspected and/or evaluated by others. The selected construction-phase field evaluation/testing agency must take full responsibility and professional liability, regardless of their status as a professional services firm, for proper selection and performance of the project geotechnical recommendations implemented on the site. We will not assume any responsibility for this project if an engineering firm or testing agency other than us is engaged to perform geotechnical construction-phase services.



We sincerely appreciate the opportunity to be of service to you on this project. Should you have any questions regarding our findings or recommendations, please feel free to contact us.

Respectfully submitted,

GARVIN BOWARD BEITKO ENGINEERING, INC.

Joseph F. Boward, P.E., FNSPE Principal Engineer



APPENDIX

- Pertinent Geotechnical Terminology
- Test Boring Records by CDM



DEFINITION OF SOIL AND ROCK CLASSIFICATION TERMS

SOIL

Consistency and Relative Density of soils, based on the Standard Penetration Test¹ (SPT) blow counts over the last foot of penetration, N, are generally determined as follows:

CONSISTENCY	N (blows/foot)	UNCONFINED COMPRESSIVE STRENGTH, Qu(tsf)
Very soft	0 - 2	<0.25
Soft	3 – 4	0.25 - 0.5
Medium	5 – 7	0.5 - 1.0
Stiff	8 - 15	1.0 - 2.0
Very stiff	16 - 30	2.0 - 4.0
Extremely stiff	>30	>4.0
Hard (if friable or brittle)	>30	>4.0

Consistency of Cohesive Soils

Relative Density of Granular Soils

RELATIVE DENSITY	N (blows/foot)
Very loose	0 - 4
Loose	5 - 10
Firm	11 – 14
Medium dense	15 - 30
Dense	31 - 50
Very dense	>50

The percents by weight of constituents present in soil are as follows:

Trace:	indicates particles are present, but estimated to be less than 5%
Few:	indicates 5 to 10%
Little:	indicates 15 to 25%
Some:	indicates 30 to 45%
Mostly (and):	indicates 50 to 100%

Criteria for describing moisture content:

MOISTURE CONDITION	CRITERIA
Dry (Humid)	Absence of moisture, dusty, dry to
	touch
Damp	Apparent moisture in soil
Moist	Moist to touch, but no visible water
Wet	Visible free water

ROCK

Hardness of rock is based on the following:

Very soft – crushes under finger pressure

Soft – crushes easily under one hammer blow

Medium hard - breaks under one hammer blow

Hard - resistant to breaking under hammer blow

Very hard - resisting to breaking under several hammer blows

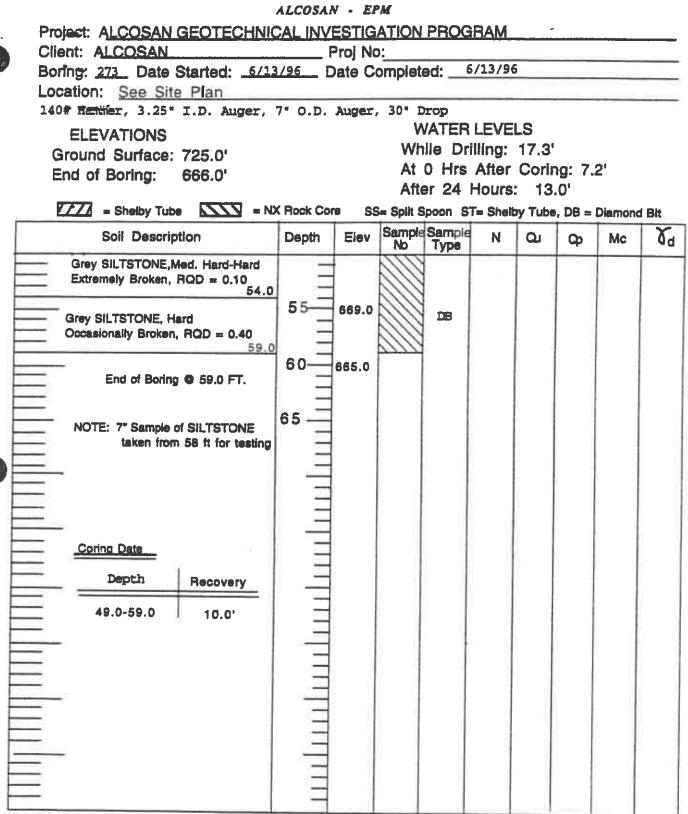
	SPACING OF FRACTURES AND/OR DISCONTINUITES
Extremely or very broken	<1"
Moderately broken	1"-3"
Occasionally broken or blocky	3''-6''
Massive	>6"

¹ STANDARD PENETRATION TEST (SPT) – defined as the number of blows (N) required to drive a two-inch outside diameter split-barrel sampling tube a depth of one foot with a 140-pound hammer falling 30 in. in accordance with American Society of Testing and Materials (ASTM) Test Designation: D1586.

ALCOSAN - EPM

1.2.1

	ADCCOM		444						
Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG	ATION	PRO	GRAM				
Client: ALCOSAN		^{>} roj No							
Boring: 273 Date Started: 6/1	3/96 [Date Co	omplet	ed:	6/13/90	5	_		_
Location: See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30° I	rop					
ELEVATIONS			WA	TER.	LEVEL	S			
Ground Surface: 725.0'			Whil	e Dri	iling: 1	7.3'			
End of Boring: 666.0'			At 0	hrs /	After C	ore:	7.2'		
End of Doning. Coolo			After	24 ⊦	lours:	13.0'			
ZZZ = Shelby Tube = N	X Rock Co	re SS	S= Split S	Spoon (ST= Shel	by Tube	, DB =	Diamo	nd Bit
Soil Description	Depth	Elev	Sample	Sampl Type	e N	Qu	Ср	Mc	γ.
Brown Gravel & Sand	1.0		1	SS	6,15,				
Grey/Black FiLL, w/ Gravel & Slag	7'.0 =	lu i			12,14				
	5-	720.0	2	SS	8,10				
	- ŭ	120.0		35	4,14			1 1	
9.0									
	10-	715.0	3	SS	2,4,				
Brown Sand, Gravel, Slag Trace Cinders, FILL		12510		35	5,8				
	=								
From 11.0 -19.0 ft.	15	710.0	4	SS	5,5	1			
	1 =			50	6,8				
GW 19.0	-								
Black Gravel & Sand, Med. Dense,	20-	705.0	5	SS	5,5,				
Wet, Trace Siag	1 =	1			5,5				
GW									
	25	700.0	6	SS	6,5			1 1	
NOTE: Large cobbles returned to					3,2			1 1	
surface by augur when head was									
at 29 ft	30	695.0	7	SS	2,7,			1 1	
33.0					15,12				
Very Dense Brown Gravel, Some SAND	1 _					- 1			
QW	35-	690.0	8	SS	16,19				
					24,20				
- Very Fine Grey/Brown SILT & SAND,	40	685.0	9	SS	3,5,6 16			20.2	
Wet, Dense ML					10				
44.0 Hard Grey/Brwn GRAVEL, some Sand			10	SS	12,35				
		680.0		23	37,41				
GW			Roller Bit						
	-	-	and a	DB					



PAGE 2 of 2



ALCOSAN - EPM

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN		<u>ESTIG</u> Proj No		PROC	BRAM				
Boring: 274 Date Started: 6/1		-		ed:	6/13/96	5			
Location: See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30° I	rop					
ELEVATIONS			W	ATER	LEVELS	5			
Ground Surface: 725.0'			Whil	e Dril	ling: 1	8'			
End of Boring: 677.5'			At 0	hrs /	After C	ore:	10.2'		
_					lours: `				
Shelby Tube	X Rock Co	re SS	i= Split S	Spoon 8	ST= Shell	by Tube	, DB =	Diamor	id Blt
Soil Description	Depth	Elev	Sample No	Sampi Type		Qu	Сф	Мс	₹d
Grey/Black FILL, w/ Gravel & Slag	Ξ		1	SS	12,14 12,18				
Red Bricks in sample #2	5-	720.0	2	SS	6,7 9,11				
9.0 Brown Sand, Gravel, Slag		715.0	3	SS	6,7 9,14				
Trace Cinders, FILL GW									
	15	710.0	4	SS	12,9 9,6				
\$P 19.5	6 · · · · · · · · · · · · · · · · · · ·								
F/Med. Brwn SAND Some Gravel,W Black Cinders w/Slag, med. Sand	^t 20— —	705.0	5	SS	2,5 7,9				
& Gravel GP 25.0 Very Dense Grey/Brown	25-	700.0	6	SS	10,18				
SANDY GRAVEL Wet SP	=				27,17				
30.5 Med. Coarse Grey SAND w/ Gravel,		695.0	7	SS	6,7, 6,5				
GRAVEL, Dense, Wet, Trace SAND		690.0	8	SS	10,11 7,8				
GW	Ξ								
40.0 Very Fine Grey/Brown SAND, Trace Slit, Wet, Dense SM	40	685.0	9	SS	4,7,8 13				
Hard Grey/Brwn GRAVEL, some Sand SP	45 46.0	680.0	10	SS	30,60 44,66				
	-0.0								
- CLAYSTONE, Soft									

Augur Refusal @ 47.5 ft

PAGE 1 of 1

ALCOSAN - EPM

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Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG	ATION	PROC	RAM				
Client: ALCOSAN		Proj No		_		_			
Boring: 276 Date Started: 6/12	<u>2/96</u> [Date Co	omplet	ed:	6/12/90	5			_
Location: See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,				_			
ELEVATIONS						_			
Ground Surface: 725.5'					ling: 1				
End of Boring: 667.5'					After C		15.7		
ZZZA = Shelby Tube					lours:			Diaman	
	1	1			ST= Shel		, <i>UB</i> =	Diamor	
Soil Description	Depth	Elev	Sample No	Type	N	Q	Ф	Mc	γ.
Gravel, Sand, FILL	1.0 _	1							
Cement, Sand, Gravel, Siag, FILL									
V. Dense to Hard, Dry to Moist	5	720.5	1	SS	7,9,9				
					27				
Buyinding H this is #3 Red Bricks in #3	10-	715.5	2	SS	14, 7,				
nôn		120.0		23	5,5				
Red Bricks in #3	15	710.5	3	SS	12,12				
	=				1,50				
20.0									
Med. Dense GRAVEL, Wet GP	20	705.5	4	SS	6,4 5,3				
24.0	1				0.0				
F/Med. Coarse Bik.SAND,Dense,Wet	25-	700.5	5	SS	0,0,0,0				
F/Med. Coarse Bik.SAND,Dense,Wet Traces of Red Brick & Wood SP 27.0				35					
Lrg. GRAVEL, Loose, Wet GP	-		6	SS	1,1, 2,3		i (
30.0	30-	69 5.5							
GRAVEL,Some Sand, Very Dense, Wet	=								
— GP	35-	690.5	7						
		6.060		SS	21,11 13				
	-						- 1		
40.0	40-	685.5	8	SS	13,16				
Very Dense Brown/Tan SAND & GRAVEL SP.SM	=	[13				
44.0	_								
U. Dense Grey/Brown	45	680.5	9 Rolier	SS	55,30				
48.0	=		Bit	_					
em#	49.0 —	T I	1777	DB					

Grey SILTSTONE, Moderately Broken, Med. Hard-Hard PAGE 1 of 2 Some interbedded Clay at 55.8, RQD = 0.27

-	ALCOSAN								
Project: ALCOSAN GEOTECHNIC	AL INVE	STIG	ATION	PROG	RAM_				
Client: ALCOSAN	P	roj No	t:						
Boring: 276 Date Started: _6/12	/96 D	ate Co	omplete	ed:6	/12/96				
Location: See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7° O.D.	Auger,				_			
ELEVATIONS				ATER					
Ground Surface: 725.5'				ile Dri	-				
End of Boring: 667.5'				0 Hrs			-	5.7'	
			Afte	ər 24 🛛	Hours:	: 15.	.8'		
= Shelby Tube = NX	K Rock Cor	e SS	i= Split S	ipoon S	T≖ Sheit	y Tube	, DB =	Diamono	Bit
Soil Description	Depth	Elev	Sample No	Sample Type	N	QJ	Ср	Мс	V d
Grey SILTSTONE, Moderately Broken,			111						
Med. Hard-Hard,Some Interbedded			$\langle \rangle$	DB					
Clay at 55.8, RQD = 0.27	55-	670.5	$\langle \rangle$						
57.8			$\langle \rangle$						
Grey LIMESTONE, V. Hard,	58.0 -		7777	8					
Occassionally Broken	60								
	=								
	. =								
	65								
End of Boring @ 58.0 FT.									
	-								
	an han								
Corino Data									
	-								
. Depth Recovery	_								
48.0 - 58.0 8.9 ft									
	un frantin d								
						1			

PAGE 2 of 2



ALCOSAN - EPM

Client: ALCOSAN		Proj No		a di s	6/11/04	_	_		-
Boring: <u>279</u> Date Started: <u>6/1</u>	<u>0/30</u> [Jate Cl	ompier	ea:	0/11/90				
Location: See Site Plan	71.0.0	2	201 5						
140# Hammer, 3.25" I.D. Auger,	/= 0.D.	Auger,		-		~			
ELEVATIONS					LEVEL	_			
Ground Surface: 725.5'					lling: 1				
End of Boring: 669.5'					er Cori	-	1.0'		
					lours:				
Shelby Tube	X Rock Co	ore SS			ST≖ Shel	by Tube	9, DB =	Diamor	nd Bit
Soll Description	Depth	Elev	Sample No	Sampl Type	IN .	Qu	ф	Mc	8
Very Dense Brown Gravel,Some Sand	0.5	ł	1	SS	2,3,				
Slag, Gravel, Sand, Glass,	3.0 -			33	3,2				
Bricks, FILL	5-	720.5	2	SS	8, 11, 8,10				
Large Cobbles Returned to surface		2			0,10				
by auger 9.0	_	1							
	10	715.5	3	SS	3,4,				
					4,6				
Brown Sand&Gravel,									
Med. Dense, Moist	15-	710.5	4	SS	3,4,				
SP					5,6				
19.0									
Grey Sand & Gravel, Wet	20	705.5	5	SS	2,5				
SP-SM					3,5				
24.0	-								
PETROLEUM ODOR	25	700.5	6	SS	5,.4,				
Biack Cinders & Slag,	26.5				5,20				
some Gravel,Wet 29.5	-								
	30—	695.5	7	SS	8,20, 20,33				
Grey/Brown GRAVEL & SAND, Very Dense. Dense,Wet									
- OW									
35.5	35	690.5	8	SS	13,13 10,14				
Fine/Med. Brown SAND, Trace GRAVEL, Dense, Wet SM	-								
GRAVEL, Dense, Wet SM 39.5					4 40				
Blue/grey SANDSTONE & Gravel,	40	685.5	9	SS	4,40, 42,53				
Weathered									
SP SP									
46.0	45—	680.5	10	SS	50,56 66,				
White SANDSTONE. Hard 46.3		1	1111		50/.2				
Grey Silty SHALE, Weathered									

RQD=0.0

PAGE 1 of 2

	ALCOSA	V - E	PM						
Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG	ATION	PRO	GRAM				
Client: ALCOSAN		Proj No							
Boring: 279 Date Started: _6/10	0/96 C	ate C	omplet	ed:	6/11/9	6			
Location: See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7* O.D.	Auger		-					
ELEVATIONS					R LEVE				
Ground Surface: 725.5'					rilling:				
End of Boring: 669.5'					After			1.0'	
					Hours				
= Shelby Tube = N2	K Rock Cor	9 SS	S≖ Split S			by Tub	e, DB =	= Diamor	id Bit
Soil Description	Depth	Elev	Sample No	Sampi Type	N	Q	Q	Mc	29
Grey SILTSTONE W/ Interbedded	51.0		000						
clay seams,Med. Hard,Extremely			$\langle () \rangle$	DB					
to Moderately Broken, RQD = 0.13	55-		$\langle \rangle$						
		669.5			R (1		1
End of Boring @ 56.0 FT.	1								2.4.5
	60—			1				-	
	_			1					
	65 —)i						1	
	7								
	_								
	unlind	1							
	_								
	_								
Corino Data	-								
Depth Recovery	-								
	-								
46.0-51.0 2.6'									
51.0-56.0 4.5	_								
	mhmhm								
	\neg								
	_								
	Ξ								

PAGE 2 of 2



4

ALCOSAN - EPM

		ALCO ON		174						
F	Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG.	ATION	PRO	BRAM				
C	Client: ALCOSAN	ł	Proj No):						
E	Boring: 281 Date Started: _6/11	<u>./96</u>	Date Co	omplet	ed:	6/11/96	5			
	ocation: See Site Plan									
1	40# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30° I	rop					
	ELEVATIONS			W	ATERI	LEVEL	S			
	Ground Surface: 725.7'			Whil	e Dril	ling: 1	8'			
	End of Boring: 665.7'			O hi	rs afte	r Cori	ng: 1	2.6'		
				After	24 H	ours:	12.0'			
	Shelby Tube = N	X Rock Co	ne SS	S= Split S	Spoon S	ST= Shell	by Tub	e, DB =	Diamor	nd Bit
	Soil Description	Depth	Elev	Sample No	Sampi Type	N	Qu	Сф	Мс	Υ ^d
F			1	1	SS	1,7,				
F	Brown Gravel, Slag,			1		12,10				
	Sand, Bricks, FILL	5	720.7	2	SS	12, 7, 5,5				
E	-	=				5,5			1 1	
F		_							1 1	
	10.0	10	715.7	3	SS	1,8,				
-	Fine/Med. Coarse Brown SAND SP w/ Gravel, Slightly Compact, Moist	-	(I			3,3			1 1	
E	Grey/Brwn Clayey SAND&GRAVEL, Dam	14.0 _								
	SM	15	710.7	4	SS	9,9,		1	16.1	
	Black Slag, Cinders, Sand, FILL					7,8				
		20	DOC 0	-		7,9			1 1	
_		20	705.7	5	SS	8,4				
	24.0	_	li h							
	V. Fine Grey/Black Silty SAND,	25	700.7	6	SS	2,3,				
	Moist, Slightly Compact SM				33	3,4				
	3" SILT Seam @25.0, Q _p = 1.0	_					- 9			
	P 30.0	30	695.7	7	SS	3,5, 7,8				
	Dense Brown SAND, Some Gravel	_				1,0				
	SP-SM 34.0	_								
	V. Dense Brown GRAVEL, Wet	35	690.7	8	SS	7,13, 13				
	GW					-				
-	39.0 MLGrey Sandy SILT, Firm, Moist 40.5	40				6,7,				
=	Grey/Brown SANDSTONE & Gravel,	40	685.7	.9	SS	10,14		1.00	21.2	
F	Trace Slit, Dense	_								
	SM 45.0	45-	680.7	10	SS	19,31				
	Very Dense SANDSTONE & Gravel	· · · ·	000.7			44				
-	GP	_		211						
	Grey SILTSTONE, Extremely Broken			-	SS	50/.2		_		

RECORD OF A REFACE EXPLORATION

		141	N 4 ^m					•		
	Project: ALCOSAN GEOTECHNI				PROG	RAM				
	Client: ALCOSAN	1.40				F 14 4 10				
	Boring: <u>281</u> Date Started: <u>6/1</u> Location: <u>See Site Plan</u>	1/9: 1): ə Ç	o iplet	ed:	5/11/9	6	_		
	140# Hanmer, 3.25" I.D. Auger,	7* 0 0	Autor	30* 7	-					
	ELEVATIONS	, 0.2.	noger		VATER	IFVE	213		•	
	Ground Surface: 725.7'				ile Dri			I		
	End of Boring: 665.7'				0 Hrs				2.6'	
					ər 24					
	Shelby Tube	X Rock Co	ne SS	S= Split S	ipoon S'	T≕ Sheil	by Tube	, DB =	Diamon	d Bit
	Soil Description	Depth	Elev		Sample Type		Q	Cp.	Mc	No 1
	Grey SILTSTONE W/ Interbedded		-	1111		1	1			
	clay seams,Med. Hard,Extremely to Moderately Broken, RQD = 0.10	52.5		AIII)			Ē,			
		55-	670.7	$\langle \rangle$	DB					
	Grey LIMESTONE, Very Hard, Occassionally Broken, RQD = 0.37			())	-					
	60.0			(11)			1 1		1	
		60-	665.7	7777		í				
	End of Boring @ 60.0 FT.								201	
1		65	1.19	90 ⁷¹				33		
	5.5" sample of Limestone	_		ň – 5	- 1					
	taken for testing from 54 ft	. Ξ) i						·54	
				-					16 - 39et	
									-	
		-								
t	Coring Data									
t		\equiv								
ł	Septh Recovery							1	1	
t	50.0-56.5 4.9'	7								
ł	56.5-60.0 <u>3.3'</u>	=								
E	56.5-60.0 3.3'									
E		=								
H		_	- 1					- 1		
E						1		1		
F						- 1				
F		-								
F		munulu								
						- 1		- 1		

PAGE 2 of 2



OHIO RIVER

APPROX. BORING 274



OF CDM BORING LOCATIONS

@ 2020 Google

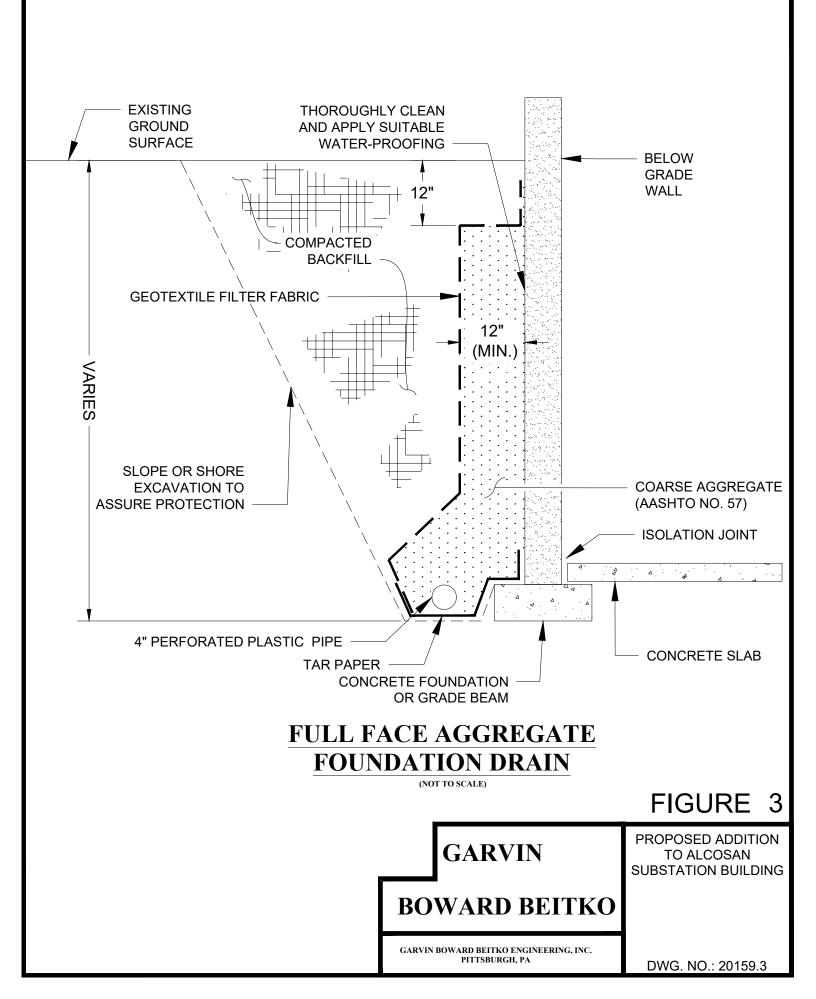
APPROX. BORING 273

APPROX. BORING 281

GBBE PROJECT 20159 PROPOSED ADDITION TO ALCOSAN ELECTRICAL SUBSTATION

Google Earth

40°28'22.45" N 80°02'39.38" W elev 737 ft eye alt 1069 ft 🔿





CAMP DRESSER & McKEE CH²M HILL ALCOSAN EPM Project Office

3300 Preble Avenue Pittsburgh, PA 15233 - 1092 Office: (412) 761 - 1051 Fax: (412) 761 - 2764

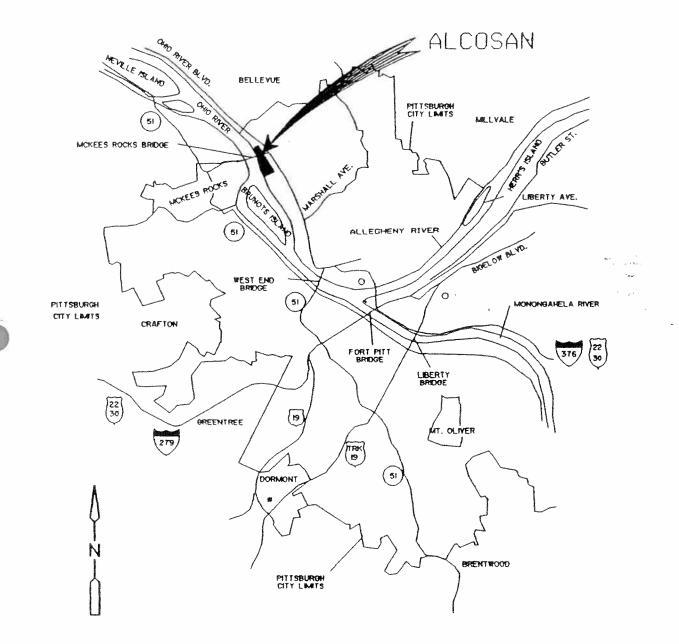
GEOTECHNICAL DATA

ALCOSAN CAPITAL IMPROVEMENT PROGRAM

APRIL 1997

Prepared for the

Allegheny County Sanitary Authority 3300 Preble Avenue Pittsburgh, Pennsylvania 15233



٢.,

SITE LOCATION PLAN

FIGURE 1

Purpose and Scope

This report represents the results of the geotechnical investigation for the ALCOSAN Capital Improvement Program in Pittsburgh, Pennsylvania. The geotechnical investigation was conducted to garner data describing subsurface conditions at the wastewater treatment plant. The scope of the investigation included:

- 1. Soil Borings as located on the Boring Location Plans.
- 2. Soil Stratigraphy Profiles as interpreted from the Boring Logs.
- 3. Shelby Tubes, some of which are stored at the plant, as shown on the Shelby Tube Log Sheet.
- 4. Atterberg Limits Test Results and USC Soil Classifications.
- 5. Grain Size Distribution Test Results and Sieve Analyses Results.
- 6. Results from Tests performed at Professional Service Industries Laboratories in Pittsburgh.
 - A. Chemical Test Results for pH. Chloride Content, Sulfate Content, and Resistivity.
 - B. Rock Compression Test Results.
 - C. Unconfined Compression Tests on Claystone Type Materials.
 - D. Consolidation Test Results.
 - E. Triaxial Shear Test Results.
 - F. Permeability Test Results.

This report includes both factual and interpretive information. Factual information is defined as objective data based on direct observation, such as boring logs and laboratory test results. Interpretive information is defined as subjective conclusions, opinions, or criteria and is based upon judgment or extrapolation of the factual information presented in the report. Cross sections of soil stratigraphy have been interpreted from boring logs, and there is no knowledge as to the degree of strata uniformity between the borings.

Limitations

This report has been prepared for the exclusive use of ALCOSAN for specific application to the 1200 series projects of the Capital Improvement Program. No expressed or implied warranty is made.

At the locations of the soil borings, the passage of time is expected to change the subsurface conditions. This natural fact is aggravated by the loose nature of the cinder fill materials which predominate the site.

Site Description

The site is relatively level and is located on the east bank of the Ohio River where the river flows north a few miles downstream of the confluence of the Allegheny and Monongahela Rivers. The site is bordered by Preble Avenue and CONRAIL to the east, Tracy Street to the south, and the Ohio River to the west. The site pinnacles to the north where the CONRAIL property abuts the harbor line. The McKees Rocks Bridge spans over the plant site, connecting the bluffs above the east border of the plant with the west side of the river.

Construction Considerations

1. Contractors can expect to encounter obstacles during excavations. There is evidence of old foundations below the ground surface. As noted in the boring logs, brick, wood, and metals were found in the split spoon samples. In a test pit immediately north of the northeasternmost Final Clarifier, an existing concrete foundation was uncovered. During the construction of the mixed liquor channels, existing foundations were encountered. This site was previously residential subdivisions, foundry sites, and railroad yards. All excavation work can encounter foundation materials, intact structures, and piping.

2. Dewatering system capacities must be greater than normal, and cut-off walls will likely be necessary. The predominant subsurface feature is the cinder fill. It can range from very loose to very stiff, if not cemented. The material is very permeable. Consequently, any dewatering system will require extreme capacities, due to the close proximity of the Ohio River. In the construction of the Aeration Basins and the Final Clarifiers, well points connected to a suction manifold were employed. There were sections of the excavations that required concrete cut-off walls to reduce the excavation inflow to a pumpable amount.

3. The Ohio River can be expected to reach flood stage repeatedly. The following data describes the river's discharge characteristics:

Discharge Condition	USGS Elevation
Normal Pool	710
25 Year Flood	720
100 Year Flood	726
500 Year Flood	730

Commonly, the Ohio River stage reaches levels between the predicted 25 Year and 100 Year flood stage predictions on an annual basis, and the rise in the river occurs very swiftly. Hence, as an example, if the excavation extends to Elevation 705, normally approximately five feet of unbalanced water head will exist. Overnight, this unbalanced head can increase to approximately eighteen feet. All excavations and work therein must be planned for flood contingencies, and dewatering systems must have excess capacities.

4. The loose nature of the cinder fills will effect sideslope stability and active lateral pressures against bracing. Steep sideslopes will not remain stable. Benching of sideslopes and temporary earth retaining structures will be required to maintain excavations. Larger than normal lateral pressures can be expected against retaining systems due to the loose nature of the fill.

5. All proposed foundations which are not pile and caisson supported will require subgrade preparation work. Existing materials will have to be compacted using heavy vibratory equipment for sands, gravels, or cinders and using sheepsfoot rollers for silts and clays. The settlements which will occur due to this reconsolidation process will have to be compensated with the placement of compacted PennDOT 2A fill.

6. It will be necessary to monitor the performance of dewatering systems with observations wells. The operation of dewatering systems on this site require monitoring by the Contractor of the river stage and groundwater levels around the excavations. Rises in river stage and groundwater levels must be compared to predict excavation flooding or quick conditions arising in the excavation bottoms.

7. Pile driving equipment will likely require the addition of a rock subgrade and/or cribbing. At the bottom of excavations for basins and deep foundations, the existing materials will likely not support construction equipment.

8. Voids can be encountered during excavations. As an example, please refer to Boring Log 266, which was drilled near the existing Ash Pits. The sampler rod was advanced from six feet below grade to nineteen feet below grade by the weight of the rod only.

9. No foundations can bear upon claystone or redbed material. The claystones and redbeds are generally extremely hard in their buried and confined conditions. The danger is that exposure to water or air can cause rapid deterioration of the strength properties. To avoid settlements, no caissons shall be founded in these materials.

GENERAL NOTES

SOIL PROPERTY SYMBOLS

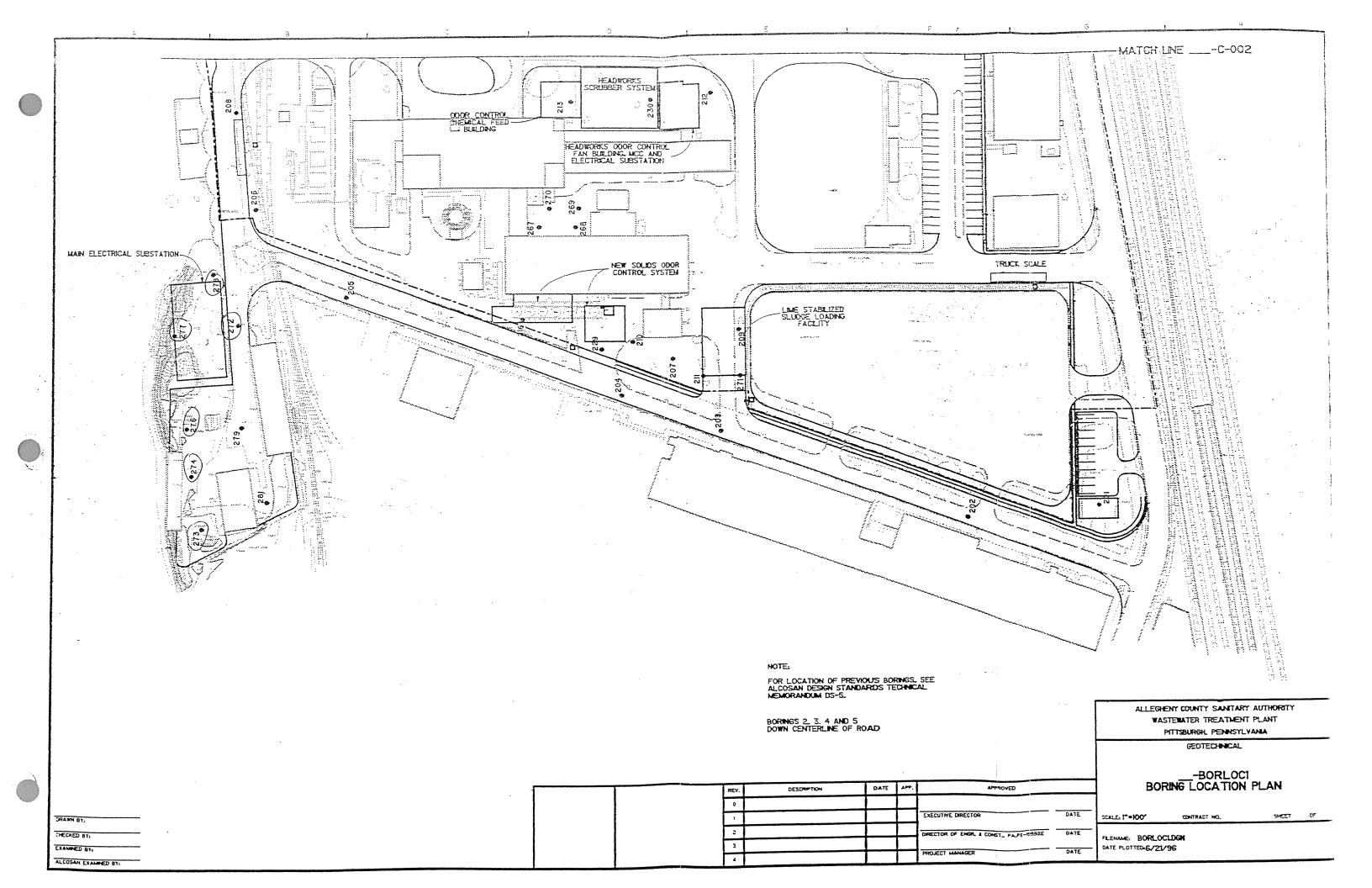
- N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon.
- Qu: Unconfined compressive strength, TSF.
- Qp: Penetrometer value, unconfined compressive strength, TSF.
- Mc: Water content, %
- LL: Liquid limit, %
- PI: Plasticity Index, %
- d: Natural dry density, PCF

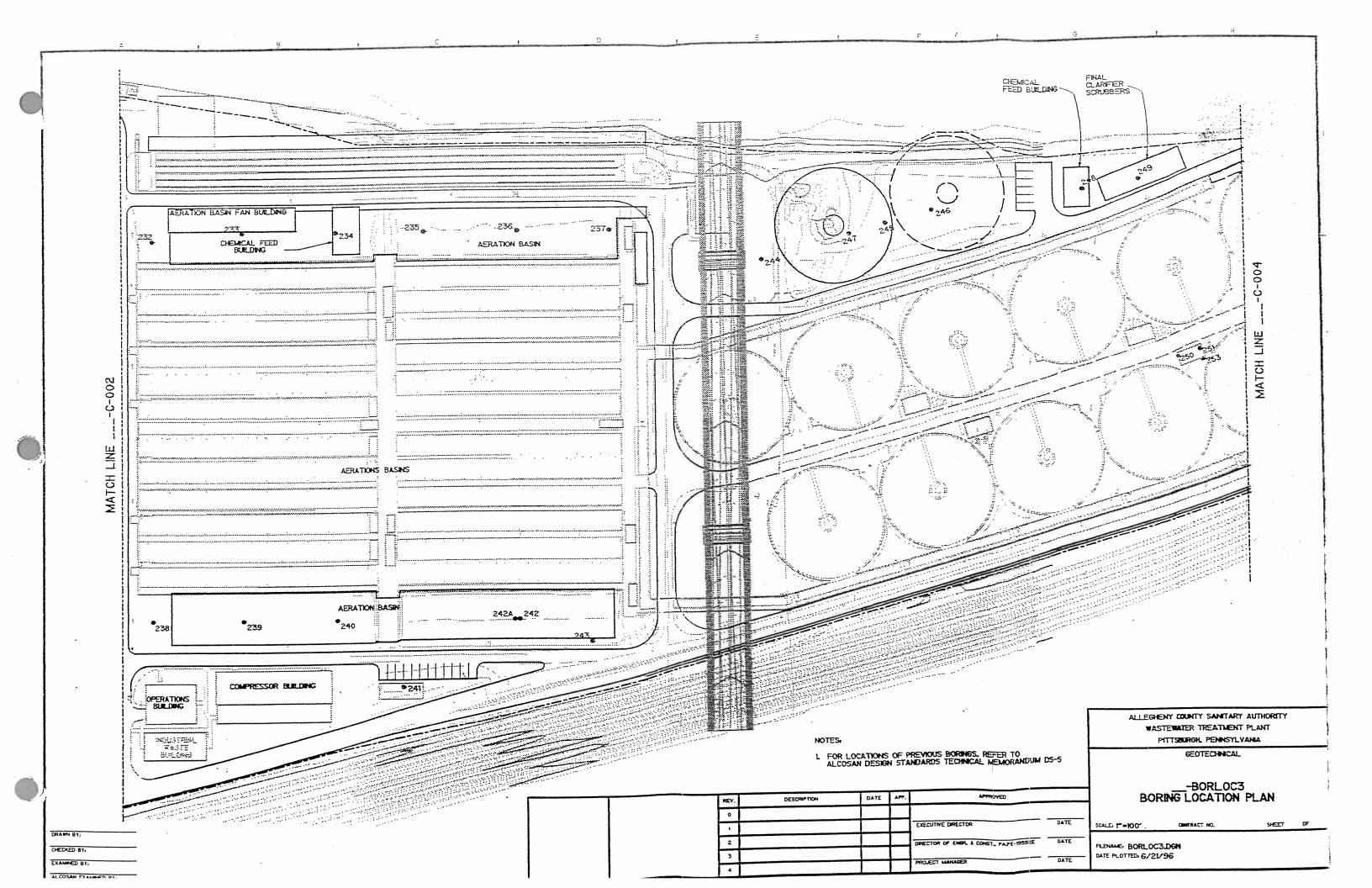
DRILLING AND SAMPLING SYMBOLS

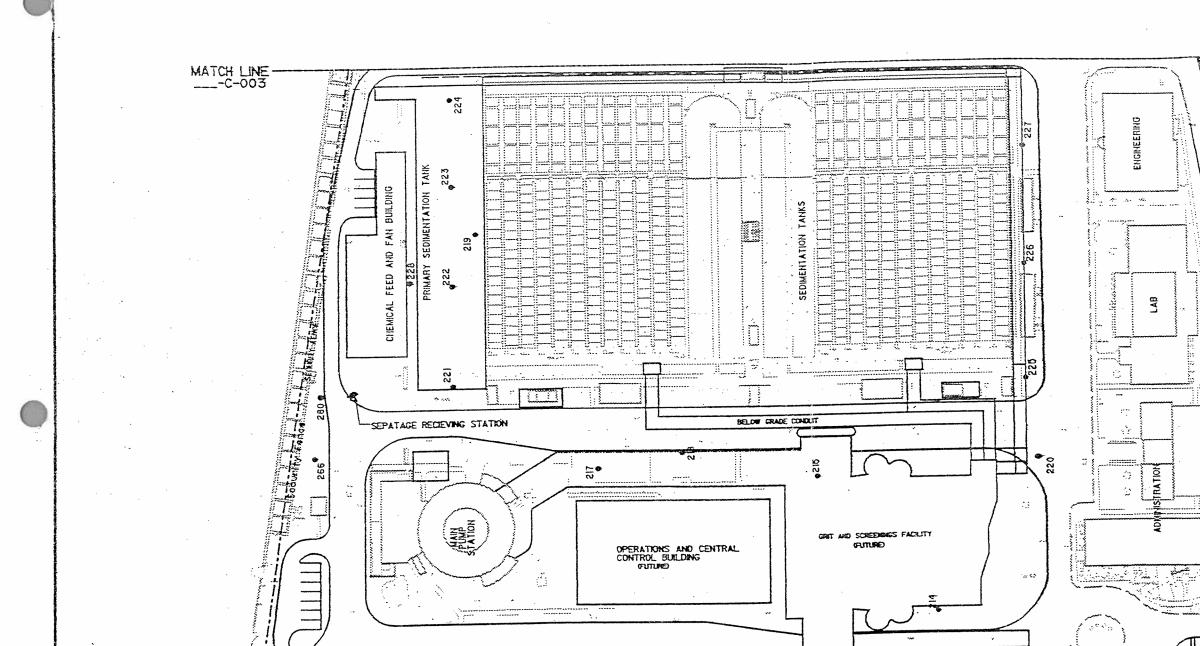
- SS: Split-Spoon 1 3/8" I.D., 2" O.D., except where noted.
- ST: Shelby Tube 3" O.D., except where noted.
- AU: Augur Sample.
- DB: Diamond Bit.
- CB: Carbide Bit.
- WS: Wash Sample.

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

<u>TERM (NON-COHESIVE SOILS)</u>	STANDARD PENETRATION RESISTANCE
Very Loose	0-2
Loose	2-4
Slightly Compact	4-8
Medium Dense	8-16
Dense	16-26
Very Dense	Over 26
<u>TERM (COHESIVE SOILS)</u>	Qu -(TSF)
Very Soft	0-0.25
Soft	0.25-0.50
Firm (Medium)	0.50-1.00
Stiff	1.00-2.00
Very Stiff	2.00-4.00
Hard	4.00+







MATCH LINE

DRAWN BY

CHECKED BY:

EXAMPLED BY:

NOTES

L FOR LOCATIONS OF PREVIOUS BORGINGS, REFER TO ALCOSAN DESIGN STANDARDS TECHNICAL MEMORANDUM DS-5

 REV.
 DESCRIPTION
 DATE
 APP.
 APPROVED

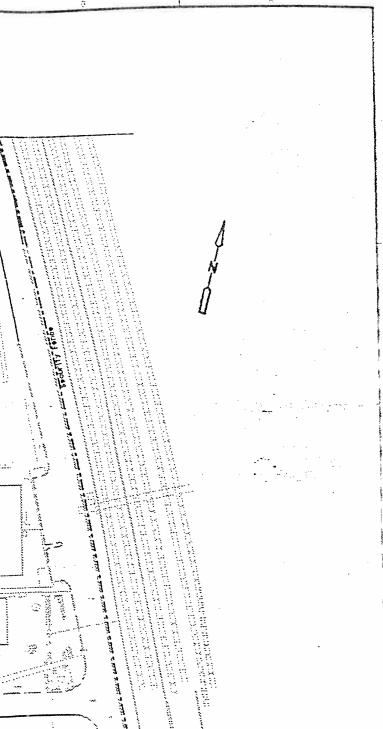
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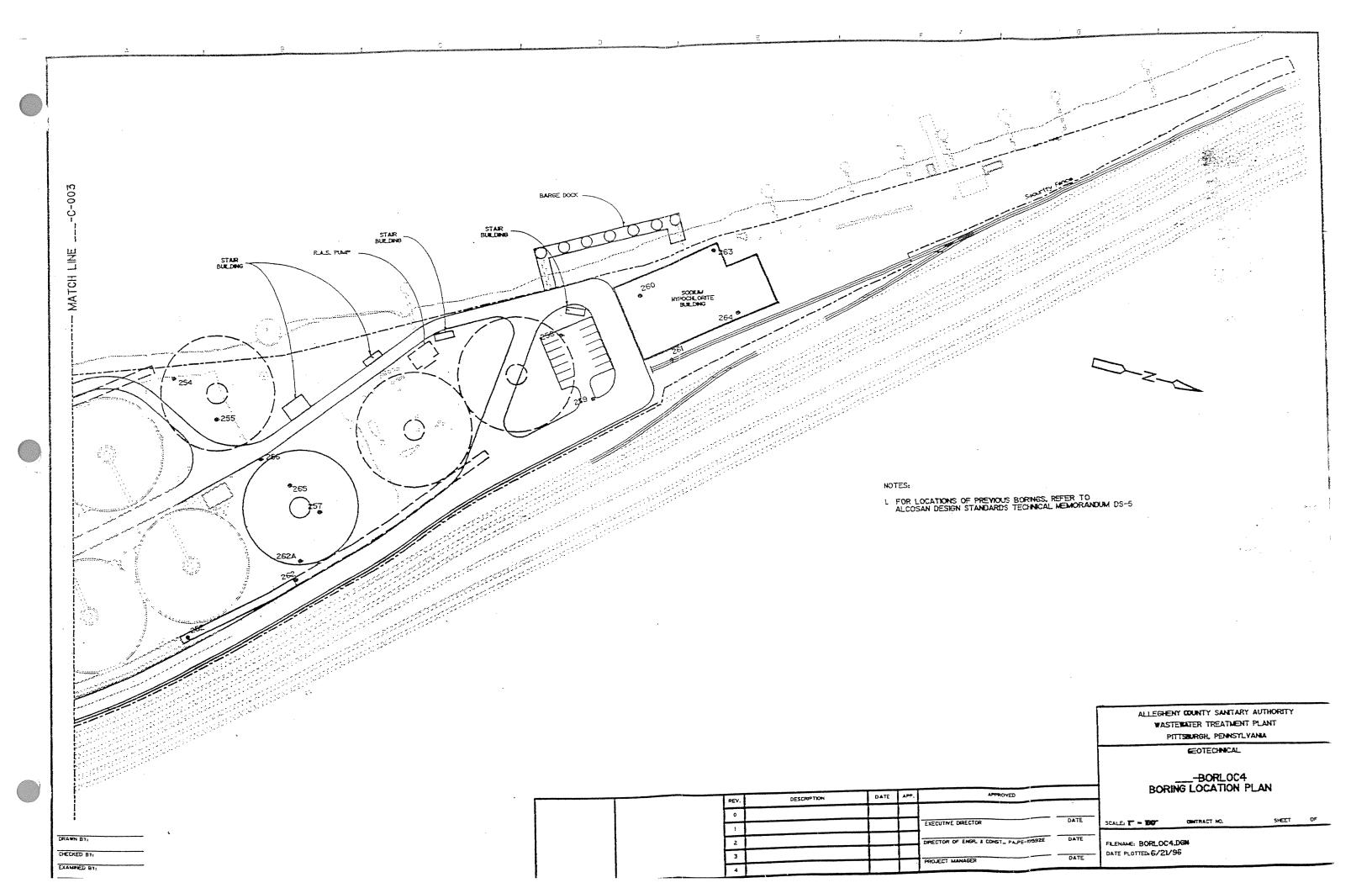
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		ALLEGH	ENY COUNTY SANITARY	AUTHORITY							
		WASTEWATER TREATMENT PLANT									
		(I	PITTSBURGH, PENNSYL	VANIA							
			GEOTECHNICAL								
D		В	BORLOC								
	DATE	scale: 1" = 100"	CONTRACT NO.	SEET	OF						
APE-195:22E	DATE	FLENWE BORLDC	2.06								
	DATE	DATE PLOTTED 6/21	/96								



SOIL BORING LOG SHEETS

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN Proj No: MAW37229.PD.07									
Boring: 201 Date Started: 6/20			concentration of the second se						enekkationaloossasaa
Location: <u>See Site Plan</u>				ang analoga in the first product of the source of the sour					****
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D						
ELEVATIONS					TER LE				
Ground Surface: 725.4'					Drilli	· · ·			
End of Boring: 691.9'					omplet				
* Indica	too nu	Chlori	20 51		24 Ho				
	T		1	Sample			Τ	1	
Soil Description	Depth	Elev	No	Туре	N	Qu	Cp	Mc	δd
Brown Silty Clay w/ Gravel and organics									
2" large gravel @ 4.5'	5		1	SS	5,2,1				
Coal Cinder Fill	-								
			2*		4				
	10	715.4	۷	SS	1,4,5				
Brown Sand & Gravel	15		3	SS	24,17,				
Grey Shale					8				
NOTE: Slight Petroleum Odor Grey Sand & Gravel									
Grey/Black Silty Clay - #4	20—	705.4	4*	SS	3,4,4	1.42	1.25	22.3	
(Slight Petroleum Odor)									
			5	0.0					
Brown Sandy Gravel 3" Grey Clay Seam @ 25'	25		ر	SS	4,4,5				
Crushed Coal Cinders									
Grev Sandy Gravel w/ Coal	30	695.4	6	SS	10,11	3.00	3.25	14.6	
Grey Clayey Silt w/ Shale		535.4			13				
Hard Grey Silt	35—		7	SS	11,30, 50/4"	2.56	4.5	15.8	
					J074				
	40								
	45								
	50				Gand Bailyon As were called				
	50 -								

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and the second s	Project: ALCOSAN GEOTECHNIC	al inve	ESTIG	ATION	PROG	RAM				
	Client: ALCOSAN		Proj No				7			ginnecourees
	Boring: 202 Date Started: 6/20	<u>/95</u> D	ate Co	mplet	ed:	/20/95				1010-1010-00-000000
	Location: East End of Tracy St							-		
	140# Hammer, 3.25" I.D. Auger, 7	7" O.D.	Auger,	30" E	rop					
	ELEVATIONS				WA ¹	TER LE	EVELS			
	Ground Surface: 725.5					Drilli	-			
	End of Boring: 681.4					omplet				
						24 Ho				
	* Indicate	s pH, Ci	nloride	1	T		Collect	ced T	T	
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	1 d
	4" Asphalt									
	Med. Coarse Brown SAND			1						
		5			SS	1,1,1				
* .										
4. A	3" Brown Clay w/ Gravel - #2	40		2*	SS	4.3.4	1.35	1.50	19.5	
e e	Grey/Black Clayey FILL	10	715.5	an a	•	-, -, -		1.00	19.0	
ř	w/ Coal Cinders & Red Brick	60/62540736 402463610080		10000000000000000000000000000000000000						
		15		3	SS	5,6,7			16.2	
	Black/Grey CLAY w/ Sand &			<u>/</u> *	SS	5,6,5				
 . 	Gravel, Traces of Coal	20	705.5		00	2,0,5			16.3	
L.										
	Brown SANDY GRAVEL	25—		5	SS	17,25,				
1994		20				31				
ŝ										
		30—	695.5	6	SS	10,11, 24				
						24				
				7	SS	11,16				
		35		landem enter his in adde new procession of a strand a state		25				
		40	685.5	8	SS	11,5,6				
		6404444004 62002003200								
				Ģ	SS	12,				
	Grey SHALE @ 44.1'	45				5001"				
		50 —								
						ne na secondo da anticipa d			6	

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN	<u>al inve</u> f					7			
Boring: 203 Date Started: 6/1	<u>9/95</u> C	ate C	Contraction of Contra						
Location: <u>Tracy Street, See Sit</u> 140# Hammer, 3.25" I.D. Auger, 7			30" D	rop			the function of the second system to be a		
ELEVATIONS				WA ⁻	TER LE				
Ground Surface: 726.6'					Drillir	~			
End of Boring: 679.1'					ompleti 24 Ho				
* 11	ndicates	s pH, (Chlorid					ollecte	ed
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cip	Mc	R.
4" Asphalt									
Brown/Black Sandy FILL w/Gravel, traces of red brick, and coal cinders	5 —		1	SS	5,4,4				
Piece of scrap metal brought to surface by augur.	10	716.6	2*	SS	1,2,3				
	1 5		3	SS	4,4,5				
Grey Silty CLAY with traces	_								
of Coal cinders (SHELBY TUBE #203-1, 15'-17')	20-	706.6	4*	SS	3,3,3	0.98	1.50	23.8	
Black Silty CLAY with traces of Coal (SHELBY TUBE #203-2, 20'-22')	2 5		5*	SS	2,2,3	0.38	0.25	36.6	
Grey/Black Silty CLAY									
with strong Petroleum Odor	30	696.6	6	SS	16,27, 24	0.30	0.25	25.9	
Brown Sandy GRAVEL			7	SS	3,4,4				
 Medium Coarse Brown SAND	35-		,	55	2,4,4				
	40	686.6	8*	SS	7,8,10				
	4 5		9	SS	8,8,9				
Grey SHALE 3 47.5			10	SS	50/1"				Survival and a second second second second

Project: ALCOSAN GEOTECHNIC									A ganganan sala
Client: ALCOSAN Boring: <u>204</u> Date Started: <u>6/1</u>			an original of the state of the					Stehelin of management of the second	
Location: <u>Tracy Street</u> , See S									
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" E						
ELEVATIONS					TER LE				
Ground Surface: 727.5'					Drilli				
End of Boring 677.5'					mpleti 24 Ho				
* Indicates pH, Chlo	ride, Su	lfate	Sample			Juis r	N/A		
Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Cp	Mc	Хd
4" ASPHALT		-							interference in the second
Brown Sandy Clayey FILL w/Traces of RED BRICK	5		1	SS	4,5,6				
2" Grey SHALE, 3" RED BRICK 3" COAL CINDERS	10	717.5	2*	SS	3,4,1				
Black Silty CLAY w/Gravel									
	15		3	SS	2,2,1	1.28	1.25	23.2	
Brown/Tan Mottled Silty CLAY with traces of coal cinders									
and med. size pebbles	20-	707.5	4*	SS	1,1,1	0.30	0.25	13.3	
		107.0						10.0	
Grey Clayey SILT w/Traces of			5		5,6,9				
COAL	25			SS	5,0,5			28.1	
Brown SILT w/ SHALE Fragments	-								
Grey Silty CLAY	30-	697.5	6	SS	2,2,1	0.52	0.25	32.8	
SHELBY TUBE #204-1 (30'-32')		00,00							
#7 NO SAMPLE RECOVERED			7		2,4,3				
FROM SAMPLER SPOON	35		/	SS	2,4,0				
	40	687.5	8	SS	5,6,6				
Fine to Medium Coarse		007.0							
Brown SAND					1 over				
	45		9	SS	12",1				
				A remain a r					
Grey SHALE @ 50	50 -	677.5	120	SS	50@1"				

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ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN		Proj No	<u>: MAV</u>	V3722	9.PD.0	unichien ich sin dater pronthieftigterich			
Boring: 205 Date Started: 6/1		D	ate Co	mplete	ed: 6 <u>/1</u>	5/95			*****
Location: <u>West End of Tracy</u> 140# Hammer, 3.25" I.D. Auger,	And the subsection of the second s	Auger,	30" E)rop	ownerspringerspiestaanselwaarservaarsel	innonassen mannan kataconsta			
ELEVATIONS					TER LE	VELS			
Ground Surface: 726.2'				While	Drillir	ng: 18	3'		
End of Boring 673.2'				At Co	ompleti	ion: 2	4.5'		
-				After	ŀ	Hours	alata anticipation and		
* Indicat	es pH, C	hlorid	-			nple C	ollect	ed	
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	Jd
5" ASPHALT 3" Sandy Gravel Subbase									
Brown Sandy Clayey FILL			1	SS	5,4,4			10.9	
w/Gravel Auger Impacts Concrete @ 6.5'	5 —								
	10	716.2	*2	SS	2,3,2			7.3	
Damp Brown Clayey Sandy FILL	sistered and		which the end of the west devices						
w/COAL Cinders & Gravel Traces of RED BRICK			3	SS	3,3,4			4.0	
	15-				0,0,1			4.0	
	120	706.2	4	SS	4,5,7				
Wet Sandy GRAVEL	20	700.2							
and									
Grey/Brown Clayey FILL	25-	1	5	SS	3,4,6			22.5	
w/ COAL Cinders									
Prove Candy Classes Fitt and Canad	-	1	6	SS	6,6,7				
Brown Sandy Clayey FILL w/Grave	30-	696.2							
Grey SHALE									
3"Fine Brown SAND@Top of Spoor	35-		7	SS	3,5,5				
Wet Grey Clayey SAND w/Grave									
					9,13,				
Fine Brown Sand	40	686.2	8	SS	11				
w/Traces of COAL Cinders		1							
		1	9	SS	3,5,6				
	45-	4							
			10	SS	13,15,				
Hard Grey SILT	750 -	676.2			19				

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ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNI	CAL INVESTIGATION PROGRAM
Client: ALCOSAN	Proj No: MAW37229.PD.07
Boring: 205 Date Started: 6/1	5/95 Date Completed: 6/15/95
Location: West End of Tracy	Street
140# Hammer, 3.25" I.D. Auger,	7" O.D. Auger, 30" Drop
ELEVATIONS	WATER LEVELS
Ground Surface: 726.2	While Drilling: 18'
End of Boring: 673.2	At Completion: 24.5'
5	After Hours

Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Qp	Мс	Хa
Fine Brown SAND SHALE @ 53' (Auger Refusal)					50@2"				

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN						7		mmiles Belances Charlos et al anticipation and	
Boring: 206 Date Started: 11/2	<u>/95</u> D	ate Co	mplete	ed: <u>1</u>	1/2/95			- 10-70 - 10-10-10-10-10-10-10-10-10-10-10-10-10-1	
Location: See Location Plan					a posses a second de secondo de Martina de Secondo de Secondo de Secondo de Secondo de Secondo de Secondo de S		tentralissites minoral and a subscription of		C. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10
140# Hammer, 3.25" I.D. Auger, 7	7" O.D.	Auger,	30" D	rop					
ELEVATIONS					TER LE				
Ground Surface: 726.0					Drillin	<u> </u>			
End of Boring: 677.2					ompleti				
								n@6	.0'
* Indicates	pH, Ch	loride,	and the second se	ward common and common common concerns of	ogen With a bolometric Will Constant and a state of the	llecte	ed	T	T
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	8
- Loose, Large Gravel w/		-							
Brown SAND (Fill)									
	5 —		1		1,1,				
No Sample #1 Retrieved			L _	SS	2,1				
Cinders & Slag FILL									
	10	716.0	*2	SS	4,1		-		
	80010400.000 001101000				10,15				
	15								
			3	SS	2,1, 1,1				
	20	706.0	*4		2,2,				
	40000000000000000000000000000000000000		*4	SS	3,2				
	0000000000 200000000								
	25		5	SS	2,1		1.0		
— Wet, Grey/Blk. Clayey SILT — w/ Trace of Fine Sand					2,1		1.0		
	30	696.0							
PETROLEUM ODOR in Sample 6		0,000	*6	SS	8,11, 29,33	0.45	0.50	32.7	
	35—				17 =				
Fine Grev SAND Brown SANDY GRAVEL			7	SS	11,5, 4,4				
SLOWI SANDI GAAVEL									
2" Tan Sandstone @ 41.0'	40	686.0	*8	SS	14,17				
Very Dense Fine Grey SAND			-		27,50				
	45								
Grey Sandstone and Shale	40-		9	SS	21,17				
Augur Refusal @ 48.0'					06,52			Province data and	
Hard Grev SILT	50 -		10	SS	37,50.	1.2'			-

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ALCOSAN - EPM TEAM

Client: ALCOSAN Proj No: Boring: 201_ Date Started: 3/5/96 Date Completed: 3/5/96 Location: See Site Plan WATER LEVELS 140# Harmar, 3.25* 1.D. Auger, 7* 0.D. Auger, 30* Drop (SET #1) ELEVATIONS WATER LEVELS Ground Surface: 727.1' WATER LEVELS End of Boring: 667.9' At Completion: 13.0' ZZZI = Sheby Tube Image: Site Sheby Tube Sample N Qu Qp Me Vd Soil Description Depth Elev Sample Sample N Qu Qp Me Vd Black Cinder Fill 10 2 SS 3.3, 4 3.4 15 3 SS 2.1, 2 1.3 3.4 10 2 SS 3.4, 3 3.4 3.4 11 10 2 SS 3.4, 3 3.4 12 3 5.5 5.5 5.5 5.5 Black Cinder Fill 10 2 SS 3.4, 3 3.4 15 3 5.2, 1 5.5 5.5 5.5 Gravel 300 657.7 6 55 1.6 11.5 Wet G	roject: ALCOSAN GEOTECHNIC				PROG	RAM			ng dag men diser site best and descent sector of the		
Location: <u>See Site Plan</u> 140# Harmer, 3.25* I.D. Auger, 7* 0.D. Auger, 30* Drop (SET #1) ELEVATIONS Ground Surface: 727.1' End of Boring: 667.9' Mile Drilling: 24' At Completion: 13.0' After 24 Hours 15.0' <u>VZZI = Sheby Tube</u> <u>Set Split Spon STE Sheby Tube, DB = Diamond BR</u> <u>Soil Description</u> <u>Depth</u> <u>Elev</u> <u>Sample Sample N</u> <u>Q</u> <u>Q</u> <u>Mc</u> <u>Xd</u> <u>Brown Silty Fill w/Gravel</u> <u>5.7</u> <u>Black Cinder Fill</u> <u>10</u> <u>Black Cinder Fill</u> <u>10</u> <u>Black Cinder Fill</u> <u>10</u> <u>20.0</u> <u>Brown/Black Fill w/Stag</u> , <u>Gravel</u> <u>20.0</u> <u>Cravel</u> <u>20.0</u> <u>697.7</u> <u>6</u> <u>55</u> <u>5,10</u> <u>691.1</u> <u>7</u> <u>55</u> <u>5,10</u> <u>691.1</u> <u>7</u> <u>55</u> <u>5,10</u> <u>5,10</u> <u>11.5</u> <u>5,10</u> <u>691.1</u> <u>7</u> <u>55</u> <u>5,10</u> <u>5,10</u> <u>11.5</u> <u>5,10</u> <u>11.5</u> <u>691.1</u> <u>7</u> <u>55</u> <u>5,10</u> <u>691.1</u> <u>7</u> <u>55</u> <u>5,10</u> <u>5,11.1</u> <u>10.4</u> <u>5.10</u> <u>10.4</u> <u>5.50/2</u> <u>50/2</u> <u>10.4</u>						an a	an a			linnin mit 14 Ginzelmin fan samee	
140# Harmer, 3.25* I.D. Auger, 7* O.D. Auger, 30* Drop (SET #1) ELEVATIONS WATER LEVELS Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' Atter 24 Hours 15.0' EXEMPTIONE VZZI = Shelby Tube Sample Sample Sample N Qr Soil Description Depth Elev Black Silty Fill w/Organics Total Ssilty Fill w/Organics (Topscil) 1.0 Free Sample Sample Sample Sample N Qr Black Silty Fill w/Gravel 5 721.1 SS 2,2,2,1 Black Cinder Fill 10 2 SS 3,3,4 - 15 3 SS 2,1,2 - - Brown/Black Fill w/Slag, 707.1 4 SS 3,4,4 - Shelby Tube #207-1, 20.0 707.1 4 SS 3,4,4 - Wet Grey Gravel, Trace CLAY 30 697.7 6 SS 9,7,6 11.5 Wet Grey Gravel, Trace CLAY 36.5 691.1 7 SS 5,10,0 11.5 Fine/Medium Coarse		<u>96</u>	ate Co	omplete	ed:	/5/96					
WATER LEVELS WATER LEVELS Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' ZZZ = Sheby Tube Image: Sheby Tub				Contraction District Contraction District	an ng kang kang kang kang kang kang kang			0		2018/00/00/00/00/00/00/00/00/00/	
LLEVATIONGround Surface: 727.1'While Drilling: 24'At Completion: 13.0'Atter 24 Hours 15.0'VZZI = Sheby TubeSample Sample Sample MQuad Quad March CoreSSE Split Spoon STE Sheby Tube, DB = Diamond BitSoll DescriptionDepthElevBrown Silty Fill w/Organics (Topsoil)Top NQuad Quad Quad MarchBrown Silty Fill w/Organics (Topsoil)Top NQuad Quad Quad MarchBrown Silty Fill w/Organics (Topsoil)Top NQuad Quad Quad MarchBrown Silty Fill w/GravelBrown/Black Fill w/Slag, GravelTop Top NQuad Quad Quad MarchQuad MarchState SpaneBrown/Black Fill w/Slag, GravelTop Top NQuad Quad MarchQuad MarchState SpaneState SpaneState SpaneBrown/Black Fill w/Slag, Gravel, Trace CLAYYPetroleum Odor in #529.4State SpaneState SpaneYPetroleum Odor in #5State SpaneState SpaneState SpaneState SpaneState SpaneState SpaneState Spane <th< td=""><td>140# Hammer, 3.25" I.D. Auger,</td><td>7° O.D.</td><td>Auger,</td><td>30" D</td><td></td><td></td><td></td><td></td><td>SET #1</td><td>.)</td></th<>	140# Hammer, 3.25" I.D. Auger,	7° O.D.	Auger,	30" D					SET #1	.)	
At Completion: 13.0' After 24 Hours 15.0'At Completion: 13.0' After 24 Hours 15.0'ZZZ = Shelby TubeAt Completion: 13.0' After 24 Hours 15.0'ZZZ = Shelby TubeAt Completion: 13.0' After 24 Hours 15.0'ZZZ = Shelby TubeCompletion: 13.0' After 24 Hours 15.0'ZZZ = Shelby TubeAt Completion: 13.0' After 24 Hours 15.0'ZZZ = Shelby TubeN Cu Cp Mc G GravelBrown Silty Fill w/Organics (Topscil)Colspan="2">O Mc G G dBlack Cinder Fill1010S 2,2,2 1,310S 2,2,2,3 1,3Black Cinder Fill1010Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">At Completion: 13.0' After 24 Hours 15.0'Brown Silty Fill w/Organics (Topscil)Colspan="2">At Completion: 13.0' After 24 Hours 13.0' Addition Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2" <th c<="" td=""><td>ELEVATIONS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td>ELEVATIONS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	ELEVATIONS									
After 24 Hours 15.0'After 24 Hours 15.0'ZZZ = Shelty Tube \blacksquare = NX Rock CoreSSE Split Spoon STE Shelty Tube, DB = Diamond BRSoil DescriptionDepthElevSample SampleNQIQrMc \sqrt{d} Brown Silty Fill w/Organics (Topscil)1.05721.11SS2.2,2,1.3Black Silty Fill w/Gravel6.07721.11SS2.2,2,1.3Black Cinder Fill102SS3,4,3,4,102SS3,4,3,4,20.020.0707.14SS3,4,3SS2.1,33,4,320.0,707.14SS3,4,333,4,3,4,33,4,3,4,33,4,3,4,33,4,3,4,33,4,3,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,33,4,43,4,55,5,454555,5,55,5,5,79,7,11.54444556	Ground Surface: 727.1'						1				
VIZI = Shelby TubeSE Spit Spon ST= Shelby Tube. DB = Diamond BitSoil DescriptionDepthElevSample SampleNQuQpMc χ_d Brown Silty Fill w/Organics (Topsoil)1.05721.11SS2.2.11.3Black Silty Fill w/Gravel6.05721.11SS2.2.11.3Black Cinder Fill102SS3.3.444102SS3.4.43.444153SS2.1.72.33.44153SS2.1.73.43.441528.0-29.00.7 Recovery25.0707.14SS3.4.728.0-29.00.7 Recovery25.0702.1SS3.4.75.55.5Green/Black Silty CLAY29.4697.76SS11.611.5*Petroleum Odor in #529.430697.76SS11.611.5*Petroleum Odor in #636.05691.17SS5.1013.15*Petroleum Coarse35.0408SS6,8.727.0*Pine/Medium Coarse45.0682.19SS11.1210.4*Atour Refusal 4 9.049.0678.15550/.210.4	End of Boring: 667.9'					•					
Soil Description Depth Elev Sample Sample N V QL QL <td></td>											
Brown Silty Fill w/Organics (Topscil) Depnil Let No Type Let No No No </td <td>= Shelby Tube</td> <td>NX Rock C</td> <td>ore S</td> <td>-</td> <td></td> <td>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</td> <td>elby Tub</td> <td>pe, DB</td> <td>= Diam</td> <td>ond Bit</td>	= Shelby Tube	NX Rock C	ore S	-		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	elby Tub	pe, DB	= Diam	ond Bit	
(Topsoil) 1.0 Black Silty Fill w/Gravel 5.0 5.0 721.1 1 5.0 Black Cinder Fill 10 10 2 2 5 3 55 2.1 3 2 5 3 55 2.1 3 3 55 2.1 3 3 55 2.1 3 3 55 2.1 5 3 55 3 55 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.5 5.5 5.5 5.5 5.5 5.5 40 36.0 691.1 7 7 55 5.10 13.15 40 45<		Depth	Elev	Sample No	Sample Type	N	വ	\$	Mc	Хd	
6.0 5 721.1 1 SS 2.2, 1,3 Black Cinder Fill 10 2 SS 3,3, 3,4 10 2 SS 3,3, 3,4 2 SS 3,4, 3,4 15 3 SS 2,1, 2,3 2 SS 3,4, 3,4 Shelby Tube #207-1, 28.0-29.0, 0.7 Recovery 25.0 20 707.1 4 SS 3,4, 3,4 Shelby Tube #207-1, 28.0-29.0, 0.7 Recovery 25.0 25 702.1 SS 3,4, 5,6 3,4 Wet Green/Black Silty CLAY *Petroleum Odor in #5 29.4 697.7 6 SS 9,7, 11,6 11.5 40 35 691.1 7 SS 5,10, 13,15 11.5 Fine/Medium Coarse Brown SAND 45 682.1 9 SS 9,8, 11,12 10.4 Augur Refugal 9 49.0 45 678.1 55 50/.2 10.4											
Black Cinder Fill 721.1 1 SS 2.2.7, 1,3 Black Cinder Fill 10 2 SS 3,3, 3,4 10 2 SS 3,3, 3,4 15 3 SS 2.1, 2.3 Brown/Black Fill w/Slag, Gravel 15 3 SS 2.1, 2.3 20.0 707.1 4 SS 3,4, 3,4 28.0-29.0 0.7 Recovery 25.0 702.1 SS 3,4, 3,4 28.0-29.0 0.7 Recovery 25.0 702.1 SS 3,4, 3,4 Wet Grey Gravel, Trace CLAY 8 SS 1,6 11.5 *Petroleum Odor in #6 36.0 35 697.7 6 SS 11,6 *Petroleum Codor in #6 36.0 35 691.1 7 SS 5,10, 13,15 Fine/Medium Coarse 36.0 45 682.1 9 9, 8, 9,15 27.0 45 682.1 9 SS 50/.2 10.4 Augur Refugal 9 49.0' 49.0 678.1 50/.2 10.4	-										
Black Cinder Fill 10 2 SS 3,3,3,3,3,4 15 3 SS 2,1,2,3 Brown/Black Fill w/Slag, Gravel 20.0 20 707.1 4 SS 3,4,3,4 Shelby Tube #207-1, 226.0-29.0.0 20.7 707.1 4 SS 3,4,3,4 Gravel 20.7 707.1 4 SS 3,4,3,4 Shelby Tube #207-1, 226.0-29.0.0 20.7 702.1 SS 3,4,4 Wet Grey Gravel, Trace CLAY 4 5,5 5,5 5,5 *Petroleum Odor in #6 36.0 697.7 6 5,10,1 11.5 691.1 7 SS 5,10,1 11.5 11.5 Fine/Medium Coarse 36.0 691.1 7 SS 5,10,1 691.1 7 SS 5,10,1 11.5 11.5 40 8 SS 6,8,9,15 27.0 682.1 9 SS 11,12 10.4 678.1 45 678.1 55 50/.2	6.0		721.1	1	SS						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Black Cinder Fill					1,2					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		10				7 2					
20.0 20.0 20 707.1 3 SS 2.3 Brown/Black Fill w/Slag, Gravel 20 707.1 4 SS 3.4, 3.4 Shelby Tube #207-1, 28.0-29.0, 0.7 Recovery 25.0 25 702.1 5 SS 3.4, 5.5 Green/Black Silty CLAY 25 702.1 5 SS 3.4, 5.5 0.75 25.1 98 PCF Wet Grey Gravel, Trace CLAY 30 697.7 6 SS 9,7, 11.6 11.5 *Petroleum Odor in #6 35 691.1 7 SS 5,10, 13.15 11.5 6*Grey Silty CLAY 36.5 40 8 SS 6,8, 9,15 27.0 Fine/Medium Coarse Brown SAND 45 682.1 9 SS 11.12 10.4 Augur Refusal @ 49.0' 49.0 678.1 SS 50/.2 10.4				2	SS						
20.0 20.0 20 707.1 3 SS 2.3 Brown/Black Fill w/Slag, Gravel 20 707.1 4 SS 3.4, 3.4 Shelby Tube #207-1, 28.0-29.0, 0.7 Recovery 25.0 25 702.1 5 SS 3.4, 5.5 Green/Black Silty CLAY 25 702.1 5 SS 3.4, 5.5 0.75 25.1 98 PCF Wet Grey Gravel, Trace CLAY 30 697.7 6 SS 9,7, 11.6 11.5 *Petroleum Odor in #6 35 691.1 7 SS 5,10, 13.15 11.5 6*Grey Silty CLAY 36.5 40 8 SS 6,8, 9,15 27.0 Fine/Medium Coarse Brown SAND 45 682.1 9 SS 11.12 10.4 Augur Refusal @ 49.0' 49.0 678.1 SS 50/.2 10.4										-	
20.0 20.0	uso	15				0 1					
Brown/Black Fill w/Slag, Gravel 20 707.1 4 SS 3,4, 3,4 Shelby Tube #207-1, 28.0-29.0. 0.7 Recovery 25.0 25 702.1 5 SS 3,4, 3,4 Green/Black Silty CLAY 25 702.1 5 SS 3,4, 5,8 0.75 25.1 98 PCF *Petroleum Odor in #5 29.4 30 697.7 6 SS 9,7, 11,6 11.5 *Petroleum Odor in #6 35 691.1 7 SS 5,10, 13,15 11.5 691.1 7 SS 5,10, 13,15 27.0 8 SS 6,8, 9,15 27.0 Fine/Medium Coarse Brown SAND 45 682.1 9 SS 11,12 10.4 Augur Refusal & 49.0' 49.0 678.1 50/.2 50/.2 10.4	-			3	SS	2,1,					
Brown/Black Fill w/Slag, Gravel 20 707.1 4 SS 3,4, 3,4 Shelby Tube #207-1, 28.0-29.0. 0.7 Recovery 25.0 25 702.1 5 SS 3,4, 3,4 Green/Black Silty CLAY 25 702.1 5 SS 3,4, 5,8 0.75 25.1 98 PCF *Petroleum Odor in #5 29.4 30 697.7 6 SS 9,7, 11,6 11.5 *Petroleum Odor in #6 35 691.1 7 SS 5,10, 13,15 11.5 691.1 7 SS 5,10, 13,15 27.0 8 SS 6,8, 9,15 27.0 Fine/Medium Coarse Brown SAND 45 682.1 9 SS 11,12 10.4 Augur Refusal & 49.0' 49.0 678.1 50/.2 50/.2 10.4											
Gravel 3.4 Shelby Tube #207-1, 25.0 28.0-29.0. 0.7 Recoverv 25.0 Green/Black Silty CLAY 5 5 *Petroleum Odor in #5 29.4 Wet Grey Gravel, Trace CLAY 30 697.7 *Petroleum Odor in #6 35 697.7 6 55 5 5,10, 697.7 6 697.7 6 697.7 6 697.7 6 5 5,10, 11.5 11.5 11.5 11.5 *Petroleum Odor in #6 35 691.1 7 5 5,10, 13.15 13.15 691.1 7 5 5,10, 13.15 13.15 691.1 7 5 5,10, 13.15 13.15 691.1 7 5 5,10, 13.15 10.4 5 5 682.1 9 9 5		20	707.1		~~	3.4.					
28.0-29.0.0.7 Recoverv 25.0 25 702.1 5 SS 3,4, 0.75 25.1 98 PCF *Petroleum Odor in #5 29.4 30 697.7 6 SS 9,7, 11.5 11.5 *Petroleum Odor in #5 36.0 35 691.1 7 SS 5,10, 11.5 *Petroleum Odor in #6 35 691.1 7 SS 5,10, 13,15 11.5 6"Grey Silty CLAY 36.5 691.1 7 SS 6,8, 9,15 27.0 45.0 45 682.1 9 SS 9,8, 10.4 Fine/Medium Coarse Brown SAND 45 678.1 50/.2 10.4 10.4	Gravel			*	22	3,4					
Green/Black Silty CLAY 2.9 702.1 5 SS 3.4, 0.75 25.1 98 PCF *Petroleum Odor in #5 29.4 30 697.7 6 SS 9,7, 11.6 11.5 *Petroleum Odor in #6 36.0 35 691.1 7 SS 5,10, 11.5 6"Grey Silty CLAY 36.0 35 691.1 7 SS 5,10, 13.15 Fine/Medium Coarse 40 8 SS 6,8, 9,15 27.0 45.0 45 682.1 9 SS 11,12 10.4 Fine/Medium Coarse Brown SAND & GRAVEL 45.0 678.1 10 SS 50/.2 Augur Refusal @ 49.0' 49.0 678.1 10 SS 50/.2 10.4											
*Petroleum Odor in #5 29.4 Wet Grey Gravel, Trace CLAY *Petroleum Odor in #6 36.0 697.7 6 SS 9,7, 11,6 11.5 10.4 10.4 10.4 10.4		25	702.1	5	SS			0.75	25.1	98 PCF	
29.4 30 697.7 51 $9,7,$ *Petroleum Odor in #6 36.0 35 691.1 7 $55,10,$ 6°Grey Silty CLAY 36.5 691.1 7 $55,10,$ 11.5 Fine/Medium Coarse 40 8 55 $9,7,$ 11.5 Fine/Medium Coarse 40 8 55 $9,15$ 27.0 45.0 45 682.1 9 55 $11,12$ 10.4 Fine/Medium Coarse Brown: SAND & GRAVEL 49.0 678.1 $9,8,$ $11,12$ 10.4	*Petroleum ofor in #5					5,8					
Wet Grey Gravel, Trace CLAY 6 SS 9,7, 11,6 11.5 *Petroleum Odor in #6 35- 691.1 7 SS 5,10, 13,15 6"Grey Silty CLAY 36.5 691.1 7 SS 5,10, 13,15 Fine/Medium Coarse 40- 8 SS 6,8, 9,15 27.0 45.0 45- 682.1 9 SS 11,12 10.4 Fine/Medium Coarse Brown 45- 682.1 9 SS 11,12 10.4 Grev CLAYSTONE 678.1 10 SS 50/.2 50/.2 10.4	29.4	20-		////	ST						
*Petroleum Odor in #6 <u>36.0</u> <u>6"Grey Silty CLAY 36.5</u> Fine/Medium Coarse Brown SAND <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>45.0</u> <u>55.0</u> <u>11.12</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.4</u> <u>10.5</u> <u>10.5</u> <u>10.</u>	Wet Grey Gravel, Trace CLAY	30	697.7	6	SS						
36.0 35 691.1 7 SS 5,10, 13,15 6°Grey Silty CLAY 36.5 691.1 7 SS 5,10, 13,15 Fine/Medium Coarse 40 8 SS 6,8, 9,15 27.0 45.0 45 682.1 9 SS 11,12 10.4 SAND & GRAVEL 49.0 678.1 50/.2 50/.2 10.4	Raw/mainting	10000000000000000000000000000000000000				ΤΤ,Ο			11.5		
6"Grey Silty CLAY 36.5 Fine/Medium Coarse 40 Brown SAND 40 45.0 45 682.1 9 SAND & GRAVEL 9 Augur Refusal @ 49.0' 49.0 Grev CLAYSTONE 678.1		35-									
Fine/Medium Coarse 40 8 SS 6,8, 9,15 27.0 Fine/Medium Coarse 45 682.1 9 9,8, 11,12 10.4 Augur Refusal @ 49.0' 49.0 678.1 55 50/.2 10.4			691.1	7	SS						
Brown SAND 40 8 SS 6,8, 9,15 27.0 45.0 45 682.1 9 9,8, 11,12 10.4 SAND & GRAVEL Augur Refusal @ 49.0' 49.0 678.1 55 50/.2 10.4						20,20					
45.0 45 682.1 9,15 27.0 Fine/Medium Coarse Brown 45 682.1 9,8, 10.4 SAND & GRAVEL 9 55 11,12 10.4 Augur Refusal @ 49.0' 49.0 678.1 55 50/.2 10.4		40—				c o					
45.0 45 682.1 9 9,8, 10.4 SAND & GRAVEL 9 SS 11,12 10.4 Augur Refusal @ 49.0' 49.0 678.1 SS 50/.2 10.4				8	SS				27.0		
Fine/Medium Coarse Brown 40 682.1 9 55 9,8, SAND & GRAVEL 10.4 10.4 10.4 10.4 Augur Refusal @ 49.0' 49.0 678.1 55 50/.2 10.4 Grev CLAYSTONE 678.1 55 50/.2 10.4											
SAND & GRAVEL 9 SS 11,12 Augur Refusal @ 49.0' 49.0 678.1 55 50/.2		45	682.1			9,8,					
Augur Refusal @ 49.0' 49.0 678.1 10 Grev CLAYSTONE 678.1 55 50/.2					SS	§			10.4		
GLEV CLAESIONE	Augur Refusal @ 49.0' 49.0		678.1			50/2					
	GIEV CLAYSTONE			arre	[1	y Poch	L Corr		ـــــــــــــــــــــــــــــــــــــ	

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ELEVATIONS WATER LEVELS Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' VZZI = Shelby Tube Soil Description Soil Description Depth Elev Sample Sample N Grey SHALE	TSE
Location: See Site Plan 140# Hammer, 3.25" I.D. Auger, 7" O.D. Auger, 30" Drop (SET ELEVATIONS WATER LEVELS Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' After 24 Hours 15.0' VZZI = Shelby Tube Set Split Spoon ST= Shelby Tube, DB = Dian Soil Description Depth Elev Grey SHALE Sample Sample	nond Bit
140# Hammer, 3.25" I.D. Auger, 7" O.D. Auger, 30" Drop (SET ELEVATIONS WATER LEVELS Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' ØZZZ = Shelby Tube Soil Description Depth Elev Soil Description Depth Grey SHALE	nond Bit
ELEVATIONS WATER LEVELS Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' VZZA = Shelby Tube Soil Description Soil Description Depth Elev Sample Sample N Grey SHALE	nond Bit
Ground Surface: 727.1' While Drilling: 24' End of Boring: 667.9' At Completion: 13.0' VIETION After 24 Hours 15.0' VIETION Depth Soil Description Depth Grey SHALE	TSE
End of Boring: 667.9' At Completion: 13.0' After 24 Hours 15.0' VZZI = Shelby Tube Soil Description Soil Description Depth Elev Sample Sample N No Type Grey SHALE	TSE
After 24 Hours 15.0' Image: Shelby Tube Image: Shelby Tube Soil Description Depth Elev Sample Sample Nb Type Grey SHALE	TSE
After 24 Hours 15.0' Image: Shelby Tube Image: NX Rock Core SS = Split Spoon ST = Shelby Tube, DB = Dian Soil Description Depth Elev Sample Sample N Qu Qp N Grey SHALE Image: Shale <	TSE
Soil Description Depth Elev Sample Sample N Depth Ou Op N Grey SHALE Shale Shale Shale Shale Shale Shale	TSE
Grey SHALE	Ac Yd
$\frac{RQD = 0.0}{53.5} = -673.6$ >4.5	
Hard Grey CLAYSTONE	
RQD = 0.18	
End of Boring @ 59.2' 60 007.9	
1.0 FT. Sample Cut for Unconfined Compression Testing, 58.2 - 59.2 FT.	
Testing, 58.2 - 59.2 FT.	
Coring Data	
Elapsed Pressure	
0 0:00 200 psi	
2 18:00 200 psi	
4 39:00 200 psi	
6 51:00 200 psi	
6 51:00 200 psi 8 1:15 200 psi	
10 1:35 200 psi	
	and the second se
	Name of State of Stat
	-

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Project: ALCOSAN GEOTECHNIC Client: ALCOSAN						7			
Boring: 208 Date Started: 11/2	<u>/95</u> D	ate Co	mplet	ed: <u>1</u>	1/2/95				********
Location: See Location Plan					-		and provide state of the state		24140-00-00-00-00-00-00-00-00-00-00-00-00-0
140# Hammer, 3.25" I.D. Auger, '	7" O.D.	Auger,	30" E	rop					
ELEVATIONS				WA	TER LE	EVELS			
Ground Surface: 726.8				While	e Drillii	ng: 2	21.0'		
End of Boring: 677.8					ompleti				
				After	24 Ho	urs Ca	aved ii	n @ 5	.5'
* Indicates	pH, Ch	loride,	*****	7		pllecte	ed		·
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Ср	Mc	1 Ja
Loose, Large Gravel w/ Brown SAND (Fill)									
	4000000000 400000000								
	5 —		1	SS	2,1,				
Brown Sandy Gravel (FILL)					2,2				
	10	716.8							are contract of the second
		/10/0	*2	SS	3,5, 4,3				
					1,-				
Brown Sandy Gravel w/	15-		~	SS	2,1,				
Coal Cinders (FILL)			3		1,1				
	20	700 0							
5" Grey Gravel & Sand w/Slag		706.8	*4	SS	3,3,				
2" Coal Cinders @ 21.0'					4,3				
Brown Sand & Gravel	25		****		A 4				
Wet, Grey/Blk. Clayey SILT			5	SS	4,4, 3,3	1.12	• •	37.2	
Fine to Med Coarse Grey Sand Fine Coarse Gre/Elack Silty	30	696.8	*6	SS	3,4,				
SAND w/ Traces of Coal	3110-PE-100		~		4,5				
	35-								
	357		7	SS	7,12,				
Dense Brown SANDY GRAVEL					14,10				
	40	686.8		~~	3,5,				
Med. Dense Grey Brown			*8	SS	5,6				
Sand w/ Gravel									
	45-		G.	SS	26,38	.			
Grey Sandstone			7	23	37,50	/5"			
Augur Refusal @ 49.01	50 -								

ALCOSAN - EPM TEAM

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	Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG,	ATION	PROG	RAM		-	an an children and a state state of the stat	
	Client: ALCOSAN	F	^p roj No) .	25.00.00.00.00.00.00.00.00.00.00.00.00.00			dan di kalendar da metata da se	and a subscription of the	and the second state of th
	Boring: 209 Date Started: 3/4/	<u>/96</u>	ate Co	omplete	ed:	3/4/96	and an and a second		North Contractory and Contractory	
	Location: <u>See Site Plan</u>							anini-anina ana amin'ny fanana	and the second secon	
	140# Hammer, 3.25" I.D. Auger,	7° O.D.	Auger,	30" D					(SEI	C #2)
	ELEVATIONS					TER LI		-		
	Ground Surface: 726.3'					Drilli	0			
	End of Boring: 670.9'					omplet				
			0.0	IIA C		24 Ho			D '.	(prim. + ,
Г	= Shelby Tube = N	X Hock Co T	re 53				dy lude	P, DB = 1	Diamor	nd Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	¢,	Mc	J.
þ	Brown Gravel FILL 1.0	citied divingen antiquittagen	•							
ŀ	Black Cinder & Slag FILL	00000000								- Andrew - A
		5	721.3	1	SS	3,4,		۰.	-	
ŀ					, ,	4,4				
F		10	716.3							
E	= in #2		/	2	SS	4,9, 2,2				
						la ș la				
		15	711.3	3	SS	3,4,				
- F	Green/Black Mottled Silty CLAY					3,3	1.05	0.25	23.4	94 PCF
	Shelby Tube #209-1,	atusating. Kijotanjaga	and the second se		ST					
	17.0-19.0, Full Recovery Shelby Tube #209-2,	20	706.3	4	SS	1,2,	1.05	8.75	36.6	93 PCF
	22.0-23.1, 0.80 Recovery 23.1	districtioned		7777	ST	5,5				
F	Wet Grey/Black GRAVEL	25	701.3	5	SS	9,10,			10.1	
	Trace SAND					10				
		annationaleur c			SS	10 10				
	Rock in End of Spoon	30	696.3	6	55	19,13 12,17				
-	for #6, No Sample Recovered									
-		35—	691.3							
	36.5	33-	071.3	7	SS	7,9			17.5	
F		, 50.002.004 00000000				3,5				
	SAND - Sample #7	40	686.3							
	Some Gravel in #8	derimeterige of		8	SS	5,6 7,9			13.9	
					at topic can be a set of the set of th					
F	Drv Grev CLAYSTONE	45		9	SS	6,14,				
	Grev SHALE	47.0 -	679.9	$\overline{777}$	Abson-Advanta Trumburgan	60/.4				
J	- CHEV CHAR WIGHTE		h	1771						

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PAGE 1 of 2

Ć	Cli	ient: AL	COSAN	GEOTECHNIC	F	^p raj No)		angen an				na 1950 - 1970 -
	14	0# Hamme ELEVA Ground 1 End of B	TIONS Surface: 1 Joring: 61	I.D. Auger, 7 26.3 ' 70.9'				WA [*] While At Co After	Dril omple 24 F	_EVEL ling: 1 etion: lours	5.0' 13.2' 9.8'	(SET	
			bil Descript	= N) ion	Depth	Elev		Sample Type				Mc	N d
X		CLA RQD=(n Mottled 55.4 FT.	5 5-	670.9		DB			>4.5		
1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		Зeg	ock Coring gin: 46.4 1: 55.4 F1	FT	60			•					
		<u>Corr</u> Depth		Pull Down Pressure		s ,							
ŀ		0	0:00	200 psi									
F		alikation -A -ak	9:00	200 psi									
		2	25:00	200 psi									
		4	40:00	200 psi									
		6	51:00	350 psi									
		8	56:00	350 psi									
		10	1:10	350 psi	_								
ı		Roc 52- 	Samples Cu ck Core Be -53.5 FT. confined C sting	etween									

PAGE 2 of 2

	Project: ALCOSAN GEOTECHNI Client: ALCOSAN	CAL INV			PRO	GRAM	ant we have a second second second	n ya 100000000000000000000000000000000000		enni-m-turn opdareing	
	Boring: <u>210</u> Date Started: <u>3/1</u>			vision de la construcción de	od.	2/11/0	6			Non-Standardinana	
	Location: <u>See Site Plan</u>			ompiot		deiter fan ditterstik toeken stiken				Nanderson and provide sources	Not Helensensense
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	Drop	anten mana de acadegos pilopande con acapanya panya			and the second		
	ELEVATIONS		~			LEVEL	.S		(Bak	er #	1)
	Ground Surface: 726.0'			Whil	e Dril	ling: 2	20.0'				
	End of Boring: 665.8'					ore: 2		After	Core	: 16	5.3'
	5					Hours:					
ŗ	Shelby Tube	IX Rock Co	bre SS	S= Split :	Spoon S	ST= She	lby Tub	e, DB =	Diamo	ond Bi	it
	Soil Description	Depth	Elev	Sample No	Sampl Type	N	Qu	C p	Mc	8	d
	Brown FILL with Gravel		-								*******
	Slag in Sample #1	5 -	721.0	1	SS	5,8,	Sensitive contraction of the sensitive sens		ner fan de f		
	10.0										
	Coal CINDERS		716.0	2	SS	5,4					
Ì	Slag in Sample #3	15-	711.0	3	SS	23,20 15,8					
	Petroleum Odor in Sample #4 21.5	20	706.0	4	SS	1,3	1.28	100+ 600	× 4		annako eraikista arkiteksi kana kana kana kana kana kana kana kan
L	Soft Grey/Black Silty CLAY			\square	ST	4,0					
	Shelby Tube #210-1, 22.0-24.0, 2.0' Recovery	2 5	701.0	5	SS	1,0 2,3	1.0	0.50	28.7	93.6	pcf
		30	696.0	6	SS	11,7 5,11	0.75	0.50	28.7	93.6	pcf
	35.0 Wet, Dense Fine/Medium Coarse Brown SAND	35	691.0	7	SS	2,3 5,7			15.0		anno y ta ta gi a dagi a da ay dina ng
		40	686.0	8	SS	16,21 25,32			11.0		
	46.5 Dense Brown SANDY GRAVEL	45	679.0	9	SS	9,10 12,8			10.7		
			r undergegeneter				The second se				

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- June

	Project: Al Client: AL		GEOTECHNIC		<u>ESTIG</u> Proj Na		PROG	RAM		55.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00 107.00		offen you and a state of the	
			Started: <u>3/11</u>				ed:	2/11/96	-				
	Location:					9 					articulation of the second	almonal dation of focus and any focus	
	140# Hamme	≥r, 3.25"	I.D. Auger,	7* O.D.	Auger,			1 - 1 / -			(Bak	er #1)	
		ATIONS						LEVE					
		Surface: Boring: 6						Coring		B, Aft	er Co	ring:	16.3
		Johng. U	00.0					Hours				0	
,	= 1723 =	Shelby Tube	$=$ $\Delta \Delta = N >$	(Rock Cor	e SS	-		T= Shelt	by Tube	, DB =	Diamon	d Bit	-
	S	oil Descrip	tion	Depth	Elev	Sample No	Sample Type		a	Сф	Mc	₹ ^d	
	Grey (CLAYSTONE	50.2	1	10	$\mathcal{T}\mathcal{T}\mathcal{T}$	SS	50/0.2					
		ard Grey SH	ALE, Broken			()]						
	R(QD = 0.0	57.2	55		$\langle \rangle \rangle \langle \rangle$	DB						
	Red/Gre	Y CLAYSTO	NE. Hard										
		Boring @ 60	testing) 60.2	60	665.8	\overline{UU}							
-													
		RQD = 0).10 —										
	<u>Cori</u>	ng Data		_									
Ê	Depth	Time	Pull Down Pressure										
	0	0:00	200 psi								haddenne storber at virkenske a nor		
	ominanse ominanse 2	14:00	200 psi								a constanting the first state of the		
	4	22:00	200 psi										
	Ó	19:00	200 psi										
	8	43:00	200 psi										
	10	34:00	200 psi										alie dat fan bester
			*										
	Beair	1 n Core: 50.2	ft										
		Core: 60.2 ft											
													-
												- which in the standard	
				_			Provide and Provide an						
1						1	}				1	1	1

PAGE 2 of 2



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Project: ALCOSAN GEOTECHNI Client: ALCOSAN	CAL INV					7		ali ali di si su	****
Boring: 211 Date Started: 11/			and and a second s						antikanti sakakan konstansa sa
Location: See Location Plan				and a surrounda	2-22-24-26-26-26-26-26-26-26-26-26-26-26-26-26-				Million Manager Constant
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	rop					
ELEVATIONS				WA	TER LE	EVELS			
Ground Surface: 727.1				While	e Drillii	ng: 2	20.0'		
End of Boring: 677.9				At C	ompleti	ion: 2	29.2'		
				After	48 Ho	urs C	aved i	n @ 4	1.0 1
* Indicate	s pH, Cì	loride.		Terrenter		llecte	ed		
Soil Description	Depth	Elev	Sample No	Sampl Type	e N	a	Cp	Mc	8
Brown Silty Clay w/ Gravel (topsoil)		4							T
Black Clay w/ Cinders FILL									
Black Cinders w/ Kiln Bricks	- 5	_	1	SS	4,8,				
& Red Bricks	-	-		- 22	11,6				
-	10-	717.1							
			*2	SS	8,9,				
2" Fine Brown SAND @ 15'		-			10,10				
4" Black Cinders	15-	-			C -				
Grey Silt w/ Shale Fragement	a _	4	3	SS	6,5, 4,4				
No Sample #4 Retrieved	20-	707.1	4	SS	2,2,				
				00	2,2				
	25-								
Black/Grey Clayey SILT			*5	SS	2,2, 6,7				
PETROLEUM ODOR		-							
	30-	637.1	*6	SS	9,12				
	-				23,16				
	35-								
			7	SS	3,4, 6,6				
Brown Sand, Some Gravel]			0,0				
	40-	687.1	+0	SS	8,7,				
		1	*8	22	6,8				
		1							
	45-	4	9	SS	26,38				
Lt. Brown Sandstone & Gravel				nur bur	37,50	′5″			
Hard Grev Silt	┨ 50 -	- 1	16	SS	50/.2				1

or worked

ries.

			Proj No	<u>: MAV</u>	V3722	9.PD.0	Applementation interview interview and			
	Boring: <u>212</u> Date Started: <u>6/29</u> Location: <u>See Site Plan</u>	<u>/95</u> [Date Co	omplete	ed: <u>6</u>	/29/95			ningen an	and an a start
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" E	rop	4940 - 200 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 940 - 94	and a state of the			
	ELEVATIONS					TER LE	EVELS			
	Ground Surface: 727.4				While	Drillin	ng: 1	3.0		
	End of Boring: 678.4					ompleti				
	t Tablester at a	n.n	a 1.6			24 Hc		9.5		
ſ	* Indicates pH, C	1		1	Sample Co]	I	T	1	X
	Soil Description	Depth	Elev	No	Туре	N	Qu	Cp.	Mc	Yd
ŀ	Brown Silty Clay w/ Gravel		ł							
	Coal Cinders & Slag FILL	5_		1	SS	50/6"				
4										
	Brown Clayey Silty FILL	10	717.4	2	SS	4,3,3			16.2	
	w/ Kiln Bricks									
11-1	Coal Cinders & Gravel FILL	15		3	SS	4,7,5				
L.L.										
				4*	SS	1,1,2				
11	Loose Fine Grey Silty SAND	20	707.4		00	1,1,4				
		reactioners statispherers								
	Soft Grey SILT w/ Traces	2 5		5	SS	2,2,2			23.9	
LI LI	Recovery = 2.0 Brown Silty Clavey SAND w/Gray	ej —		6*	SS	6,6,8				
	Dense Brown SANDY GRAVEL	30-	697.4							
				~		7,8,				
		35		/	SS	13				
11										
		40	687.4	8	SS	4,6,				
	Dense Med. Coarse Brown SAND	_								
F	Very Dense Med. Coarse			9	SS	8,16,				
	Brown SAND w/ Gravel	45-		-	22	71				
						22,				
Ľ	Hard Grey SILT	50 -	ļ	10	SS	50/3				

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ALCOSAN - EPM TEAM

Ô	Project: ALCOSAN GEOTECHNIC Client: ALCOSAN	CAL INV					7	2022-11-50-500	anna an sao an	Windowswardsactaning
	Boring: 213 Date Started: 6/29			(any provide the second day is a low of				******		
	Location: <u>See Site Plan</u>					nich i die statut on homosoonen	and the second second second second		Kanada kanalara kanalara kana	
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I		rrnır				
a N	ELEVATIONS Ground Surface: 726.6					TER LE Drillir				
e	End of Boring: 677.1					mpleti				
	5				After	24 Ηοι	urs CA	AVED	IN @	8.0
	r Indic	ates pH	, Chlor	I	1	1	e Coli	lected	7	
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Мс	₹d
	Brown Silty CLAY w/ Gravel Traces of Red Brick (FILL)									
	Coal Cinders w/ Traces of Kiln Bricks	5		1	SS	11,9, 14				
hana a ka	Crushed Red Brick in Sample	10	716.6	2	SS	5,5,6				
	Brown Sandy FILL with Traces of Red Brick & Wood	15-		3	SS	4,2,1				
	Coal Cinder FILL	20	706.6	4*	SS	4,5,6				
	Very Soft Black/Grey Clayey SILT Shelby Tube #213-1, 25'-27' NO RECOVERY	25	errere R ever en	5*	SS	2,2,2	0.30	0.25	25.9	
<u>[</u>	Very Loose to Loose Fine to Med. Coarse Grey SAND	30-	696.6	6	SS	1,2,1				
	Loose Brown Sandy Gravel	35		7	SS	3,3,3				
	Dense Grey SAND with Gravel Very Dense fine to med. coarse red/brown SAND w/ Gravel	40	686.6	8	SS	18,47, 39				
	Dense Med. Coarse Brown Silty SAND w/ Gravel	45		9	SS	8,12 15				
	Grey SHALE	50 -		10	SS	50/1"				

ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNICAL IN Client: ALCOSAN			Proj No <u>: MAW37229.PD.07</u>									
B	oring: <u>214</u> Date Started: <u>6/30</u>	<u>/95</u> D										
Location: See Site Plan												
1	40# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop							
	ELEVATIONS	WATER LEVELS										
	Ground Surface: 727.0	While Drilling: 13.0 At Completion: 28.0										
	End of Boring: 679.5											
	-	After 24 Hours Unavailable										
	* Indicates pH	I, Chlor	ide, Su	ulfate	Sample	e Colle	ected					
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Qp	Мс	J		
General and the second s	Brown Silty Clay w/ Gravel & Organics											
	Black Cinder FILL w/ gravel & Traces of Red Brick	5		1	SS	5,6, 18						
	Brown Clayey FILL w/	10	717.0	2*	SS	3,2,2			17.5			
	gravel & traces of Red Brick		, , , , , ,			and a second sec						
-				~								
	Grey Sandy FILL w/ Gravel, Red Brick & Coal Cinders	15		3	SS	5,6,6						
	Red Brick & Coar Cinders											
	Coft Drown Clause CTIM			4*	SS	3,3,5			05.0			
	Soft Brown Clayey SILT Shelby Tube #214-1, 20'-22'	20	707.0		55	2,2,2		0.25	25.9			
	Recovery = 2.0'											
****		25		5	SS	5,6,9						
	Med. Dense Brown Silty SAND	2 3										
entratorianen iteranizaren	with Gravel											
		30	697.0	6	SS	5,11,						
	Very Dense Brown Sandy Gravel					24						
		35		7	SS	8,11, 15						
	Large Size Gravel in Sampler			8	SS	6,7,5						
	Darge Size Graver in Sample.	40	687.0			0,7,5						
	Dense Med. Coarse Brown			9*	SS	6,7,8						
******	SAND w/ Med. Size Pebbles	45										
ining to provide the second	Tanà Ora- Ott											
and an	Hard Grey SILT	50 -		10	SS	50/3						

ber harmond

	Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN Proj No: MAW37229.PD.07													
				chellen som same same som same som			/							
	Boring: <u>215</u> Date Started: <u>6/28/95</u> Date Completed: <u>6/28/95</u> Location: <u>See Site Plan</u>													
	140# Hammer, 3.25" I.D. Auger, 7" O.D. Auger, 30" Drop													
	ELEVATIONS					TER LE	VELS							
Ground Surface: 727.3While Drilling: 13.0End of Boring:677.8At Completion:19.0														
		After 24 Hours 9.5												
	* Indicates pH, Chloride, Sulfate Sample Collected													
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	₹d				
	Brown Silty Clay w/ Gravel													
	Coal Cinder & Slag FILL					10 10								
		5		1	SS	10,16, 25								
	Brown Sandy FILL w/ Gravel			2	SS	2,2,3								
	Coal Cinders	10	717.3		00	6,6,0								
		15		3*	SS	1,2,2								
	Loose Fine Grey Silty SAND													
		-20	707.3	4	SS	2,2,2								
	Shelby Tube #215-1, 20'-22'													
	Recovery = 2.0'			5	SS		0 45							
		25				4,4,5	0.45	0.50	25.5					
	Medium Dense Brown Silty SAND	30	697.3	6*	SS	4,5,5								
	Tan Clayey SILT in bottom of Sampler Spoon													
- - - - - - - - - - -	Dense to Very Dense Grey/Br					5 C 5 C								
	SALTD w/ Gravel	35		/	SS	16,16, 16								
	Very Dense Brown Sandy Gravel													
	Dense Fine Coarse Brown/Tan	40	600 -	8	SS	8,12,								
	Mottled Sand w/ Gravel	40-	687.3			9								
6 8		**************************************												
	Dense Fine to Med. Coarse Grey Sand w/ Pebbles	45	ſ	9	SS	8,11,								
	Dense Brown Sand w/ Gravel					10								
	Hard Grey SILT	50 -			SS	15,16								
	ndiu GIEY SLLT	<u> </u>		10	22	50/5"								

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ALCOSAN - EPM TEAM

	Project: ALCOSAN GEOTECHNI		/ESTIG	ATION	I PRO	GRAM					
Client: ALCOSAN Proj No:											
Boring: <u>216</u> Date Started: <u>3/12/96</u> Date Completed: <u>3/12/96</u>											
	Location: <u>See Site Plan</u>										
	ELEVATIONS	# Hammer, 3.25" I.D. Auger, 7" O.D. Auger, 30" Drop ELEVATIONS WATER LEVELS (Bake									
	Ground Surface: 725.6'										
	End of Boring: 665.6'		While Drilling: 20.0' Prior to Core: 26.4', After Core								
	_										
After 24 Hours: N/A											
	Soil Description	Depth	Elev	Sample	Sample Type	N	a	Qp	Мс	Υ ^d	
	4" Concrete		+	1							
	Black Cinder FILL with Slag		-								
		5 _	720.6								
				1	SS	3,5,					
			-			5,4					
		10	715.6			4,7					
				2	SS	9,4					
1											
		15	710.6	3	SS	1,3					
	Shelby Tube #216-1.			-		7,4					
	22.0-24.0, 2.0' Recovery										
	22.0	20	705.6	4	SS	0>1ft					
ŀ	Soft Grey/Black Silty CLAY Trace Sand, Very Soft To Soft 24.0	60775386980 9466599988		777	ST	0>1ft					
F		25	700.6	5						And the second se	
	 Very Fine Grey Silty SAND, Trace Silt 				SS	0,1,1			30.8		
	30.0	30	695.6 -			6,8					
L	Dense Brown SAND & GRAVEL	tinskopitypinge tentiskofizikan		6	SS	9,10			13.6		
F	Normal Contraction of	alimitette									
		35	690.6	7	SS	13,19					
			-			23,32			9.8		
L		40	685.6	8	SS	16,19					
\vdash	_					15,17			12.2		
		45									
	48.0		670 c	9		11,13			9.0		
`- \	- Grey SHALE		670.6			11,12	**************************************				
)	CICY UTALL										

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,			GEOTECHNI	CAL INV	ESTIG	ATION	PROC	RAM				No. The second	
\bigcirc	Client: AL										auroan about the second se	descer-con-constanting	
			Started: <u>3/12</u>	<u>2/96</u>)ate C	omplet	ed:	3/12/01	5				
	Location:							an a					
	140# Hamme	er, 3.25*	I.D. Auger,	7* O.D.	Auger						(Bak	er #4)	
	ELEVA	ATIONS						LEVE			,	,	
	Ground	Surface:	725.6'			Wh	nile Dr	illing:	20.0'				
	End of E	Boring: 6	65.6'			Prie	or to	Coring	: 26.	4, Aft	er Co	ring:	12.8
		0				Afte	er 24	Hours	s N/A				
	=	Shelby Tube	e 🚺 = N)	K Rock Cor	e S	S= Split S	Spoon S	T= Shell	oy Tube	e, DB =	Diamon	d Bit	
	Sc	oil Descrip	tion	Depth	Elev	Sample	Sample Type	N	a	9	Mc	Rd	
	Pod/G	rey CLAYST			1	777	SS	50/0.				1	1
		Hard, Brokei			10								
	(3 samp	les taken fo	r Compression	55									
	Testing)					$\langle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \rangle \langle \rangle \rangle \rangle \rangle \langle \rangle \rangle \rangle \langle \rangle \rangle \rangle \langle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle $	DB						
-	RQD =	0.23	59.0			$\langle \rangle \rangle \rangle \rangle \rangle \langle \langle \rangle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle $							
		******	60.0	60		$\langle \rangle \rangle \rangle \rangle$							
	Grey L	IMESTONE,	Very Broken		665.6								
				_									
	End of I	Boring @ 60	.0 FT.										
· · ·	<u> </u>	o Data		二				*1000000					
	Depth	Time	Pull Down										
Ý			Pressure										
-	0-2	18:00	200 psi										
		45:00	200 psi										
	4-6	13:00	200 psi	_									
	- 6-8	24:00	300 psi										
	8-10	16:00	200 psi										
		20.00	000 002										
	·········	0 0											
	Hock	Lore Hecov	rery = 7.8 ft										
	nonensenté nonénsekones												
						31-11-0-1-0-1-0-1-0-1-0-1-0-1-0-1-0-1-0-							
	uning the first of the second s												
	ri izenatu.						rowskip distrikt og sok						
	10000000000												
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PAGE 2 of 2



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Project: ALCOSAN GEOTECHNICAL INVESTIGA	TION PROGRAM
Client: ALCOSAN Proj No:	MAW37229.PD.07
Boring: 217 Date Started: 11/3/95 Date Cor	mpleted: <u>11/3/95</u>
Location: See Site Plan	
140# Hammer, 3.25" I.D. Auger, 7" O.D. Auger,	30" Drop
ELEVATIONS	WATER LEVELS
Ground Surface: 726.7	While Drilling: Dry

End of Boring: 720.9

r

At Completion: Dry After 24 Hours N/A

Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Çp	Мс	<u> </u>
Brown Silty CLAY w/ Gravel Coal Cinders & Slag FILL									
Augur Refusal @ 5.5'	5 —	721.2	1	SS	11, 14/.3f	t			
BORING TERMINATED @ 5.8ft	10								
Red Bricks in Sample #1 Augur Believed to have encountered old foundation	15-								
	20								
	2 5								
	30								
	35-								
	40								
	45-								
	50 -	1							

ect: ALCOSAN GEOTECHNICA nt: ALCOSAN Boring: <u>218</u> Date Started: <u>6/29/9</u> Location: <u>See Site Plan</u> 140# Hammer, 3.25" I.D. Auger, 7" ELEVATIONS Ground Surface: 726.7 End of Boring: 721.2	5 Da	te Cor	30" Dro	DP WATI While	AM PD.07 9795 ER LEV Drilling mpletic 24 Ho	VELS g: D on: Di	ry			1
	Depth	Elev	Sample	Sample Type	N	Q	Сф	Mc	8d	
Soil Description	5 10 10 15 20 25 30 35 40 45 5 5 5 5 5 5 5 5 5 5 5 5 5	721.2	1	SS	50/6"					
	۶ ۹۴ ۶ د مین م									

	Project: ALCOSAN GEOTECHNIC				PRO	GRAM				
	Client: ALCOSAN Boring: 219 Date Started: 3/13		Proj No		od.	3/12/96	5			a na falancia da la composición de la composición
	Location: See Site Plan	L		mplet	cu					
	140# Hanmer, 3.25" I.D. Auger,	7* O.D.	Auger,	30" I	rop			0227/10000000000000000000000000000000000	*****	
	ELEVATIONS			WA	ATER	LEVEL	S		(HDR a	#1)
	Ground Surface: 726.6'					lling: 1				
	End of Boring: 665.6'					ore: 2			Core:	5.7'
						Hours:			.	1 Here -
Г	= Shelby Tube = N	X Rock Co T	T			ST= Shell	by lube	e, DB =	Diamor	nd Bit
	Soil Description	Depth	Elev	No	Sampl Type		Qu	Сф.	Mc	₹ d
	Brown Clayey FILL		ł	1		2,1,2				
F	Black/Brown FILL w/									
L	Cinders and Slag	5	721.6	2	SS	3,7,8				
		essententa presententa		an ann an		0,7,0				
		10	716.6							
			/_0.0	3	SS	17,15 18				
1_		provention of								
		15-	711.6	4	SS	8,4,3				
E			-							
		20	706.6							
	Coal Cinders		/00.0	5	SS	1,2,2				
E										
	- Coal Cinders, some gravel	25	701.6	6	SS					
			-	0	22	2,1,2				
\vdash		30—	696.6							
		30-	090.0	7	SS	6,3,6			32.5	
	Very Fine Grey Silty SAND	opensisme								
	35.0	35	691.6			9,15,				
E	Wet, Med. Dense Brown	and and the second second	t i i i i i i i i i i i i i i i i i i i	8	SS	10			12.1	
	SAND & GRAVEL40.0									
F		40	686.6	9	SS	12,20			8.3	
F	 Moist, Dense Brown SAND & GRAVEL 					50			0.0	
	45.0	45	681.6							
	Wet, Med. Dense Brown SAND w/ Trace of Gravel	600000.00000	ŀ	10	SS	7,11;			12.6	

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$\widehat{\mathbb{O}}$	Project: AL Client: AL Boring: 219	COSAN Dat	e Started:	-	F	Proj N	o:							. ¥,
	Location: 140# Hamme ELEVA Ground : End of B	r, 3.2 ATIONS Surfactoring:	5* I.D. Aug 6 665.6'			_	V Wh Pri- Aft	VATEF nile Di or to er 24	R LEVE rilling: Coring Hours	17.2 : 26. : 15.9	3, Aft 9'		ring:	5.7'
		Shelby T oil Desc		= N.	X Rock Col Depth	e Si Elev		Spoon S Sample Type		Dy Tube	e, DB =	Diamon Mc	d Bit	7
	Grey/Red Extremely Med. H SHALE RQD=((2 Sampl Testing) End c Corin Depth 51-53.5 53.5-58.5 58.5-61.0	Silty Cl <u>Broken</u> Hard to H E, Moder 0.67 es Taker of Boring <u>a Data</u> 2:00 10:00 8:00	Hard Grey Silty ately Broken n for Compress	oft 53.5 y sion 61.0	6 0	665.6		SS DB	20,50					

Project: ALCOSAN GEOTECHNICAL IN	VESTIGATION PROGRAM
Client: ALCOSAN	Proj No <u>: MAW37229.PD.07</u>
Boring: 220 Date Started: 11/2/95	Date Completed: 1 <u>1/2/95</u>
Location: See Site Plan	
140# Hammer, 3.25" I.D. Auger, 7" O.D	. Auger, 30" Drop
ELEVATIONS	WATER LEVELS
Ground Surface: 727.4	While Drilling:
End of Boring: 723.4	At Completion:
End of Bornig.	After Hours

Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Ср	Mc	Хd
Brown Silty Clay W/ Gravel & Organics (Topsoil) Black Cinder FILL Augur Encountered Concrete @ 4.0 Feet, Boring Aborted 	5								

The second second

RECORD OF SU	BSUR	FACE	EEXP	LORA	TION				
ect: ALCOSAN GEOTECHNICA	L INVES	OTIGAT	MAW3	ROGR/ 7229.F	AM PD.07 3/95				
.t: ALCOSAN Boring: 221 Date Started: 11/3/9 Location: See Location Plan 140# Hammer, 3.25" I.D. Auger, 7"	0.D. 2	uger,	30" Dr	çço		1510			No. Contraction
ELEVATIONS Ground Surface: 726.4 End of Boring: 675.4			1	Nhile At Cor After 4	npletio 18 Hoi	g: 21 in: 1 urs: 1	8.2' 5.9'		
* Indicates		oride,	Sulfa		N N	a	<u> </u>	Мс	Nd
Soil Description	Depth	Elev	No	Туре					
Topsoil Dk. Brown Silty Clayey FILL w/ Gravel	5		1	SS	2,3, 5,5				
Black Cinder FILL	10	716.4	1 *2 3	SS	2,2, 2,3 2,3, 2,1				
	20-	706	. 4 *4	SS	1,1 1,1				
	25-		5	SS	2,1, 1,2				
6" Grev Sandy SILT	30-	630	5.4 *(5 SS	2,2 3,3	f		- 40	0.8
Fine Grey SAND	35		-	7 SS	7,6				
Grey Sandstone Fragmen w/ Gravel	40	- 68	36.4	8 S		5, 12			
	4	5		9 5		,26 ,29			
Hard Grev Silt & 50.01	5	and the second	TEAN	and the second second	<u>55 18</u>	5,56			

END OF BORING @ 51.0' ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN	AL INVE					7		-900-000000000000000000000000000000000	
Boring: <u>222</u> Date Started: <u>6/23</u>							<u></u>	N+Placial information and a second	fran daffar din da marte
Location: See Site Plan	and a second	0.0000	mpion		den et ter ter ter ter ter ter ter ter ter	Sidewiddon Casterlyndeni			
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" E	rop		delika ilm, eta kana dela kija tembra na	annailte lan Sing Annaithe State ann an Sugar Lana	Raffe California Contraction	
ELEVATIONS				WA.	TER LE	EVELS	3		
Ground Surface: 726.8				While	Drillir	ng: 18	8.0		
End of Boring: 674.8				At Co	ompleti	ion: 1	16.5		
<u> </u>					24 Ho		16.0		
* Indicates pH,	Chlorid	e, Sul:	fate Sa	ample (Collect	ed			
Soil Description	Depth	Elev	Sample No	Sample Type	N	Q	Cp	Mc	₹ ^d
Brown Silty Clay w/Gravel									
NOTE: Augur encountered			1	SS	11,6,				
#1- No Sample Retrieved	5			00	3				
Brown Sandy FILL with	10	716.8	2	SS	2,2,1				
gravel and Coal Cinders		120.0							
Coal Cinder FILL	15		3*	SS	1,2,4				
			4	SS	1,1,2				
	20	706.8			-/-/-				
Grey Clayey SILT	25		5	SS	1,1,3		0.50	31.9	
Fine Grey Clayey SAND									
4" Clayey SILT Seam @ 28.5'									
	30	696.8	6*	SS	2,8, 21				
					4 +				
			7	SS	3,2,4				
	35				2, 4, 4				
Recovery = 2.0'									
Brown SANDY GRAVEL	40	686.8	8	SS	4,5,6				
Grey Clayey SILT									
Fine Grey SAND					12,27,				
Dense SANDY GRAVEL	45		9	SS	27				
	50 -		10	SS	15,15 20				

ALCOSAN - EPM TEAM

Project:	ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM

 Client: ALCOSAN
 Proj No: MAW37229.PD.07

 Boring: 222
 Date Started: 6/23/95
 Date Completed: 6/23/95

 Location:
 See Site Plan

 140# Hammer, 3.25"
 I.D. Auger, 7" O.D. Auger, 30" Drop

ELEVATIONS

÷ ·

Ground Surface: 726.8

End of Boring: 674.8

WATER LEVELS While Drilling: 18.0 At Completion: 16.5 After 24 Hours 16.0

Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Q	Mc	Хd
Hard Grey/Brown SILT	55	674.8	No 11	SS SS	22, 50/5"				y

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN	F	Proj No	: MAV	<u>V37229</u>	9.PD.07	7			01012-50-900-140
Boring: <u>223</u> Date Started: <u>6/22</u>	<u>./95</u> D	ate Co	mplete	ea: <u> </u>	123/33				
Location:See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D						
ELEVATIONS				WAT	FER LE	VELS			
Ground Surface: 726.7				While	Drillin	ig: 18	3.0		
End of Boring: 675.7				At Co	mpleti	on: 1	6.0		
Life of Doning. Or on				After	24 Ho	urs 1	6.5		
* Indi	cates pH	Chlor	ride. S	Sulfate	e Sampl	e Coll	lected		
Soil Description	Depth	Elev		Sample Type		Qu	Qp	Mc	J
- Brown Silty Clay w/Gravel						anna ann ann an Ann Ann Ann Ann Ann Ann			
- Black Clayey FILL w/ Coal]	1	SS	50/0"				
Cinders & Gravel	5		<u>غ</u> د		5070*				
Green Slag encountered @ 3.5 (Sample #1)									
 Augur encountered concrete at 4.0-5.0 ft 	10	715.7	2	SS	4,4,5				
Large fragments of slag									
returned to surface by augur		1							
Coal Cinder & Gravel FILL	<u> </u> 15−−	-	3	SS	3,3,2				
		1						•	
Grey/Black Clayey FILL w/	20-	706.7	4*	SS	3,4,			25.6	
coal cinders & Gravel					13				
Pieces of Rubber in Sampler]							
	125	1	5	ss	3,2,3				
Coal Cinder FILL		4							
		-		-					
Black/Grey Clayey SILT w/	730—	- 696.7	5*	SS	2,2,3			38.4	
traces of Fine Sand — SHELBY TUBE #223-1, 30'-32'		1							
Grey SAND & GRAVEL		-		4			*****	Reserved and a set	
6" Clavey SILT Seam - 7	135—	1	7	SS	5,4,4		0.25	41.9	
		-							
	endologia	7							
Fine Grey Sand w/ Wood Fibers	40-	- 686.7	8	ss	8,11,				-
Fine to med. Coarse Grey SAN	7.0	-			4				
Secondar of T		7		_					****
	45-	1	9	SS	22,35				
		-			46				
		7			20,30				
	50 -		- ^	1 ss	23				1

RECORD OF SUBSURFACE EXPLORATION Pot: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM ___ Proj No<u>: MAW37229.PD.07</u> Boring: 223 Date Started: 6/22/95 Date Completed: 6/23/95 Location: See Site Plan 140# Hammer, 3.25" I.D. Auger, 7" O.D. Auger, 30" Drop WATER LEVELS While Drilling: 18.0 ELEVATIONS At Completion: 16.0 Ground Surface: 726.8 After 24 Hours 16.5 674.8 End of Boring: Yd. Mc Sample Sample Qp Ν a Elev Depth Туре No Soil Description 11 SS 58/6" 675.7 Hard Grey/Red SILT 55 60.

ALCOSAN - EPM TEAM

	Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG.	ATION	PROC	BRAM	Manual conception of the second s			unicety descention of the opening
				ADDINATED COMPANY COMPANY			1949 (1956) (1956) (1957) (1956) (1956)			
	Boring: <u>224</u> Date Started: <u>3/14</u>	<u>1/96</u>	Date Co	omplet	ed:	3/14/96			1947.companie - ministration - ministration	
	Location: <u>See Site Plan</u>		-	~~~~~					an a	
	140# Hammer, 3.25" I.D. Auger,	/" O.D.	Auger,				~		(HDR #	<i>‡</i> 2)
	ELEVATIONS					LEVEL: ling: 2				
	Ground Surface: 726.9'							Aftor	Coro	15.7'
	End of Boring: 662.8'					lours:			core.	15.7
	ZZZ = Shelby Tube ZZZ = N	X Rock Co	re SS			T= Shell			Diamon	id Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	ф	Мс	Х ^ч
	Brown Silty Clayey FILL with Gravel 1.0									
	Coal Cinders and Gravel FILL 5.0	5	721.9							
			1	1	SS	3,4				
					•	4,3				
4		10	716.9		~~~	1,1				
ŀ	Coal Cinders, FILL, Loose, Moist			2	SS	1,2				
	15.0	15	711 0							
	15.0 Coal Cinders, FILL, Loose, Wet		711.9	3	SS	1,1				
F						* * *				
		20	706.9	4		3,3				
L			-		SS	5,4				
	25.0									
ł	Green/Grey Fine Silty SAND, Wet	25	701.9	5	SS	1,1			28.1	
			Ļ			2,4			20.1	
F		30-	696.9 +	6	SS	1,1			28.1	
		-101000.000								inn tit Nicher Germa de
F	Traces of Wood and Coal									
F	in Samples 5,6,7	35	691.9	7	SS	11,5	******			
		1000000000	-	/		9,4			28.1	
	40.0	40-	586.9							
	Grey SAND and SILT.w/ Gravel 42.5			8	SS	7,6			14.8	
F		distinguise				5,5			17.0	
L	Med. Dense Brown/Grey SANDY GRAVEL	45	581.9 -		SS	10 05				
L			-	9	1	19,27 36,48			7.7	
		etitishirmian								
<i></i>										l

$\widehat{\bigcirc}$	Client: AL	COSA		ř	Proj No) :							
~	Boring: <u>224</u> Location:	1_ Dat	e Started: <u>3/1</u>	<u>4/96</u> [ate C	omplet	ed:	3/14/96	5	tir Mitteren Adari Adari Adari yang manga			
			5" I.D. Auger,	7" O.D.	Auger	, 30" I	Drop					90000 Mallor Charles (Conversion)	
	ELEVA				··· 2 ··· .			LEVE	LS		(HDR	#2)	
	Ground	Surfac	e: 726.9'					illing:					
	End of B	loring:	662.8'					Coring Hours			ter Co	oring:	15.7
		Shelby T	ube 🛛 = N	X Rock Cor	e SS			T= Shelt			Diamon	d Bit	
		oil Desc		Depth	Elev		Sample Type		a	Ср.	Mc	1 Va	
	Grev Silty			- 51.1		10	SS	27,42,				1	-
		Déstal (1996) - SPORts Science and American	E,Extremely Broken	52.1 -		777	1	50/.1					
			Broken, Hard ing Bit is Believed	5 5		$\langle \rangle \rangle \rangle$							
	to have	e Broken	Rock Samples			())()							
	Estimate			60		())	DB						
	- 2 Samp Testing	ies sent	for Compression		665.6								of man and a second
	End a	f Boring	64.1 @ 64.1 FT.			$\overline{(11)}$							
	utout	o_Data	W 04.1 F1.										
	Allahiretartiklasiyataradiya Galadi											- And the second second second	
E	- Depth	Time (min)	Pull Down Pressure										
-	0-2	13	200 psi	65									
	enone 2 4	8	200 psi	10111111111111111111111111111111111111									
	- 4-6	9	200 psi										
	- 6-8	14	200 psi										
	8-10	10	200 psi										
-	10-12	22	300 psi		ing the second se			ar day mengerakan kada					
			e at 52.1 ft										
	- ENC KO	ICK Core	at 64.1 ft										
	**												
	ndar Möhlenhötennum vocar												
	969 2017												
	iner												

PAGE 2 of 2



i.

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	Project: ALCOSAN GEOTECHNICA									oostynning:
	Client: ALCOSAN Boring: <u>225</u> Date Started: <u>11/3/9</u>	9 <u>5</u> Da	ate Cor	mplete	d: <u>11</u>	/3/95				
	Location: <u>See Location Plan</u> 140# Hammer, 3.25" I.D. Auger, 7 ELEVATIONS Ground Surface: 727.3 End of Boring: 679.0				While At Co After	mpletio 48 Ho	g: 10 on: 2 urs: 9	7.7' .0'		
Γ	* Indicates Soil Description	pH, Chl Depth	Elev	Sample	Sample Type	N	aı	Qp	Mc	Хd
	Brown Silty CLAY w/ Gravel									
	Coal Cinder FILL w/ Kiln Bricks & Slag	5		1	SS	8,26 50/.4	ft			
	No Sample #2 Retrieved	10	717.3	2	SS	3,2, 2,2				
	Soft Brown Silty CLAY, Wet			*3	ss	4,3, 4,4			* -	
	Brown/Grey Mottled Silty CLAY w/ Wood Fibers	20	707.1	3 *4	SS	4,5, 6,10	3.00	1.75 2.25	24.8	
	Some Gravel in Clay at Bottom of Sample #5	25-		5	SS	5,6, 6,3	1.95	1.75	20.6	
	Brown Clayey SAND Dense Brown Sandy Gravel	30-	697.	3 *6	SS	8,21 14,2				
		35-		7	SS	7,12				
		40-	687	. 3 *8	SS	5,5 4,5				
	Fine to Med. Coarse Brwn. Sa	45-		9			11			
	Grey Siltstone	50	_		<u> </u>	5070).\$£t			

Augur Refusal @ 48.0 ft ALCOSAN - EPM TEAM

oject: ALCOSAN GEOTECHNICA	I INVES	STIGAT	ION P	ROGR	AM				
oject: ALCOSAN GEUTECHNION	Pr	oi No:	MAW	37229.1	PD.07	and the second secon			Part de la calego
ent: ALCOSAN Boring: 226 Date Started: 6/27/19		te Con	npletec	1: <u>6/2</u>	7/95		and the second	Non-Information and a second	
Boring: 226 Date Started: 0/2/			•					and the second secon	Newsylectrony
Location: <u>See Site Plan</u> 140# Hammer, 3.25" I.D. Auger, 7'	0.D. A	uger,	30" Dr	op					
140# Hammer, 3.25" I.D. Auger, /	0.20	2		WATI	ER LE'	VELS	~		
FLEVATIONS			٩	While	Drillin	g: 18	.0		
Ground Surface: 727.2				At Co	mpleti	on: 25	5.5		
End of Boring: 679.2				After 2	24 Ho	urs 9	.0		
* Indicates pi		ida s	alfate	Sampl	e Coll	ected		TT	$\overline{\nabla}$
* Indicates p	i, Chior	ide, i	Sample	Sample	N	a	Cp	Mc	(J)
Soil Description	Depth	Elev	No	Туре					
Brown Silty CLAY w/Gravel		+							
Traces of Red Brick		-	1	SS	7,9,			15.0	
Grey Clayey Silty FILL	5	-		-	11				
w/Gravel & Traces or com		1							
Cinders		1	2*	- SS	26,15	,		15.0	
	10-	717.	2	1	16				
Brn/Black Clayey FILL		1							
w/Gravel, Crushed Red Brick, Kiln Bricks, &			3	SS	8,9,			17.9	
Coal Cinders	15-	_			11				
	-		and the second			AVAIL COMMON			
		7	4	SS	6,7,	7			
Grey Slag w/ Gravel	20-	707	. 2						
								~ ~ ~ ~	
		_	5	* SS	6,7	,7 1.5	50 1.0	0 25.	5
Brown Silty CLAY	, 25-	7							
Shelby Tube #226-1,25'-27 Recovery = 2.0									
RECOVERY	30-	- 697		5 SS	1,2	,2			
	1	- 69/	. 4						
Brown Silty Sand w/ Grave		コ							
	35			7* SS	5 9,1				
Dense Brown Clayey Sandy GRAVEL		_							
Sandy Graves		_		8 55	5 11,	13			
Dense Brown Sandy GRAV	EL 40	— 68	7.2	8 55					
Dense Brown Sandy Gran									
SANDY GRA	VEL	_		9 8	as 36	, 47			
Very Dense Brown SANDY GRA	45	5		<u> </u>	3				
			79.2		ss 5	0/0"			
Small Piece of Grey Shale	5	\cup \neg	1	10	<u> </u>		www.commence.com	galaxies and a second se	

 Project: ALCOSAN GEOTECHNICA Client: ALCOSAN	F	roj No	: MAN	137229	.PU.07				austrochmen effekt
Boring: 227 Date Started: 6/28/	<u>95</u> D	ate Co	mpiele	a. <u>-</u>	20/33				
Location: See Site Plan 140# Hammer, 3.25" I.D. Auger, 7	" O D	Auror	30" D	rop	e an anna an tarta an tala an tala an			an an general to an a second secon	
	0.0.	Auger	, 0	WAT	ER LE	VELS			
ELEVATIONS				While			.0		
Ground Surface: 726.7				At Co					
End of Boring: 678.7				After	,				
* Indicates pH,	Chlorid	e, Sul	fate S	ample (Collect	ced			
Soil Description	Depth	Elev		Sample Type		QJ	Cφ	Мс	J.
Brown Silty Clay w/ gravel									
2" Concrete Mortar @ 4' Black SIlty Clayey FILL w/Gravel, Traces of Red Brick & Coal Cinders	5		1	SS	27,23, 18				
	10-	716.7	2*	SS	9,18, 27			15.0	
Grey Black Silty FILL w/ Gravel	15		3	SS	7,5,5			16.9	
 Stiff to Very Stiff Brown Clayey SILT Shelby Tube #227-1, 20'-22'	20	706.7	<u>4</u> *	SS	4,7, 10	2.85	3.25	20.4	
Recovery = 2.0'	25		5	SS	5,7, 10	2.64	2.25	20.9	
Firm Brown Sandy SILT	30	696.7	6	SS	0,8, 10	0.75	1.0	20.4	
w/ Gravel Dense Brown Sandy GRAVEL	35-		7*	SS	12,12, 15		novem in the second and a second		
Very Dense Brown SAND w/ Gravel and Sandstone	40-	686.7	8	ss	19,31, 37	Special contraction of the contr			
Grey Sandstone in Bottom of sampler for #8 Wed. Dense Grey Sand & Gravel	45		9	SS	3,4,5				
Med. Dense Brown SAND	_				50.00	wanting the state of the state of			
Hard Grey SILT	50 -		10	SS	50/2	<u> </u>	L		<u> </u>

	Project: ALCOSAN GEOTECHNIC	AL INVE	STIGA		PROG	RAM	an a			
J	Client ALCOSAN	P	roi No:							an a
	Boring: <u>228</u> Date Started: <u>3/12</u>	<u>/96</u> D	ate Co	mplete	ed:	/13/90	Balanchi an		ana an	00000000000000000000000000000000000000
	Location: <u>See Site Plan</u>	and the state of the		2019-01-01-01-01-01-01-01-01-01-01-01-01-01-	waaraa ahaa ahaa ahaa ahaa ahaa ahaa aha	<u>,</u>	*****			annar Ohminaddailaeth erynddia
	140# Hammer, 3.25" I.D. Auger, "	7" O.D.	Auger,	30* D:	rop		•		(Baker	#2)
	ELEVATIONS				TER L					
	Ground Surface: 725.3'				e Drill				~	10.11
	End of Boring: 663.3'				to Co					
										y 12.9
	= Shelby Tube = N	X Rock Co	e SS	and the second se	poon S		by Tube	e, DB =	Diamon	d Bit
function of the second s	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Сф	Mc	Υ _d
	Brown Silty Clayey FILL, Moist 0,8		-	1		2,5,10				
		4399399999 (1999)					-			
	Black Cinders, Trace Slag & Coal,	5 —	720.3	~						
	FILL, Loose, Damp	-		2	SS	6,6,5				4)
Ì		00000000								
		10	715.3	3		1,1,2				
					SS			.		
.~~ (
	16.5	15	710.3	4	SS	4,3,5				
	Black Cinders, FILL, Loose, Wet									
		40000000								
		20	705.3	5	SS	2,2,2				
	and the second se	-								
		25-	700.3							
		25-	700.5	6	SS	2,2,3				
						And a state of the				
	30.0	30	695.3	L	Ļ					
	Grey Silty Clay, Soft, Damp 31.0			7	SS	1,2,3				
	Brown/Grey SAND & GRAVEL, DENSE, WET	-								
	DENSE, WEI 35.0	35-	690.3			17,44				
	Wet, Med. Dense Brown		•	8	SS	15			9.8	
	SAND & GRAVEL		-			ga anno an tao anno ann				
	40.0	40-	685.3	9	SS	4,4,4	4		17.8	
	Brown/Grey Silty SAND,		-		1	-/ -/				
	Loose to Med. Dense , Wet		-							
		45-	680.3	10	SS	7,7,6	5		17.8	
			-							****
		-	-							L

here of more shared

E L	Client: ALC Boring: <u>228</u> .ocation:	COSAN 3 Date See S r, 3.25	e Started: _ <u>lite Plan</u> 5* I.D. Auge	3/12	F	Proj No Date Co	x: cmplete 30* D W	ed: Prop /ATER		LS		(Bake	r #2)	
	End of B		663.3'	= NX	(Rock Cor	e ss		ər 24 I	Hours:	Cave	ed in	and D	oring: ⁻)ry 12. d Bit	
		oil Desc	•		Depth	Elev	-	Sample Type		a	Cp.	Мс	Vd	
		y Broker			51.4 53.1 55		11	SS	18,15, 50/.4					
	Limestor	ne, RQD		2.0	60			au						and a function of the second
	ersenter en senter	<u>o Data</u>	nn Mac											
	Depth	Time (min)	Pull Down Pressure	,	overv —									
_	52-57	16	500 psi	4.5										Vale Vale
	57-62	110	500 psi	5.0										
	for Com Average	pression	Spare Collecte Testing, 58 ft	d										

PAGE 2 of 2



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	Project: ALCOSAN GEOTECHNIC	AL INVE	ESTIGA	ATION	PROG	RAM_	taga barra na san san san kanan k	and the second	2000-00-00-00-00-00-00-00-00-00-00-00-00	
	Client: ALCOSAN Boring: 229 Date Started: 3/12	/96. D	roj No ate Co	mplete	ed: <u>3</u>	/15/96				
	Location: <u>See Site Plan</u>			2 	and the second	uncessed and a second secon			a o stryk yw ymawd i wyd o gantar ar og	fan te fan stere ster
	140# Hammer, 3.25" I.D. Auger, 7	7* O.D.	Auger,	30" D:	rop	مر و مستور و سبیم			(Baker	#3)
	ELEVATIONS					EVELS				
	Ground Surface: 729.4'					ing: 1 pre: 15		After	Core:	4.0'
	End of Boring: 660.2'					lours:				
	Shelby Tube = NX	(Rock Col	re SS	= Split S	poo <mark>n</mark> S	T= Shelb	y Tube	e, DB =	Diamon	d Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Мс	γď
	4" Concrete		gelegente og kant kan blever til som et s							•
		Giamonte Giamonte								
	Black/Brown FILL w/ Cinders and Slag	5	724.4	1	SS	3,4				*
						4,4				
		10	719.4			3,1				
,.		ariakanos ortakanos		2	SS	2,7				
	15.0	1 5	714.4		I	2.4				
J	Coal Cinders, FILL, Loose, Wet		/_1.=	3	SS	3,4 6,5		a		· . *
	20.0									
	Grey/Black Fine Silty SAND, Wet	20	709.4	4	SS	1,2 2,3		2 19 43	24.2	
	*Petroleum Odor in Sample #4 & #5					2,0			к. ж.	
		25-	704.4		~~	3,4				
	3" Grey/Black Silty Clay Seam @ 26			5	SS	7,33			24.2	
		30	699.4							
	Dense, Wet, Brown Fragmented		033.4	6	SS	26,11 17,16			10.5	
	SANDSTONE and GRAVEL									
	35.0 Brown SAND & GRAVEL, Wet,	35	694.4	7	SS	2,3			10.5	
	Loose - Slightly Compact				-	3,4				
	40.0	40	689.4		SS	9,7				
	Med. Dense, med. Coarse Brown			8		9,12			13.0	
	SAND, Trace Gravel	45	684.4							
	Large Rock in End of Sample Spoon		004.4	9	SS	7,12			13.0	
	for Sample #9 49.2		Sabaroba-vajao Maria	-10	SS	16,23				
	•		I	1111	DB	50/0	1	1	1	L

Grey CLAYSTONE

.

Second a second

÷. .

Augur Refusal at 49.2

C

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Proje	ct: ALCC)SAN (GEOTECHNI	CAL INV	ESTIG	ATION	PROG	RAM	****			Nonal Statistics and a subscription of
Clien	t: ALCO	SAN	annan geologia anna an an an an an anna an an an an a	F	^p roj Na):			-		un a drammeteinen i sinna izrimaansa	
Borin	g: <u>229</u>	Date S	Started: <u>3/1</u>	<u>2/96</u>	ate Co	omplet	ed:	3/15/96))			and the second
	tion: <u>Se</u>											
			I.D. Auger,	7" O D	Auger	30" I	Drop					
			1.D. Auger,	, 0.0.	1109021		VATER		19		(Bake	r #2)
E	ELEVATI	ONS	2.									
Gro	ound Sur	rface:	729.4'				nile Dr	<u> </u>				
End	d of Bori	na: 6	60.2'			Pri	or to (Coring	: 15.0	0', Af	ter Co	pring:
TENES V 1						Aft	er 24	Hours	N/A			
77	77 - She	lby Tube	= N	X Bock Col	~p	- Solit	Spoon S	T= Societ	w Tube	DB =	Diamon	1 Bit
handim maanaanaanaanaana		iby iube	The Barrense and the State of t	1	1			<u> </u>	1	1	1	
	Soil I	Descript	tion	Depth	Elev	No	Sample Type	N		Cp	Mc	1 d
So	ft Grev SH	ALE, Ve	ry Fragmented	-	ł	$\langle \rangle \rangle \langle \rangle$	4					
	ace Clay, R		0		1	(11)	1		Million and American			
anan panan kana tingka kang kang kin	-		54.0		1	V//	7					
*****	Red/Grey C			55	674.4	$\langle \rangle \rangle \rangle$	4					
************			ely Broken			$\langle /// \rangle$	ľ		-			******
	RQD = 0.1		~~ ~			$\langle \rangle \rangle \rangle$	DB		-	l		
*****	0.5' Samp	,		60	669.4	$\nabla ()$						
	for Compr		- 01.		000.4	$\langle \rangle \rangle \langle \rangle$	ł					
	Brey/Brown					(11)						
			Broken 64.2			$\langle \rangle \rangle \rangle$						
	Grey Silty		Haro *, RQD =0.30	65	664.4	$\langle \rangle \rangle \rangle \langle \rangle$						
	*Many brea					()))						
	of core bit					$\vee \cdots \vee$	1					
		******	1	70	660.2							
2 - 4	" Samples	of SHAL	E sent /	-								
	ompressio											
				summing the second seco					nd januar an ann an			
No. And Social States	End of Bori	ng at 69	.2 ft									
elenteral de la compo							ante Cara	~ 10.0	44			
NAMINATION AND AND AND AND AND AND AND AND AND AN	Corin	<u>c</u> Data	Risco				ock Core :k Core a					
Minister advances and	01010-0000-0000	(5				N OUIE a					
en e	Depth	Time	Pull Down			CORE RU	INS					
-		(min)	Pressure		1		1, Reco	•				
	0-2	16	200 psi		k (2, Reco					
	2-4	14	200 psi 200 psi			59.2-69.	2, Reco	very =	9.0			
	4-6	13	200 psi			*		10.0				
	6 - 8	15	200 psi		The second se	iotal He	covery =	= 16.0				te all (j.).Vite et/a
	8-10	14	200 psi		L		<u>, </u>	arcraman and a second	<u> </u>	r	ــــــ	
	10-12	16	200 psi								Resources	
	12-14	22	200 psi									
	14-16	15	200 psi									
North Discharter												
	16-18 18-20	7	300 psi 300 psi								1	

PAGE 2 of 2

	Project: ALCOSAN GEOTECHNIC	AL INV	ESTIG	ATION	PROG	RAM				n an
	Client: ALCOSAN	F	^p roj No	* * 	and the second			ana ana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny		
	Boring: 230 Date Started: 3/14	<u>/96</u> [ate Co	omplete	ed:	3/14/96	5			
	Location: <u>See Site Plan</u>									
	140# Hammer, 3.25" I.D. Auger, '	7" O.D.	Auger,				_		(Bake	r #5)
	ELEVATIONS					EVEL	-		(,
	Ground Surface: 727.0'					ling: 2			~	
	End of Boring: 667.6'					ore: 1		After	Core	: 8.5'
						lours:				
	= Shelby Tube = N	K Rock Co	re SS		-	T= Shell	by Tube	e, DB =	Diamo	nd Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Мс	₹ ^d
	Brown Silty Clayey FILL,Loose, Damp	1.0 _	ł	1		2,7,13				
	Brown/Grey Silty Clayey FILL,	Design Halle								
F.	Cinders, Slag, Damp, Med. Dense	5 —	722.0	2						No. And State
Ł	Black Cinders, Brick, Rock, Slag, FILL Dense, Dry	alimateur			SS	23,23 12				
r						1 600				
	10.0 Brown Silty Clayey FILL, Cinders	10	717.0	3	SS	2,2,2				
	Loose, Damp	anaactricor	1		6					
F										
4	Andreferencing and a second	15	712.0	4	SS	2,2,2				
,										
É.		20	707.0							Contraction and a sector
Niente.	Brown Silty SAND, Loose, Wet	<u>د ر</u>	/07.0	5	SS	1,1,2				anu la converse statistica
ł			an a							
		25	702.0	6	SS	4,4,4	* *	0.50	26.2	95.6 pct
۴	Brown/Grey Sandy Silty CLAY				ST					
	Soft, Moist									
	Shelby Tube 230-1	30	697.0	7						
	25.0-27.0, Recovery=2.0				SS	3,3,4	0.90	0.50	25.4	95.6 pcf
ĩ	Nondelongue .	atticutioner					-			
4		35-	692.0	8	SS	8,7,6		<0.25		
1	Brown Silty CLAY w/ Gravel		-		50			<0.25		
•	e de la constance de la consta									
·	41.0	40	687.0	9	SS	11,12			19.9	
	Wet, Med. Dense Brown					14			10.0	
	SAND & GRAVEL 45.0	45	600 o							
	Brown SAND, Trace Gravel,	+)	682.0	10	SS	8,7,9			14.4	
	Med. Dense , Wet 48.5			-11	SS	50/.4				
	Brwn/Grey/Red Silty CLAYSTONE			$\frac{1}{2}$	D8		14-15-16-16-16-16-16-16-16-16-16-16-16-16-16-			

PAGE 1 of 2

ر مەربىر	Project: ALCOSAN GEOTECHNI		<u>ESTIG.</u>	ATION	PROG	RAM			110-11-11-10-10-10-10-10-10-10-10-10-10-		
C	Client: ALCOSAN	F	^p roj No):					64.800.000.000.000.000.000.000.000.000.00		
	Boring: 230 Date Started: 3/1	<u>4/95</u>	ate Co	omplete	ed:	3/14/96	5		****		
	Location: <u>See Site Plan</u>							North Colombian Spectra (Spectra Spectra Spe	an a		
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	rop				(Bake	r #2\	
	ELEVATIONS			V	VATER	LEVE	LS		(Dane	1 172)	
	Ground Surface: 727.0'				ile Dr	<u> </u>					
	End of Boring: 667.6'			Pric	or to	Coring	: 19.	3', Af	ter Co	oring:	8.5
	0 0			Afte	ər 24	Hours	: N/A	ι			
	= Shelby Tube = N	X Rock Cor	e SS	S= Split S	Spoon S	T= Shell	by Tube	e, DB =	Diamono	d Bit	
	Soil Description	Depth	Elev	Sample	Sample Type	N	a	C p	Mc) d]
				7777							1
	Grey/Red/Brown Silty CLAYSTONE			\otimes							
	Extremely Broken RQD = 0.17			$\langle \rangle \rangle \rangle \langle \rangle$							
	56.8	55		())	DB				-		
	Grey Silty SHALE, Hard	1 _		()))							
	Occasionally Broken, RQD = 0.90	59.4		$\overline{777}$							
	End of Boring @ 59.4 FT.	60									
	2 Samples of SHALE taken for										
	Compression Testing								4-10-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		
100	<u> </u>										
	Depth Time Pull Down										
	(min) Pressure Rec	covery -									
-	49.4-54.4 23 500 psi 4.3	1									and a mark market with some
	54.4-59.4 18 500 psi 5.0	1									
F											
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ł											
F											
F											
ł											
L		_									
F		_									
Γ											
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ŀ				rongenaan							
Ľ											

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Pr	roject: ALCOSAN GEOTECHNI	CAL IN	/ESTIG	ATION		GRAM				
CI		in the second								
	oring: <u>232</u> Date Started: <u>6/4</u>	/96	Date Co	omple	ted:	6/4/9	5	*****		
	ocation: <u>See Site Plan</u>		Man Mandala Mandala Manana ang kanana kanang kanana kanang kanang kanang kanang kanang kanang kanang kanang ka	****	1975-107 Tax and the Distance of State					
14	10# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30"	Drop					
	ELEVATIONS			W	ATER	LEVE	_S			
(Ground Surface: 728.0'			Whi	le Dri	lling:	19.0'			
E	End of Boring: 662.5'			0 hi	rs Afte	r Cor	e: 15	5.0'		
	Shelby Tube	V Deels C	80		r 36 H					
		X Rock C	ore Sa		Spoon S	and the second	elby Tub	e, DB =	= Diamo	nd Bit
	Soil Description	Depth	Elev	No No	eSampl Type	e N	Qu	C p	Mc	δ _d
	Brown Silty Clay w/ Organics(topsoil	1.0 _	-	1	SS	1, 4,				
radiantia,ara	Black Cinders, Slag, FILL	encos	_			37,50)/.1 			
		5	- 723.0	2	SS	4, 5,				
		-	**		1	6,6				
	6" Hard Slag 10.0 - 10.5ft		-	Mark danis Constanting Strategy (1996	-					
	θ Hald Slag 10.0 - 10.5π	10	718.0	3	SS	12,21	3			
		15	. 713.0	4						
			- /13.0	**	SS	2,2,				
			-							
	aannaage	20	708.0	5	SS	6,10				
		diminimation dominimation		ميد رويونينيونيونيونيونيونيونيونيونيون رويونيونيونيونيونيونيونيونيونيونيون	22	4,4				
	23.0	20100000		~		2,2,				
	<u>Gr</u> ey/Black Clayey SILT, Firm, Trace V. Fine Sand, Damp	25	703.0	6	SS	2,4	0.45	1.0	31.18	31.1PCF
	Trace wood ML 28.0				ST	Recov	ery = 1	.5 ft		:
	Grey/Black V.Fine SAND,Trace			- Andrew Statements						
	Silt, Med. Dense, Moist	30	698.0	7	SS	2,2,				
and a second second	SM					3,6				
	35.0	35—	693.0							
	Brown SANDY GRAVEL, Very Dense,	33	093.0	8	SS	8,23, 17,19				
i	Wet	opietonetagen Kontrologiaan			SS	- 1, - 2				
	SP 40.0	40	688.0	9		27,19				
						27,13				
	led. Dense, Med. Coarse Brown SAND, ome Gravel	*********	verretilikkeleroogie							
	*****	45—	681.0	10	SS	1,2,				
Diministryanta	SM					5,13			Province of the second s	
	49.7	instance salestagos	Ļ			8, 50/.4				
J	Brown Siltstone, Weathered				DB				<u> </u>	
	Extremely Broken	F	PAGE	1 of 2	2					

ALCOSAN - EPM

	Project: ALCOSAN GEOTECHN	ICAL INV	ESTIG	ATION	PROG	RAM							
l	Client: ALCOSAN		^P roj No										
1	Boring: 232 Date Started: _6/4	<u>/96</u>	Date Co	omplete	ed:6	5/4/96							
	Location: See Site Plan			-									
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop								
	ELEVATIONS			Ν	/ATER	LEVE	LS						
	Ground Surface: 728.0'			Wh	ile Dr	illing:	19.0'						
	End of Boring: 662.5		0 hrs after Coring: 15.0'										
	end of Donnig. 002.0				er 36								
	Shelby Tube	X Rock Co	re SS	S= Split S	poon S	T= Shell	y Tube	, DB =	Diamono	l Bit			
	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Cp	Mc	<u>N</u> d			
		-51.0 -	ł	$\langle \rangle \rangle$			1						
	Grey/Red Clayey SILTSTONE, Soft to Med.Hard, Moderately Broken,)	1	())									
	RQD = 0.71 55.	5 55-	673.0	()))									
	Grey CLAYSTONE, Med.Hard,			\sim	DB								
	Moderately Broken, RQD = 0.58 60.	5		\sim									
	Grey Clayey SILTSTONE, Soft,	760—	668.0										
	Occ. Broken 61.6 Grey SANDSTONE, Hard, Very Broken,			\sim									
	w/ Lime Nodules @ 61.8-62.3,RQD = 0.0	64.2		\sim									
	65.5			$\overline{777}$									
6	Grey SILTSTONE, Hard,												
ł	Occasionally Broken, RQD = 0.3	4 -											
	End of Boring @ 65.5 FT.	et satisfication and and a second			Subbit the court								
t	— 1 Sample of SILTSTONE — taken from 65' for Compression Testin												
-		g											
╞	Coring Data	- Contraction											
F				and a second sec									
	Depth Recovery												
Ł													
	50.0-55.5 5.0'												
	55.5-60.5 4.7'												
ļ	60.5-65.5 4.9				-								
t													
E													
F													

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PAGE 2 of 2

	Project: ALCOSAN GEOTECHNIC							and the second secon		a a substantia a sub
	Client: ALCOSAN Boring: 233 Date Started: 6/22			California and California and California	A CARLON OF A CARLON AND A CARLON		din Andreim (Assessmin mit mit Samoan solar			for the second
	Location: See Size Plan	initiation las		mpice		undertretterrennendenselsenne				
	140# Hammer, 3.25" I.D. Auger, 7	7" O.D.	Auger,	30" D	rop					
	ELEVATIONS				WA ⁻	TER LE	EVELS			
	Ground Surface: 728.0					Drillir	-			
	End of Boring: 677.0					omplet				
						24 Ho				
		icates r	I	All and the second s	Sulfa Sample]		<u>collect</u>	ed.	\sim
	Soil Description	Depth	Elev	No	Type	N	<u>a</u>	Qp	Mc	δd
	Brown Silty CLAY w/ Gravel									
	Dense Black Clayey FILL			1	SS	55,30,			14.1	
	<u> w</u> / Coal Cinders	5				33				
	Luose Coal Cinder FILL	10	718.0	2*	' SS	2,2,2		- The second		
and a second second	nechadan Nechadan									
		onstational and		3	SS	1,2,4				
		15			22	1,4,4				
		enteloutiene Revenuentel								
		20	708.0	4	SS	1,1,1				
				5*	SS	1				
	Grey/Black Clayey SILT (SHELBY TUBE #233-1, 25*-27)	25			22	1,2,3		1.0	36.2	
	(Shebbi 10BE #233-1, 23 -27 Recovery = 2.0')	0.000000000000000000000000000000000000								
	Grey Silty SAND	30	698.0	6	SS	2,3,4				
			00010							
	6" Soft Grey Clayey SILT Seam @34.0 - 34.5', Qp=0.0			~	00	17,30,				
		35			SS	47			37.7	
	Brown Sandy GRAVEL	3155800574								
		40	688.0	8*	SS	8,22,				
			000.0			15				
						76				
	Med. Coarse Brown/Grey SAND	45		9	SS	7,6, 15				
		-								
		50 -	678.0	10	SS	14,14, 8		-		

ALCOSAN - EPM TEAM

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March and

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM								
Client: ALCOSAN	Proj No: MAW37229.PD.07							
Boring: 233 Date Started: 6/22/95 Date Completed: 6/22/95								
Location: See Site Plan								
140# Hammer, 3.25" I.D. Auger, 7"	O.D. Auger, 30" Drop							
ELEVATIONS	WATER LEVELS							
Ground Surface: 728.0	While Drilling: 22.0							

End of Boring: 677.0

the set of the

At Completion: 24.0 After 24 Hours 17.0

Soil Description	Depth	Elev	Sample No	Sample Type	Ν	a	Qp	Mc	₹d
Hard Grey SILT	5560	677.C		SS	48, 50/1"				

	ALCOSA	v = EP	'M						
Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG	ATION	PROC	GRAM	and the second			
Client: ALCOSAN	F	^p roj No) <u>.</u>						
Boring: <u>234</u> Date Started: <u>6/5/</u>	<u>95</u>	ate Co	omplet	ed:	6/5/96		Mit Managaran and an a count of a	a a company and a company of the comp	and the second secon
Location: <u>See Site Plan</u>						and the second secon	1817-1111-111-11-11-11-11-11-11-11-11-11-1		
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,							
ELEVATIONS					EVEL				
Ground Surface: 728.0'					ling: -				
End of Boring: 662.7'							After	Core	: 12.8'
					ours:				
Shelby Tube = N	X Rock Co T	re SS	S= Split S	Transferration and interesting and		lby Tube	ə, DB =	Diamo	nd Bit
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	₹d
Brown Silty Clay w/ Organics(topsoil)	0.6	ľ	1	SS	2, 11,			1	
Black Cinders, Slag, FILL	10.0				20,29	1			
	5 —	723.0	2	SS	4, 15,				
					16,19				
6" Brown Clay Seam @ 15 ft	10	718.0	3	SS	47,71				
private and the second s	SCOREGINADO				58,35				
			an de la constante de la const	•					
antinistrative deput	15	713.0	4	SS	3,3, 9,8				
19.0					3,0				
SM Grey/Brown Mottled Silty Clay w/ Gravel & Cinders, WET 20.0	20	708.0	5	00	2,3	0.00			
Grey Cinders & Slag w/ Gravel, FILL		,00.0		SS	3,6	0.90	0.75	24.1	110pcf
WET 24.0				~~	5,4,				
Grey Clayey Sand SM	25	703.0	6	SS	6,4				
Traces of Red Bricks & wood, WET 28.0	500000000 670000000		7	SS	3,3,				
Grey/Black V.Fine Sandy SILT,					3,5				
Med. Dense, Wet	30	698.0	8	SS	2,4, 7,7				
SM SM					.,,				
35.0	35—	693.0			10 00				
Brown SANDY GRAVEL, Very Dense,		095.0	9	SS	18,37, 24,20				
	estations								
GP	40—	688.0	10	SS	5,11,				
Dense, Med. Coarse Brown SAND, Wet	encasterate	F			14,12	l			
Trace Coal Cinders									
SW 45.0 Dense, Med. Coarse Reddish	45-	681.0	11	SS	5,11, 14,13				
Brown SAND			10	Service and a service serv	15,24				
SP-SM		Ļ		SS	50/.3				And and a second se
		1 				Contraction and the second		<u> </u>	

	Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG	ATION	PROG	RAM					
		F								And Control of Control	
	Boring: 234 Date Started: 6/5				ed:6	/5/96	n se de la constante de la cons				
	Location: See Site Plan			F							
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	. 30" E	rop	54754469546675466754865468662934615				and a subscription of the	
	ELEVATIONS			V	VATER	LEVE	LS				
	Ground Surface: 728.0'			Wh	ile Dri	lling:	16.7'				
	End of Boring: 662.7'			Pric	or to C	Coring	: 16.	7', Af	ter Co	pring:	12.8
	Com.g. Com.r				ər 48 l					0	
	= Shelby Tube = N	X Rock Cor	e ss	S= Split S	spoon ST	- Shelt	y Tube	, DB =	Diamon	d Bit	
	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	.cp	Mc	1 d	1
Ì	Red/Grey CLAYSTONE, Weathered	1513		$\overline{}$				<u> </u>	+	<u> </u>	1
	Grey Silty SHALE, Med. Hard, Ext. Brkn	-52.3 -		$\langle \rangle \rangle \rangle$							
	Grey CLAYSTONE,Soft, Mod. Brkn. 55	³ , ³ 55	673.0	\sim							
	Grey Silty SHALE, Med. Hard, Ext. Bi Grey SANDSTONE, Med.Hard, Mod. Brk	'KN	070.0	\sim	DB						
ŀ	RQD = 0.29, some lime nodules @ 57'			\sim							
	Grey Silty SHALE, Med. Hard, Ext. Brkr	n 60-	668.0								
	Grey Clayey SILTSTONE, Med. Hard,	1 ^{60.3}		$\langle \rangle \rangle \rangle \rangle$							
1 11	Ext. Brkn., RQD=0.0	63.8									
L		65		$\overline{777}$							
F	Grey SANDSTONE, Hard,	1 ^{65.3} —									
	Mod. Broken, Interbedded Clay Ia RQD = 0.10	vers									
	99 v30v3v4as										
	End of Boring @ 65.3 FT.										
				Si S							
	Coring Data										
-											
	Depth Recovery										
	50.3-55.3 3.6'										
	55.3-60.3 4.4'										
	60.3-65.3 4.7										
-											

					-						

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM									
Client: ALCOSAN		Proj No	2010/15/00/00/05/02/02/02/02/02/02/02/02/02/02/02/02/02/		6/17/0	£		Maddina Constanti antiqui di	
Boring: <u>235</u> Date Started: <u>6/1</u> Location: See Site Plan	<u>//90</u>	Jate Co	ompier	ea:	V//	0		Tonnadar apportant of the st	
140# Hammer, 3.25" I.D. Auger,	7" O D	Auger.	30° T		llen kokenskeraden av de sekset og som		ni nelatiki tipovizi koti titi napro szymy		
ELEVATIONS					LEVEL	S			
Ground Surface: 728.0'					ling: ⁻				
End of Boring: 666.3'					ore: 1				
End of Bonnig. 600.0			After	24 H	ours:	16.1'			
Shelby Tube = M	IX Rock Co	re SS	S= Split S	Spoon S	ST= Shel	by Tub	e, DB =	Diamo	nd Bit
Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Cp	Mc	(pcf)
Brown Silty Clay w/ Organics(topsoi	0.6		1	SS	4, 6,			1	
Black Cinders,Slag,Sand,FILL					27,43				
	5	723.3	2	SS	11, 24	,			
	Consider				22,21				
Panganakan Panganakan Panganakan									
Trace Bricks in #3	10	718.3	3	SS	4,21, 35,39				
Paralamentan Paralamentan Paralamentan									
	15	713.3	4	60	3,2,				
		د.د./		SS	2,2				
	20	708.3	5	SS	4,6				
and a second					4,6				
24.0			6	SS	2,2	0.45	0.50	42 1	68.1
Soft Grey/Black Clayey SILT, Mois MH 27.0	1 1	703.3			1,1			and the of a state	00.2
	-				.0 Rec	overy			
	30	698.3		SS	2,3, 3,3				
Grey/Black V.Fine SAND & SILT, Wet		030.5							
M L									
35.0	35	693.3	8	SS	15,24				
Brown SANDY GRAVEL, Very Dense, Wet SP	Consecuto accontinu				24,28				
40.5									
	40	688.3	9	SS	18,15 10,10				
Dense, Med. Coarse Brown SAND, Some Gravel, Wet					,				
ana ang mang mang mang mang mang mang ma	45	681.3		SS	8,8				
SW-SM		001.3	10		14,19				
			11						
		ŀ	_	SS	40,60				

ALCOSAN - EPM

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM									
Client: ALCOSAN				nie Weiszeiczen warden aus	****	1111000-00-00-00-00-00-00-00-00-00-00-00			
Boring: <u>235</u> Date Started: <u>6/1</u>	<u>7/96</u>	ate Co	omplet	ed:	6/17/9	5	Ne Sahrabilahan yang kang kang kang		
Location: <u>See Site Plan</u>			ssar en jelistekst et miget er en dat societ deter	dar Mührinka vikalmaka ola kara	The State State of State St		ekonomia en angez a		
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,		-					
ELEVATIONS					LEVE				
Ground Surface: 727.3'					rilling:				
End of Boring: 666.3'					Coring				
Ŭ			Aft	er 24	Hours	: 16	.2'		
Shelby Tube = NX Rock Core SS= Split Spoon ST= Shelby Tube, DB = Diamond Bit									
Soil Description	Depth	Elev	Sample No	Sample Type	N	aı	Ср	Mc	Ra
Grey Siltstone, Ext. Brkn., Weathered, So	ft 51.5	ł	777	Grey	/ Sandy	Siltstor	ne w/ Li	me Nod	ules &
	-53.5 -		fff	Inter	bedded	Clay la	ayers, N	/lodExt	. Brkn,
Grey Sandstone, Hard,Moderately Brkn.	· 55	672.3	())))	DB	. Hard, I I	100=0.		T .	
	56.3 _		$\langle \rangle \rangle \langle \rangle$		L Ciltoto		ima Ala	dules &	
	59.1 60		$\mathcal{H}\mathcal{H}$					ouies & AodExt	
Grey Sandstone, Ocassionally Brkn., Hard, RQD = 0.57	60	667.3	$\overline{777}$	Med	<u>Hard, I</u>	<u>100=0.</u>	22	,	
	61.0 _								
End of Boring @ 61.0 FT.	65-								
2									
5" Sample of Grey Sandstone taken from 55 ft for testing									l
Coring Data									
Depth Becovery									
Depth Recovery									
51.0-61.0 10.0'									
				1 and 1 an					******
				l					

PAGE 2 of 2

`~	Project: ALCOSAN GEOTECHNIC							ne de la compañía de		todowni wy fago z zacanie
)	Client: ALCOSAN			2010/2010/00/2010/00/00/00/00/00/00/00/00/00/00/00/00/			and a second s			and an and a state of the state
B*	Boring: 236 Date Started: 6/21						43654000-00-00-00-00-00-00-00-00-00-00-00-00			March (March 140
	Location: <u>135' S. of Existing</u>					Plan			through distances and a subscription of the	NWO WINDOWSKI WAR
	140# Hammer, 3.25" I.D. Auger,	/ 0.0.	Auger,	20 L		FER LE				
	ELEVATIONS Ground Surface: 727.5				While					
	End of Boring: 676.5				At Co		~			
	End of Bonnig. 676.5				After					
	* Indicates pH,	Chloride	e, Sulf	ate Sa						
	Soil Description	Depth	Elev	Sample No	Sample Type	N	QJ	Cp	Mc	Хd
	Brown Sandy CLAY w/ gravel									
	& Coal Cinders (FILL)			-						
		5		1	SS	17,11, 8			16.5	
	Coal Cinder FILL									
				2*	SS	3,4,3				
		10	717.5			0,1,0				
		15		3	SS	2,2,3				
				4	SS	2,2,1				
		20	707.5		00	~ , ~ , ~)				
		25		5	SS	1,1,1		0.75	36.2	
	Grey/Black Clayey SILT (SHELBY TUBE #236-1, 25'-27'							0.75	20.2	
	Recovery = 2.0')									
	Fine Grey SAND	30—	697.5	6*	SS	2,6,8				
	3" Fine Grey CLAY SEAM			7	SS	2,18				
	@ 35.0', Qp=0.50.	35			50	36				
	Note: Fragments of Sandstone in bottom of sampler @ 35.0'									
	Grey SAND & GRAVEL	40	687.5	8	SS	8,11,				
		-				10				
	Fine Grey SAND			9		7,11,				
	Brown Sandy GRAVEL	45		7	SS	13				
						0 10				
	Med. Coarse Brown SAND	50 —		10	SS	8,10, 15				
			in the second		ł			L	L	

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ALCOSAN - EPM TEAM

Project:	ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM

Client: ALCOSAN	Proj No: MAW37229.PD.07
Boring: 236 Date Started: 6/22/95	Date Completed: 6/22/95
Location: See Site Plan	
140# Hammer, 3.25" I.D. Auger, 7" O.	D. Auger, 30" Drop
ELEVATIONS	WATER LEVELS
Ground Surface: 727.5	While Drilling: 17.0
End of Boring: 676.5	At Completion: 22.0
0	

After 24 Hours 17.0

Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	ф	Мс	₹d
Hard Grey SILT	55 60 	676.5		SS	57/6"				

Project: ALCOSAN GEOTECHNI				PROC	GRAM					
Client: ALCOSAN		Proj No	service of the servic		6/10/0	6		******	Antifelini et gione i primare spirate mat	
Boring: <u>237</u> Date Started: <u>6/17</u> Location: <u>See Site Plan</u>	<u>//30</u> [Jate U	ompiet	ea:	0/10/3	0	**************************************	Collective Of the Rest of the Second		
	7" O D	Auger	30" T)ron						
140# Hammer, 3.25" I.D. Auger, 7" O.D. Auger, 30" Drop FLEVATIONS WATER LEVELS										
ELEVATIONS WATER LEVELS Ground Surface: 727.3' While Drilling: 17.2'										
End of Boring: 662.3'										
End of Doring. 002.0					ours:		· • •			
= Shelby Tube = N	X Rock Co	ore SS	S= Split S	Spoon S	ST= Shel	lby Tub	e, DB =	Diamo	nd Bit	
Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Qp	Mc	Rd	
Brown Silty Clay w/ Organics(topsoil)	0.6	+	1	SS	2, 5,					
Black Cinders,S!ag,Sand,FILL		•			5,6					
	5	723.3	2	SS	8, 3,					
Trace Clay in #2		-			4,3					
9.5		-								
Olive SILT w/ Traces of	0 ר ן	718.3	3	SS	5,2,4,	6	2.50	23.1		
Cinders & Bricks ML 11.5			4	SS	5,6,7,	8				
Dk. Brown Clayey Sandy FILL	15	713.3								
w/ Slag & Trace Bricks		120.0								
			5	SS	4,6					
	20—	708.3		22	14,15					
						0.60				
24.0	00000000 00000000 2000 2000		6	SS	2,2,2,4		0.50	43.0		
Soft Grey/Black Clayey SILT, Moist MH 27.0	25	703.3	7777	ST 2.	0 Recov					
Grey V.Fine Silty SAND, Trace	anaonagana anaonagana		7		3,4,	ery				
Coal and Slag, Med. Dense, Wet	30-	698.3			3,7					
SM SM	warespare									
Grey/Brown SANDY SP	sansasa Sansasa									
GRAVEL, Dense, Wet 35.5	35	693.3	8	SS	11,13					
Brown GRAVEL, GW Very Dense, Damp					26,46				Partic confinement was	
39.0	40				4,6					
Dense, Brown GRAVEL, GW Some Med. Coarse Sand, Wet	40	688.3	9	SS	6,9					
44.0	anntianna. Anntianna									
	45	681.3	10	SS	7,6,7,	 8 No	 Recov	en/ in ·	#10	
Med. Coarse Brown SAND w/ Some small Gravel, Med. Dense, Wet	-rieganae		11	SS	6,5,6,5	1				
SW-SM	contractor	F			J, J, D, C, C					
		and the second		L.	l.					

ALCOSAN - EPM

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM											
Client: ALCOSAN Proj No:											
Boring: 237 Date Started: 6/17	<u>796</u> D	ate Co	omplet	ed:	6/18/96	5					
Location: See Site Plan		Ortification and a strategy of the			****						
140# Hammer, 3.25" I.D. Auger, '	7" O.D.	Auger,									
ELEVATIONS											
Ground Surface: 727.3'											
End of Boring: 662.3'											
	After 24 Hours: 14.8'										
EXAMPLE A Shelby Tube A Y = NX	Shelby Tube Stelly Tube = NX Rock Core SS= Split Spoon ST= Shelby Tube, DB = Diamond Bit										
Soil Description	Depth	Elev	Sample No	Sample Type	N	a	C p	Мс	₹ ^d		
			\overline{TT}	-12	50/.3						
<u>Coring Data</u>			$\langle \rangle \rangle \rangle$	SS							
Depth Recovery	55	672.3	()))								
			()))	DB	al-o-o-and designed						
50.3-57.0 4.7' 57.0-65.0 7.8'			((((uв							
57.0-05.0 7.0	60	667.3	((((
			((((
End of Boring @ 65.0 FT.	End of Boring @ 65.0 FT. 65 662.3										
		002.0									
		international sector of the									
End of Boring @ 65.0 FT. 50.0-51.0 Grey Silty Shale, 51.0-53.6 Grey Claystone, S 53.6-54.1 Grey Siltstone, Me 54.1-54.9 Grey Sandstone, Ha	Weathered	l, Extrer	nely Bro	ken							
51.0-53.6 Grey Claystone, S	Soft										
	Stro Solo Grey Glaystone, Solt										
53.6-54.1 Grey Siltstone, Me	ed. Hard, E	Extreme	ly Broke	n							
54.1-54.9 Grey Sandstone, Ha	ard, Occas	sionally	Broken,	RQD =	0.70						
54.9-55.3 Grev Clavstone S		•									
54.9-55.3 Grey Claystone, S	oft										
55.3-56.3 Grey Siltstone w/ L	ime Nodul	es & Ini	erbedde	d Clay I	Layers, H	Hard, F		.33			
56.3-56.7 Grey Sandstone, Ha	ard, RQD =	= 0.95									
56.7-57.1 Grey Silty Shale, I	Extremelv	Broken.	Soft-Me	ed. Harc	ł						
	e, mea. Ha	ira io H	ard, Moo	Jeratley	Broken,	RQD =	= 0.13				

PAGE 2 of 2

	Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN Proj No: MAW37229.PD.07 Device 239 Data Chartedia 11/6/05										
	Boring: 238 Date Started: 11/6/95 Date Completed: 11/6/95										
	Location: See Location Plan						an a dh'an an fail an Anna an A	0414530000000000000000000000000000000000			
	140# Hammer, 3.25" I.D. Auger, 7										
	ELEVATIONS	WATER LEVELS While Drilling: 25.0' At Completion: 24.7' After 24 Hours: N/A									
	Ground Surface: 727.8										
	End of Boring: 679.4										
Г	* Indicates	pH, Chl	loride. I		-		llect	ed T	1 1	~~	
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	<u></u>	Мс	J.	
	- Brown Silty CLAY w/ Organics				-						
+	- Black Cinder FILL							-			
		5 —		-		3,33,					
F	6" SLAG @ 5.0 Et			1	SS	34, 50/.2					
	Black Cinder FILL					507.2					
	- Brown Clayey FILL w/	10	717.8	*2	SS	1,2,					
L	Slag & Coal Cinders			<i>ش</i>	22	2,2					
	acau										
	Brown Silty CLAY	15		3	SS	4,3,	3.68	3.0 Lab	21 91		
				<u> </u>		5,6		2.0 Fie	d		
		20	707.8								
	Brown/Grey Mottled		/0/.0	*4	SS	4,7, 10,10	1.92	2.0	19.6		
-	Clayey SILT										
		25—				1,2,					
	- Brown Silty SAND, Wet			5	SS	2,1					
		30	697.8	*6	SS	19,19					
	-Dense Brown SAND & Gravel, Wet					19,20					
F											
	- Med. Dense Brown Gravel, Wet	35		7	SS	9,9,					
						8,8					
		40-	687.8			0.14					
	- Dense Brown Sandy Gravel		007.0	*8	SS	9,14, 16,24					
	w/ Shale Fragments, Wet										
		45			4	2,3,					
	 Med. Dense, Med. Coarse Brown SAND, Wet 			9	SS	4,5					
L	- Hard Grey SILT	50 -			SS	50/0.	4				

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Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG	ATION		SRAM			in the second	
)7			Bilefileterrintelaange
Boring: 239 Date Started: 6/26/95 Date Completed: 6/27/95									100120-00-00-00-00-00-00-00-00-00-00-00-00-0
Location: See Site Plan			-					an a	1992-1992-1992-1992-1992-1992-1992-1992
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	, 30" I	Drop					ATT ATTACK OF THE SECOND AND A
ELEVATIONS				WA	TER LE	EVELS	2		
Ground Surface:, 727.8									
End of Boring: 678.1	At Completion: 19.0								
					24 Ho				
* Indi	cates pl	I, Chlo				le Col	lected	l	
Soil Description	Depth	Elev	Sample No	Sample Type	N	a	C P	Мс	Va
Brown Silty CLAY w/ Gravel								<u> </u>	
Black Clayey FILL w/ Gravel									
	5		1	SS	7,10, 14			15.0	
					7.2				
			2*						
Brown Clayey SILT	10-	717.8	~	SS	5,7,6	0.51	0.25	15,•8	
Shelby Tube #239-1, 10'-12' Recovery = 2.0									
	15		3	SS	2,2,5	0.98	0.50	23.4	
							0.00	23.4	
Fine Grey SAND	20	707.8	<u>/</u> *	SS	3,3,3				
Fine to Medium Coarse Brown SAND									
			5*						
	25-	-		SS	3,3,5				
			-		and in some				
Dense Medium Brown SAND &	30	697.8	6	SS	4,3,				
Gravel		097.0			10				
		Ļ							
Very Dense Brown SAND &	35	1 1 1	7	SS	23,29				
GRAVEL w/ Traces of Coal					26				
Candiabara () O			8	SS	42,				
Sandstone & Gravel	40-	687.8		33	50/6"				

	45	•	9	SS	5,7,				
Dense Med. Coarse Brown SAND					10				
	_{Б0} –				7,9				
Hard Grey SILT & 49.7	50 -		10	SS	50/2"				

ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM										
Client: ALCOSAN		-	202303000000000000000000000000000000000	V3722		-				
Boring: <u>240</u> Date Started: <u>11/1</u> Location: See Location Plan	<u> </u>	ate Co	mpieu	eu	1/1/90					
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	rop			********	admit ministrando internet de la ministra com	SATAN-WAR SUMMALA SUMA	
ELEVATIONS		~ .			TER LE	EVELS				
Ground Surface: 728.0					Drilli					
End of Boring: 677.7				At Co	ompleti	ion: (33.1'			
2				After	24 H	ours:1	6.5'			
* Indicates	pH, Chi	loride,	Sulfa	ate Sar	mple Co	llecte	ed			
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	₹ ^d	
Dk. Brn. Silty CLAY w/ Gravel & Organics (Topsoil)	Common of the local data									
	5									
			1	SS	5,4, 5,4					
Med. Dense Blk. Cinder FILL					2,**					
w/ Traces of Kiln Bricks	10	718.0			4,5,					
			*2	SS	8,9	0.40	2.25	17.9		
Stiff to Very Stiff Brown Silty CLAY										
	15		3	SS	2,3,					
			د ا		3,4	0.96	1.75	18.2		
	20-	708.0								
		700.0	* 4	SS	2,3, 5,6	0.52	0.0	23.1		
					2,0					
	25			00	2,6,					
Med. Dense, Wet, Fine Coarse			5	SS	6,6					
Brown Clayey SAND								-		
	30	698.0	*6	SS	9,18,					
Very Dense, Wet, Brown SAND & GRAVEL					21,11					
SAND & GIVAVED	35									
			7	ss	20,24 35,35					
					52,52					
No Sample #8 Retrieved in Spoon	40	688.0	8		50/0					
				SS	5070					
- Brown SAND & GRAVEL	45		*9	SS	3,6,					
				•	7,8					
Hard Grev SILT @ 50.0' END OF BORING @ 50.3'	50 -			SS	50/3"					

ALCOSAN - EPM TEAM

	Project: ALCOSAN GEOTECHNIC Client: ALCOSAN	F					7			
	Boring: <u>241</u> Date Started: <u>6/26</u>	<u>/95</u> D	ate Co	mplete	əd: <u>6</u>	/26/95				
	Location: <u>See Site Plan</u>		nya manga miningi pingi pada da kata d							
	140# Hammer, 3.25" I.D. Auger, 7	7" O.D.	Auger,	00" D						
	ELEVATIONS					TER LE				
	Ground Surface: 728.2					Drillin				
	End of Boring: 688.2					mplet				
						24 Ho		3.5		
Г	* Indicates pH	ſ	T	1	Sample	1		T		X
	Soil Description	Depth	Elev	No	Type	N	Gu	Cp	Mc	δ.
	Brown Silty CLAY w/ Gravel									
-	Brown Clayey FILL w/ Gravel,			4						
	Slag, Coal Cinders, & Traces of Red Brick	5		÷	SS	6,7,9			17.0	
				2*	SS	2,3,3				
		10	718.2	2009-00-00-00-00-00-00-00-00-00-00-00-00-					10.0	
				outrompart setti den restationisti della						
	Brown/Tan Mottled Silty CLAY	15		3	SS	3,4,5	1.42	1.0	21.8	
	Shelby Tube #241-1, 15'-17'	-								
Ш	No Recovery Loose Fine Brown Silty SAND	aprocesso esturbitor		4	SS	2,3,2				
	LOOSE FINE BIOWN SILLY SAND	20	708.2		00	2,3,2			23.0	
F	Very Dense Grey/Tan Mottled	25		5*	SS	5,31,				
	Silty Clayey SAND					6				
	Dense Brown Sandy Gravel	30—	698.2	6	SS	10,11, 15				
	Very Dense Brown Clayey SAND w/ Gravel									
	SAND W/ GLAVEI			7	SS	9,19,				
L		35				11				
		40	688.2	8	SS	21,37				
	Hard Grey/Purple SILT					50/.2	Ξt			
	andres .		1							
		45-								
]							
F		50 -	•			1				

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ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN Proj No: MAW37229.PD.07										
Boring: <u>242</u> Date Started: 6/23/9			CT2410404800000000000000000000000000000000						Canada da Salakan Angan Dinanga da Salakan Kanada da	
Location: See Site Plan		an the second second second second second		an a			New York Apple 2014 Automotive			
140# Hammer, 5.25" I.D. Auger,	7" O.D.	Auger,	30" E							
ELEVATIONS										
Ground Surface: 728.2					Drillir mpleti					
End of Boring: 680.2					24 Hc					
* Indicates pH, Chlo	ride. Su	lfate	Sample				0.0			
Soil Description	Depth			Sample Type		Q	Φ	Мс	Yd	
Brown Silty CLAY w/ Gravel									*****	
& Traces of Red Brick										
	5 —		1	SS	12,14, 12					
Crushed Red Brick					ula dal					
Brown/Black Mottled			2	~~	1 2 2					
Clayey FILL	10	718.2	844 	SS	1,2,2			27.7		
Brown Silty CLAY	15		3*	SS	5,5,5	0.98	0.75	27.4		
Shelby Tube #242-1, 15'-17'										
Recovery = 1.5'										
Soft Grey Sandy CLAY Shelby Tube #242-2, 20'-22'	20—	708.2	4	SS	1,1,1		0.0	22.0		
Recovery = $2.0'$										
Grey Silty SAND	2 5		5	SS	2,2,3					
	2 5									
	30—	698.2	6	SS	4,5,					
Grey Silty SAND w/Gravel					11					
			7	SS	16,11,	2 - 0	3.75	10.0		
Grey Clayey SILT w/ Gravel	35-				11, 11,	2.14	3.75	12.8		
Grey Clayey Sill W/ Gravel										
Grey Sandy SILT w/ Gravel	40	688.2	8	SS	2,2,2		1.50	18.8		
Shelby Tube #243-3, 40'-42'										
No Recovery			ġ*	<u></u>	10.00					
	45	-	ر 	SS	43,10 11					
Grey SHALE										
Hard Grey SILT w/ Shale	50 —	and a state of the	10	SS	50/0.	2ft				

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Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM											
Client: ALCOSAN	Proj No <u>: MAW37229.PD.07</u>										
Boring: <u>242-A</u> Date Started: <u>11/1/95</u> Date Completed: <u>11/1/95</u>											
Location: See Location Pla	n										
140# Hammer, 3.25" I.D. Aug	ger, 7" O.D. Auger, 30" Drop										
ELEVATIONS	WATER LEVELS										
Ground Surface: 728.2	While Drilling: 21.0'										

End of Boring: 686.2

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alsi- wood

At Completion: 31

* Indicates pH, Chloride, Sulfate Sample Collected

Soil Description	Depth	Elev	Sample No	Sample Type	Ν	Qu	Cip	Mc	(Jd
- Brown Silty CLAY	5	718.2	*1	SS	3,2, 2,3	1.35	1.00	26.0	
Fine Grey Clayey SAND, Wet	15	708.2	*2	SS	0,1, 1,1				
 Dense to Very Dense Grey SANDY GRAVEL w/ Trace of Red Gravel in end of Sampler 	30	698.2	*3	SS	8,11, 12,11				
	40 40 45 50	688.2	*4	SS	1,1, 1,5				

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Project: ALCOSAN GEOTECHNI				PROC	GRAM	an a	007775200007100700-000000000000000000000000000	al de la company de la comp			
		*	Second State State State States		C /1 0 / 0						
Boring: <u>243</u> Date Started: <u>6/10</u>	<u>8/96</u> [Jate Co	omplet	ed:	0/18/9	0	an a	10×27************************************			
Location: <u>See Site Plan</u> 140# Hammer, 3.25" I.D. Auger,	7	3	20# 5				5+0 ⁻² -0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	9699 - Salah S			
	/" U.D.	Auger,			<u>_\/_</u>	0					
ELEVATIONS					LEVEL						
Ground Surface: 728.1'					ling: '			0.01			
End of Boring: 662.3'					s afte lours:		ng: U	.00			
= Shelby Tube = N	IV Book Cr						- 00	D:			
Soil Description	Depth	Elev	No No	Sampie Type	1 N	Qu	Cp	Mc	1 Ta		
Brown Silty Clay w/ Organics(topsoil)	0.6 =	Ŧ	1	SS	3, 8,			†			
Black Cinders,Slag,Sand,FILL] ^{0.0} =				14,11						
	5	723.1	2	SS	5, 4,						
				00	4,6						
9.0											
Grey Clayey SILT, Stiff, Moist	10	718.1	З	SS	4,6,	1.72	1.75	21.7	106pcf		
14.0					8,10						
CL Grey/Brown Sandy CLAY 15.0]				0.5						
	15-	713.1	4	SS	3,5, 4,6	0.90	696. year	21.0			
	entidateac Galeralage				1 -						
Brown Clayey Fine SAND, Slightly Compact, Damp	20—	708.1	5	SS	3,3						
percent presidence -		/00.1	5	22	2,2						
SM									Backy Additional Systems and Additional		
25.0 Loose Fine Grey Clayey SAND, Wet	25	703.1	6	SS	0,1,2,	1					
SP-SC	atoraşıdışı ə										
29.0	initarraap asimteene										
Grey V.Fine Silty SAND, Dense, Wet	30	698.1	7	SS	8,15, 11,9						
SM					11,3			l			
35.0	35—	602 1									
3" Weathered Sandstone 35.3	35-	693.1	8		5,10						
					10,00						
	40—	688.1	9	SS	13,17						
	-	k	\overline{D}		50/.3						
See Page 2 for Rock Core Information	Without any	F									
	45	681.1	())))								
		Ê	()))	DB							
——————————————————————————————————————	estenatoria Gaintenatoria	Ŕ	()))						STRAIGHT		
	L	k	77775								

PAGE 1 of 2

	RECORD OF	SUBSU ALCOSA			XPL(ORAT	TION	ſ			
Ô	Project: <u>ALCOSAN GEOTECHNI</u> Client: <u>ALCOSAN</u> Boring: <u>243</u> Date Started: <u>6/1</u> Location: <u>See Site Plan</u> 140# Hammer, 3.25" I.D. Auger,	F <u>8/96</u> []	Proj No Pate Co	o: omplete , 30" D	ed:						
	ELEVATIONS Ground Surface: 728.1' End of Boring: 662.3'	IX Rock Cor	e S	Wh Pric	ile Dr or to (er 24	illing: Coring Hours:	16.0' : 0.0' : 0.0	1	Diamon	Elit	
	Soil Description	Depth	Elev		Sample Type		a.	Cp.	Mc	₹ Ka	
	Coring Data Depth Recovery 40.3-49.3 8.3' 59.3-53.3 3.8' End of Boring @ 53.3 FT. 65										
	40.3-41.6 Grey Siltstone, V 41.6-47.7 Grey Sandstone, V 47.7-49.1 Grey Sandstone V 49.1-50.7 Grey/Black Shale 50.7-53.3 Grey Sandstone, S 2" Clayseam At 52.0 feet 11.5" Grey Sandstone W/	Hard, Mode w/ Mica, Ve e, Med. Ha Some Mica	erately E ry Hard rd, Moc , Very H	Broken, F , Occasio derately-E lard, Occ	RQD = 0 onally B Extremel	1.28 roken, R y Brokei Ily Broke	n		3		

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PAGE 2 of 2

JCT: ALCOSAN GEOTECHNIC	AL INVE	ESTIGA	ATION	PROG	RAM			-				
it: ALCOSAN	F	^p roj No	: MAV	<u>V37229</u>	9.PD.0	7	ann gu shi ya mi alama ka ka ka ka ka ka		addimentadocological			
Boring: 244 Date Started: 6/16	<u>/95</u> D	ate Co	mplete	ed: <u>6</u> /	21/95	-						
Location: 20' N. of Pier @ McKe							una maine di secondo de la constanta de la cons		anna an			
140# Hammer, 3.25" I.D. Auger, 7	7" O.D.	Auger,	30" E	rop								
ELEVATIONS				WA ⁻	TER LE	EVELS						
Ground Surface: 727.5				While	Drillir	ng: 2	25.0					
End of Boring: 679.5				At Co	mpleti	on: 2	27.5					
End of Bonnig.				After	24 Ho	ours 1	6.5					
* Indicates pH, Chloride, Sulfate Sample Collected												
Soil Description	Depth	Elev		Sample Type		a	Cp	Мс	₹d			
Brown Silty CLAY w/ Gravel						19 million ann an 19						
	5		1	ss	5,6,2							
Brown/Black Sandy FILL				-								
w/ Gravel & Coal Cinders							****					
	10	717.5	2*	SS	2,2,2		An and the second second	31.9				
		111.0										
							n da					
	15		3	SS	3,3,2							
COAL CINDER FILL												
H												
	20	707.5	4	SS	1,1,1							
			5									
	25			SS	6,6,6							
Brown/Grey Sandy FILL		1										
			6	SS	4,5,9							
Black/Grey Silty CLAY w/ Gravel & Traces of Coal	30-	697.5			4,5,5			26.6				
w/ Graver & fraces of Coar												
			7*	SS	9,22,							
Fine Grey/Black SAND	35-	4			35							
	\downarrow_{10} –	-	8	SS	8,9,							
Grey Sandy Gravel	40	687.5			13							
Notestana												
Fine to Med. Coarse Grey SAND	45		9	ss	9,8,							
		}			14							
		4		4								
REFUSAL, No Sample Retrieved	50 -	1		1	50/1"		<u> </u>					

Project: ALCOSAN GEOTECHNIC						7	an a		etitopiaecuiruiq
Client: ALCOSAN Boring: 245 Date Started: 11/1		Proj No Vate Co				/	0002010-0764030000-0766-4400-4400		
Location: See Location Plan			mpiec			sicultationenalminisculosaekizoneoom	***********	ing bindens of Canadian Constanting	Children (Children)
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	rop					******
ELEVATIONS				WA ⁻	TER LE	EVELS			
Ground Surface: 727.5						ng: 2			
End of Boring: 679.0					*	on: 1			
						ours: 1			
* Indicates	pH, Chl		1	1			d	[
Soil Description	Depth	Elev	No	Sample Type	N	QU	Сф	Mc	Yd
Brn. Silty CLAY w/ Gravel & Organics (Topsoil)									
Black Clayey FILL									
	5 —		میں	SS	2,3,				
Black Cinders & Slag FILL					2,2				
	10	717.5			11 6				
			*2	SS	11,6, 5,3				
Traces of Red Brick in									
Sample #3	15-		3	SS	1,2,				
					1,1				
	20	707.5							
	1000 V 00000000		*4	SS	1,0, 1,1				
	25		5	SS	1,2,				
			~		1,2				
	30	697.5							
	30	0.150	*6	SS	10,2, 3,2				
					-,-				
Grey/Brown SANDSTONE w/	35				10 15				
Shale Fragments, Wet			7		18,15, 16,10				
		<pre>con =</pre>							
Grey/Brown SANDY GRAVEL, We	- 40	687.5	*8	SS	11,23				
Grey SANDSTONE & Fragments					21,14				
of SHALE, Wet	45		ang yang digi kalang kang digi ka		18,7,				
Dense Brown SAND w/gravel #9			9	SS	16,7, 9,9				
Dense Grey SAND w/ Gravel #9A AUGUR REFUSAL @ 48.5'	50 -								
END OF BORING @ 50.3'	L	L			L	l		L	

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Project: ALCOSAN GEOTECHNIC									
Client: ALCOSAN		*	designation of the second s				es à children a constant a children a childre		NAMES NO.
Boring: <u>246</u> Date Started: <u>6/21</u> Location: <u>230'</u> N. of Pier @ Mci						*****			
140# Hammer, 3.25" I.D. Auger,						an aile in Airline da La Communa	alaan ahaa ahaa ahaa kuu kuu kuu kuu kuu kuu kuu kuu kuu ku		international science in a state
ELEVATIONS		<u> </u>			TER LE	EVELS			
Ground Surface: 727.4				While	Drillir	ng: 1	8.0		
End of Boring: 678.9					ompleti				
					24 Ho				
* Indica:		[A second s	1	J		cted T	1	
Soil Description	Depth	Elev	No	Sample Type	N	Qu	Cp	Mc	δа
Brown Silty CLAY w/ Gravel & traces of Coal Cinders	enyakan ny eksakan ny chanan ny					×			
Brown Sandy Gravel (FILL)	5 —		1	SS	4,7,7				
* 2 91			2					-	
	10	717.4	<u>ٺ</u>	SS	3,4,4				
Coal Cinders & Gravel FILL									
	15		3	SS	2,2,1				
	20-	707.4	4	SS	1,1,1				
		/0/.4				,			
			5	SS	1,1,2				
	25			50	-/-/-				
			6						
	30	697.4	0	SS	4,3,3				
(Pieces of Kiln Brick in End of Sampler)	35—		7	SS	2,3, 22				
					44				
Grey Silty CLAY w/ Gravel	40	687.4	8*	SS	2,2,2	0.30	0.25	25.0	
SHELBY TUBE #246-1, 40'-42'									
1.7' Recovery	45—		9	SS	2,20,		0.75	25.7	
konstant 					33				
Sandstone @ 48.5'	50 —			SS	50/0"				

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	Project: ALCOSAN GEOTECHNIC	CAL INV	<u>ESTIG.</u>	ATION	PROG	RAM			17. and 10. and 10. and 10. and 10.			
	Client: ALCOSAN	F	^p roj No):			en ne en antigen son antig	2 Mart 14 California VIII Cali				
	Boring: 247 Date Started: 3/13	/96 [ate Co	omplete	ed:	3/13/96	-)		and the first of the second			
	Location: <u>See Site Plan</u>	na a tean an a										
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,						(GF#1)			
	ELEVATIONS					EVELS			(01			
	Ground Surface: 727.5'					ling: 1						
	End of Boring: 669.0'					ore: 1						
	After 24 Hours:Caved in, Dr											
pras	= Shelby Tube = N	X Rock Co	re SS	-		-	by Tube	e, DB =	Diamon	d Bit		
	Soil Description	Depth	Elev	Sample No	Sample Type		Q	Ср	Mc	бd		
		1.0 _		1	SS	1,4,8						
E	Brown Silty FILL,Med. Dense, Moist											
	5.0	5 —	722.5	2	~~~~	100						
F					SS	1,2,2						
F	Black Cinders, FILL, Trace Sand, Loose											
L	Trace Sand, Loose	10	717.5	3	SS	3,4,4		-				
۱ 					Read Annual							
-												
Ľ		15	712.5	4	SS	2,1,2						
L		algebreitens tesseneting										
	20.0	20	707.5							(California)		
	Black Cinders, FILL, Loose, Wet		/0/.5	5	SS	1,1,2						
		accantinguate										
F		25	702.5			4.0.4						
		0-100-0010-		6	SS	4,3,4						

		30—	697.5	7								
-		anti-rooppe			SS	4,4,3						
		ionoscomo niceccientos										
	36.0	35	692.5	8	SS	14,9,8			13.3			
		5.000000000 5.000000000		ĝ	SS	2,6,3			13.3			
-	SAND & GRAVEL	40 -	007 5									
F	41.0	40	687.5	10	SS	2,4,9			13.3			
	 Grey Gravel, Trace Sand, Dense, Wet 	andoriandraidh Dhànnaichteanna										
	46.0	45	682.5									
	Dense Brown SAND & GRAVEL 47.5		ل . ما ا	11	SS	6,7,8						
	Grey CLAYSTONE	48.5 -		12	SS	7,12						
Ē	Grey SANDSTONE, RQD = 0.69			$\overline{}$	DB	50/.3						

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PAGE 1 of 2

Project: ALCOSAN GEOTE Client: ALCOSAN		P	roj No	:							
Boring: <u>247</u> Date Started	: <u>3/13/9</u>	<u>6</u> D	ate Co	omplete	ed: <u>3</u>	1/13/96				innelinen aussingen ander so	
Location: <u>See Site Plan</u> 140# Hammer, 3.25" I.D. A	uger, 7*	0.D.	Auger,		orop VATER		S		(GF#1)	
ELEVATIONS Ground Surface: 727.5'					ile Dr						
End of Boring: 669.0'					or to (er 24					-	17.5'
Shelby Tube	poon S	\$0000000000000000000000000000000000000	y Tube	, DB = 1	Diamono	Bit					
Soil Description	D	epth	Elev	Sample No	Sample Type	N	۵	ĊÞ	Mc	J.	
Grey SANDSTONE RQD = 0.69	53.5										
Grey SANDSTONE RQD = 0.76		55			DB						
End of Boring @ 58.5 FT	NY COLORED STATE	; 0]	669.0	7777							
0.1' Grey Claystone seam 56 0.3' Grey Claystone seam 57											
<u>Coring Data</u>											
Depth Time Pull Do (min) Pressur	1 1									•	
48.5-53.5 9 500 psi	5.0										
53.5-58.5 9 500 psi	5.0										
			or many tensor to the state of								
											an-variation damagement
	4								seadorad-tributer		
	1										

in the second

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Boring: <u>248</u> Date Started: 6/16/9 Location: <u>See site Plan</u> 140# Hammer, 3.25" I.D. Auger,	F <u>5 D</u> ate	Proj No e Com	<u>: MAV</u> pleted	V37229 : 6/ <u>16/</u> Drop	9.PD.0 95				
ELEVATIONS Ground Surface: 727.5 End of Boring 677.5			2	While At Co After 8	mpleti 80 Hoi	ng: 2 on: 2	23'	ved in	@ 10'
* Indicates pH, Chlori Soil Description	Depth	fate S Elev	Sample	Sample		Qu	Gp	Мс	Хa
Brown Silty Sandy		LICV	No	Туре			4		
CLAY w/ Gravel 6" Grey Sandy Clayey FILL 2" Brown Sandy Clayey FILL	5		1	SS	6,5,5			9.7	
Black Sandy FILL w/ Coal 1"Brown/Tan Mottled Fine Sand in bottom of sampler		717.5	2	SS	1,1,1			6.4	
Fine Black Sandy FILL w/ Coal Cinders	15		3	SS	1@18"				
Fine Brown Sandy Silty FILL w/ traces of Coal	20	707.5	<u>/</u> **	SS	2,1,1				
Brown Sand & Gravel FILL w/ traces of Coal	25		5	SS	1,1,6				
NOTE: Large (>4" DIA) Pieces of slag encountered by augur @ 33'	30-	697.5	6	SS	4,3,4				
	35		7	SS	4,20, 13				
Damp Grey Clayey SILT	40-	687.5	8*	SS	2,2,2	0.45	0.50	18.2	
Attempted Shelby tube #248-1 from 40'-42', NO RECOVERY. Fine Wet Grey Clayey Sand	45		9	SS	2,4,9				
Grev Sandstone @ 50 FT	50 -	677.5	10		5000"				

Service works

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	F	Proj No	<u>: MAV</u>	<u>V37229</u>	9.PD.0				2000-200 0 0000
Boring: 249 Date Started: 6/16	6/95	Dat	e Com	pleted	: 6/16/	95			
Location: <u>See Site Plan</u>	7. 0 0	2	ם <u>יי</u> ריב	x ~ x ~					
140# Hammer, 3.25" I.D. Auger, '	/" ().).	Auger,	سل ل ل		TER LE				
ELEVATIONS					Drillir				
Ground Surface: 727.5					mpleti				
End of Boring 677.0'					80 Hc				
* Indicates pH, Chloride	e & Sulf	ate Te	st Sam	ple Co	llecte	d			
Soil Description	Depth	Elev	1	Sample Type	1	Qu	Cp	Мс	X.
Brown Silty Clayey FILL									
w/ Gravel & Traces of				•					
Organics & COAL CINDERS	5 —		1	SS	18,12, 10			9.0	
aang									
			2*	SS	3,5,			12.2	
	10	717.5			10				
(Sample #3)									
- 4"Crushed RED BRICK @ 14.5'	15		3	SS	16,11 6				
			4	SS	1,1,1				
COAL CINDERS &	20	707.5	4	55	/				
- Sandy FILL									
			5	SS	1,1,1				
	25								
	analisa a								
	30-	697.5	6	SS	2,2,2				
	and the second								
Large Rock Recovered in			7	SS	2,5,				
Bottom End Of Sampler	35-			00	15				
	aviation de			-					
Wet Grey Clayey SILT	40	-07 E	8*	SS	1,3,1		0.25	21.5	
SHELBY TUBE #249-1 (40'-42')		687.5							
Fine Silty SAND]	9	ss	2,3,4			19.6	
Wet Grey Clayey SILT	45	1	10		9,13,				
Grey Clayey Sand w/Gravel SHELBY TUBE #249-2 (43.5-44.4)		1	1 - 20	SS	14				
	1 50 -	677		SS	53@6"				

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						DANA				
·	Project: ALCOSAN GEOTECHNIC/ Client: ALCOSAN	AL INVE				MAW372	29.PD	. 07		
	Boring: 250 Date Started: 6/13/	/95				d: 6/13			uziniturentinistraphysiktoren privalle	
	Location: See Site Plan									
	140# Hammer, 3.25" I.D. Auger, 7	" O.D. A	uger,	30" Dr	go					
	ELEVATIONS					TER LE	VELS			
	Ground Surface: 727.8'				While	Drilling	g: 27	71		
	End of Boring: 678.8'				At Co	mpletic	n: 3	2.5'		
					After	24 Ho	ours: `	18'		
	* Indic	ates pH	, Chlo	riđe, 2	Sulfate	e Sampl	e Coll	ected		
	Soil Description	Depth	Elev	Sample No	Sample Type	N	QJ	Cp	Mc	2ª
	2" ASPHALT									
	Firm Dark Brown Silty Sandy CLAY w/gravel			1	SS	3,2,2	100.000	1.0	10.0	
		5	722.8	<u> </u>	55	3,4,4		1.0	19.3	
						11,15,				
			717.8	*2	SS	11,13,			12.2	
	Brown Sandy Silty FILL w/Traces of COAL & Gravel		/1/.8							
	Dk.Brown Silty Sandy CLAY					2,14,			20.3	#3
	4" Lt.Brown CLAY-3A	15		3,3A	SS	27		1.5	19.0	#3A
.	COAL FILL					10.15				
	Dk.Brown Sandy Clayey FILL w/Gravel			4	SS	10,17, 16		1.0	14.8	
		20	707.8							
						12,				
	<u>6"</u> Dk.Brown Sandy Clayey FILL	25		5	SS	50@1"			13.4	
	Sanay GRAVEL			6	SS	6,6,6			18.7	
	3" Fine Brown SAND	30	697.8·						20.7	
	Clean Fine Brown Clayey SAND	35		7A, 7B	SS	15,27, 31	tine' skis.		27.9	#7B
	6" COAL-7A 6" Grey SAND-7B			8	SS	54, 50@3"				
	Fine Clayey Sandy GRAVEL	40	687.8							
	Grey Silty CLAY	45		9	SS	4,6,11	1.05	1.25	25.6	
	Grey Clayey SAND w/Gravel									
	Fine Brown SAND	50 -	678.8	10	SS	70@4"				
	ROCK @ 49.0		010.0	<u></u>	L	<u> </u>	L			

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		Project N						an a	and the construction of the second	iinimen standerseta
	251 Date Started: 6/-						/95	niechaniekowaniekowanie	10000000000000000000000000000000000000	
Locatio	n: Between existing Ef	- S-4 &	EF S-	5, See	<u>e site</u>	plan	****			
140# Ha	ammer, 3.25" I.D. Auger,	7" O.D	. Auger	·, 30"	Drop					
ELE	VATIONS				WA.	TER LE	EVELS			
Groun	d Surface: 727.8'				While	Drillir	ng: 2	23.5 fe	eet	
End of	f Boring: 679.8'				At Co	ompleti	on:	28.67	feet	
	<u> </u>				After	24 Ho	ours 1	18.0 fe	eet	
	*	Indicat	e pH, (Chlorid	le, Sul	lfate s	ample	colled	cted	
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Qp	Мс	γ
= 2"	ASPHALT		+							
	.Brown Sandy Silty AY w/gravel	5		1	SS	3,5,4		0.25	17.4	
	k/Brown FILL- 2A ome COAL cinders)									
3"	Soft Shale ROCK-2B			*2	SS	12,11, 10			15.0	
entre seven verse in entre in entre in entre de la constante de la constante de la constante de la constante d anticida entre entre entre constante de la const	Brown Sandy Clayey FILL Material		717.8						13.0	
	Brown Sandy Clayey FILL			3	SS	12,11, 12			17.2	
(3" CC	DAL Cinder Seam @ 14.5')		4							
magino into			1	4		14,14,				
-		20	707.8		SS	15			16.5	
uinion de					Of manufacture and a second second					
	New Condit Classes]	5	SS	2,2,2			22.9	
FIL	wn Sandy Clayey L w/ Gravel	25								
	own Sandy GRAVEL-6A		1	6	SS	3,3,4				
C(OAL cinders-6B	30	697.8							
- Fin	e Grey SAND-7A	-	1							
	ne SAND w/Large Gravel-7	35	1	7A, B	SS	43,50, 54				
nannan vili 1946 (a don) dan manjarja da anala da ka	an an ann an an an an an an an an ann an a	1	-							
	ey Brown SAND w/Gravel		7							
	ey prown pann wygraver	40-	687.8	8	SS	7,15,				
********			1			-				
9409900000 19447594034514000000000000000000000000000000000		-		<u> </u>						
Gr Gr	ey Silty CLAY w/Gravel	45	-	9	SS	2,5,5		0.50	20.5	
Fine	e Brown Clayey SAND-10A	1 -	7			38				
Canc	istone ROCK-10B	1 50 =	679.8	10A,B	SS	55@2"				

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Charles allering

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM

Client: ALCOSAN	Proj No:	
Boring: <u>252</u> Date Started:	_3/6/96 Date Completed:	96
Location: See Site Plan		
140# Hammer, 3.25" I.D. Au	ger, 7° O.D. Auger, 30° Drop	(GF #5)
ELEVATIONS	WATER	LEVELS
Ground Surface: 727.2'	While Dr	illing: 30.0'
End of Boring: 691.8'	At Comp	letion: 30.4'

After 24 Hours: 22.0'

SS = SPLIT SPOON, ST = SHELBY TUBE, DB = DIAMOND BIT

SS = SPLIT SPOON, ST = SHELBY TUBE, DE							(management and a second s	-	
Soil Description	Depth	• Selev	Sample No	Sample Type	N	â	ထု	Мс	Дa
4" Asphalt , 6" Brown Fill w/SAND & Gravel 0.8									
Grey Fill w/Slag & Gravel, Trace CLAY 6.5	1 0	722.2	1	SS	5,3, 2,1				
Grey/Black/Tan Mottled Silty Clayey Fill		717.2			2,2				
Brown Clayey FILL 			2	SS	3,5				
of Slag	15-	712.2	3	SS	3,2, 1,1				
	20	707.2	4	SS	1,1,	anna anna	0.0	23.5	97 PCF
Very Soft Damp, Brown Silty CLAY	25	702.2			1,1				
		-	5	SS	1,2, 2,3	diyin dilad	0.0	23.5	97 PCF
31.5 Very Dense Grey GRAVEL w/CLAY	~ }	697.2	6		9,25, 19,48			6.3	
Large Rock 6* Up from Bottom		692.2	<u>~</u> 7	SS	50/.4				
Red/Grey/Tan CLAYSTONE 35 Augur Refusal @ 35.4 FT.	40								
	4 5	for the second							
	50 -	1						ļ	

Project: ALCOSAN GEOTECHNI Client: ALCOSAN	F	ROJE	CT NC).: MA\	N3722	9.PD.0)7		
Boring: 253 Date Started: 6/14	1/95 C	Date C	omple	ted: <u>6</u>	/14/95				
Location: Between Existing EF	S-4 & E	EFS-5	Tanks	, East	of Ro	ad			lanin Samainstay a chan
140# Hammer, 3.25" I.D. Auger,									
ELEVATIONS				WA	TER LE	EVELS			
Ground Surface: 727.8'				While	Drillir	ng: 20)'		
End of Boring: 680.1'					omplet				
<u> </u>					24 H		-		
* In:	dicates	pH, Ch		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	·	mple C	ollect	ed	-
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	R ^d
2" ASPHALT									
Brown Sandy Silty Clayey FILL w/Traces of COAL Cinders	5 —		1	SS	4,7,9		SALAN-SALAN - ENGINEERINA - ALAN-SALAN	17.7	
	10-	717.8	*2	SS	7,8,			13.7	
		121.0			9,12,	•			
	15-		3	SS	21		and a second	15.2	
Brown Sandy Clayey FILL w/SANDSTONE Fragments	20-	707.8	4	SS	19,26, 22				
Brown Silty Clayey FILL w/PEBBLES & Traces of COAL Cinders & Red BRICK	25		5	SS	1,25, 50@2"			14.7	
Fine-Med. Coarse Black SAND COAL Cinders	30	697.8	6	SS	2,2,2				
4"Fine Brown Clayey SAND @34" ——— Dense Fine Brown SAND w/Large Size GRAVEL	35		7	SS	14,21, 22				
#8 NO SAMPLE RECOVERED	40	687.8	8	SS	8,10, 14				
Sandy GRAVEL	45-		9	SS	4,6,9		1.0	20.4	
SANDSTONE ROCK @ 47'9"	50 -	680.1	10	SS	50@3"				

ALCOSAN - EPM TEAM

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Client: ALCOSAN Proj No: MAW37229.PD.07 Boring: 254_Date Started: 6/14/95 Date Completed: 6/15/95 Location:	254_Date Started: 6/14/95 Date Complete n:	WATE While E At Com After 24	5/95 R LEVE Drilling: pletion: 4 Hours	20' 17.7' 18.0		
ELEVATIONS WATER LEVELS Ground Surface: 726.3' While Drilling: 20' End of Boring: 679.8' At Completion: 17.7 After 24 Hours 18.0 * Indicates pH, Chloride, Sulfate Sample Collecter Soil Description Depth 8"Brown Sandy Silty CLAY w/Gravel & Organics(TOPSOIL) 3" COAL Cinders 4"Fine to Med. Coarse Crushed RED BRICK 3"Coal Cinders Gravel @ 9' 10 716.3 Tuber Sample Sample Soil Description Crushed RED BRICK Grey Sandy Clayey FILL W/Traces of RED BRICK & COAL CINDERS Grey Sandy FILL w/SANDSTONE Pragments & Gravel 7" Seam of Fine Sandy	VATIONS d Surface: 726.3' f Boring: 679.8' * Indicates pH, Chloride, Sul Soil Description Depth Elev SampleS No	WATE While E At Com After 24	Drilling: pletion: 4 Hours	20' 17.7' 18.0		
Ground Surface: 726.3' While Drilling: 20' End of Boring: 679.8' At Completion: 17.7 After 24 Hours 18.0 * Indicates pH, Chloride, Sulfate Sample Collecter Soil Description Depth Brown Sandy Silty CLAY w/Gravel & Organics (TOPSOIL) 3" COAL Cinders 4"Fine to Med. Coarse Crushed RED BRICK 3"Coal Cinders Gravel @ 9' Crushed RED BRICK Brown Sandy Clayey FILL w/Traces of RED BRICK & Coal CINDERS Grey Sandy FILL w/SANDSTONE Pragments & Gravel 7" Seam of Fine Sandy	d Surface: 726.3' f Boring: 679.8' * Indicates pH, Chloride, Sul Soil Description Depth Elev SampleS	While E At Com After 24	Drilling: pletion: 4 Hours	20' 17.7' 18.0		
End of Boring: 679.8' At Completion: 17.7 After 24 Hours 18.0 * Indicates pH, Chloride, Sulfate Sample Collecter Soil Description Depth Brown Sandy Silty CLAY w/Gravel & Organics (TOPSOIL) 3" COAL Cinders 4"Fine to Med. Coarse Crushed RED BRICK 3"Coal Cinders Gravel @ 9' Crushed RED BRICK Brown Sandy Clayey FILL w/Traces of RED BRICK & Grey Sandy FILL w/SANDSTONE Grey Sandy FILL w/SANDSTONE Progenets & Gravel 20 7" Seam of Fine Sandy	f Boring: 679.8' * Indicates pH, Chloride, Sul Soil Description Depth Elev SampleS	At Com After 24 lfate Sa	pletion: 4 Hours	17.7' 18.0		
After 24 Hours 18.0 * Indicates pH, Chloride, Sulfate Sample Collecte Soil Description Depth Elev Sample Sample N Qu Qu 8"Brown Sandy Silty CLAY w/Gravel & Organics(TOPSOIL) 1 Ss 10,23, 19 3" COAL Cinders 5 1 Ss 10,23, 19 4"Fine to Med. Coarse 5 1 Ss 11,5, 5 Crushed RED BRICK 10 716.3 *2 Ss 5,7, 12 W/Traces of RED BRICK 15 3 Ss 1,1,1 12 Grey Sandy FILL w/SANDSTONE 20 706.3 4 Ss 1,1,2 7" Seam of Fine Sandy 5 Ss 1,1,2 5 5	* Indicates pH, Chloride, Sul Soil Description Depth Elev SampleS	After 24	4 Hours	18.0		
* Indicates pH, Chloride, Sulfate Sample Collecter Soil Description Depth Elev Sample Sample N QJ (8"Brown Sandy Silty CLAY w/Gravel & Organics (TOPSOIL) 3" COAL Cinders 4"Fine to Med. Coarse Crushed RED BRICK 3"Coal Cinders Gravel @ 9' Crushed RED BRICK Brown Sandy Clayey FILL w/Traces of RED BRICK & COAL CINDERS Grey Sandy FILL w/SANDSTONE Fragments & Gravel 7" Seam of Fine Sandy	* Indicates pH, Chloride, Sul Soil Description Depth Elev Samples	lfate Sa				
Soil DescriptionDepthElevSample Sample NoQuQuQu8 "Brown Sandy Silty CLAY w/Gravel & Organics (TOPSOIL)1SS10,23, 193 " COAL Cinders51SS10,23, 194 "Fine to Med. Coarse Crushed RED BRICK51SS10,23, 193 "Coal Cinders Gravel @ 9'10716.3*2SS11,5, 5Crushed RED BRICK10716.3*2SS5,7, 12Brown Sandy Clayey FILL W/Traces of RED BRICK & COAL CINDERS153SS5,7, 12Grey Sandy FILL w/SANDSTONE Fragments & Gravel20706.34SS1,1,17 " Seam of Fine Sandy5SS1,1,2	Soil Description Depth Elev SampleS		undre co	1100+00		
Soli Description Deptit Liev No Type N Type N <th< td=""><td>Soli Description Depth Liev No</td><td>Sample</td><td>l</td><td>1</td><td></td><td>Ja</td></th<>	Soli Description Depth Liev No	Sample	l	1		Ja
w/Gravel & Organics (TOPSOIL) 1 SS 10,23, 19 3" COAL Cinders 5 1 SS 10,23, 19 4"Fine to Med. Coarse Crushed RED BRICK 5 1 SS 11,5, 5 3"Coal Cinders Gravel @ 9' 10 716.3 *2 SS 5 Crushed RED BRICK 10 716.3 SS 5,7, 12 Brown Sandy Clayey FILL 15 3 SS 5,7, 12 W/Traces of RED BRICK & COAL CINDERS 15 3 SS 1,1,1 Grey Sandy FILL w/SANDSTONE 20 706.3 4 SS 1,1,1 7" Seam of Fine Sandy 5 SS 1,1,2			NU	1 CP	Mc	٥d
3" COAL Cinders 5 1 SS 19 4"Fine to Med. Coarse Crushed RED BRICK 5 11,5, 5 3"Coal Cinders Gravel @ 9' 10 716.3 *2 SS 11,5, Crushed RED BRICK 10 716.3 *2 SS 5,7, Brown Sandy Clayey FILL w/Traces of RED BRICK & COAL CINDERS 15 3 SS 5,7, Grey Sandy FILL w/SANDSTONE Fragments & Gravel 20 706.3 4 SS 1,1,1 7" Seam of Fine Sandy 5 SS 1,1,2	wn Sandy Silty CLAY		nonza de la sectado			
3 COAL CINDERS 5 19 4"Fine to Med. Coarse Crushed RED BRICK 10 716.3 11,5,5 3"Coal Cinders Gravel @ 9' 10 716.3 5 5 Crushed RED BRICK 10 716.3 5 5 Brown Sandy Clayey FILL w/Traces of RED BRICK & COAL CINDERS 15 3 SS 5,7,12 Grey Sandy FILL w/SANDSTONE Fragments & Gravel 20 706.3 4 SS 1,1,1 7" Seam of Fine Sandy 5 SS 1,1,2	1	ee 10), 23,			
Crushed RED BRICK <u>3"Coal Cinders Gravel @ 9'</u> Crushed RED BRICK Brown Sandy Clayey FILL W/Traces of RED BRICK & <u>COAL CINDERS</u> Grey Sandy FILL W/SANDSTONE Fragments & Gravel 716.3 SS 11,5, 5 5 5 11,5, 5 5 12 716.3 SS 1,1,1 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 12 7 5 5 5 12 7 5 5 5 5 5 5 5 5 5 5 5 5 5	JAL CINGERS 5-	33	19	10000		
Crushed RED BRICK 10 716.3 *2 SS 5 Brown Sandy Clayey FILL 15 3 SS 5,7, W/Traces of RED BRICK & COAL CINDERS 15 3 SS 1,1,1 Grey Sandy FILL w/SANDSTONE 20 706.3 4 SS 1,1,1 7" Seam of Fine Sandy 5 SS 1,1,2						
Crushed RED BRICK Brown Sandy Clayey FILL W/Traces of RED BRICK & COAL CINDERS Grey Sandy FILL W/SANDSTONE Fragments & Gravel 7" Seam of Fine Sandy 5,7, 12 5,7, 12 706.3 4 5 5,7, 12 706.3 5 5,7, 12 5,7, 1,1,1 5,7, 5,7, 1,1,1 5,7, 5,7, 5,7, 1,1,1 5,7, 1,1,2 5,7, 5,7, 1,1,2 5,7, 5,7, 1,1,2 5,7, 5,7, 1,1,2 5,7, 5,7, 1,1,2 5,7, 5,7, 1,1,2 5,7, 5,7, 1,1,2 5,7, 5,7, 5,7, 5,7, 1,1,2 5,7,7, 1,1,2 5,7,7, 1,1,2 5,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7		SS 11	1			
Brown Sandy Clayey FILL W/Traces of RED BRICK & COAL CINDERS Grey Sandy FILL W/SANDSTONE Fragments & Gravel 7" Seam of Fine Sandy 5 SS 1,1,1 5 SS 1,1,2			~			
Brown Sandy Clayey FILL W/Traces of RED BRICK & COAL CINDERS Grey Sandy FILL W/SANDSTONE Fragments & Gravel 7" Seam of Fine Sandy 5 SS 1,1,2			7,			
COAL CINDERS Grey Sandy FILL w/SANDSTONE Fragments & Gravel 7" Seam of Fine Sandy	own Sandy Clayey FILL 15-	SS	12		17.4	
Grey Sandy FILL w/SANDSTONE Fragments & Gravel 20 706.3 4 SS 1,1,1 7" Seam of Fine Sandy 5 SS 1,1,2						
Fragments & Gravel 20 706.3 7" Seam of Fine Sandy 5 55	y Sandy FILL w/SANDSTONE	ss 1	,1,1			
	gments & Gravel 20 706.3					
		SS 1.	,1,2			

COAL CINDERS w/Gravel 30 696.3 6 SS 2,3,2	AL CINDERS w/Gravel 30 696.3 6	SS 2	,3,2		42.6	
		-				
		~~				
	unnimed		50			
Brown Sandy GRAVEL	town Sandy GRAVEL					
Grey Sandy GRAVEL 40 686.3 8 SS 2,2,2	/ Sandy GRAVEL 40 686 3 8	SS 2	,2,2			
Grey Silty CLAY In Tip	Silty CLAY In Tip					
Of Sampler Fine Grev SAND-9A 9A 9B SS 5,7,8		cc =	7 0		11.3	#9B
Fine Grey SAND-9A 9A,9B SS 5,7,8 Grey Sandy CLAY-9B 45 9 9 9		6 66	, / , 0			
SHELBY TUBE #254-1	BY TUBE #254-1					
$\frac{10}{\text{Grey SANDSTONE @ 46.4'}} 50 - 679.8 \frac{10}{579.8} \text{ ss} 65@6"$	VI 0.55 m.C.55 M.C	SS 6	5@6"			

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ALCOSAN - EPM TEAM

Project: ALCOSAN GEOTECHNI Client: ALCOSAN Boring: 255 Date Started: 6/14	/95	Pr Date	oj. No. Comp	MAW pleted:	<u>37229.</u> 6/14/9		7		
Location: 33' North of Access Ro)				*****
140# Hammer, 3.25" I.D. Auger, ELEVATIONS Ground Surface: 726.3' End of Boring: 679.5'			۷ م	WATH Vhile At Cor After 2	ER LEV Drilling npletio 24 Hou	g: 20 n: 20 Hrs 16).9'		
* Indicate Soil Description	s pH, Cr Depth		Sample No			Q	Qp	Mc	() d
Black Silty CLAY w/Gravel&Organics (TOP SOIL) Brown Silty CLAY w/Gravel & Organics		****	1		3,2,2			21.8	
	5			22	~ , ~ , ~			21.0	
COAL Cinders & Fine SAND w/gravel (FILL)	10	716.3	*2	SS	1,1 over 12"				
	15		3	SS	1,1 over 12"				
COAL Cinders & Gravel	20	706.3	4	SS	1,1,2				
Very Fine Silty Sandy Grey FILL w/Some Gravel	2 5		5	SS	1 over 12",3				
	30	696.3 [.]	6	SS	3,3,4			28.3	
Grey Sandy Silty FILL w/Gravel & Traces of WOOD	35-		7	SS	17,25, 31			29.7	
Grey Clayey SILT	40	686.3	8	SS	4,6,7		1.25	19.9	
SHELBY TUBE #255-1 PUSHED FROM 45'-46.5'	45-		9	SS	4,5,5		0.5	21.9	
SANDSTONE @ 46'9"	50 -		10		57@3"				

	Project: ALCOSAN GEOTECHNIC Client: ALCOSAN						7		nterio de la materia de la casa de	Name and a state of the state o
di ive.	Boring: 256 Date Started: 10/31									
	Location: See Location Plan			1						
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop					
	ELEVATIONS						EVELS			
	Ground Surface: 726.7				While					
	End of Boring: 688.5				At Co					
				G . 1 6.			urs:			
	* Indicates	1	l	Second seco	Sample					X
	Soil Description	Depth	Elev	No	Type	N	Qu	Cip	Mc	Дd
	6" Dense Brown Gravel FILL									
	Dk. Brown FILL w/ Gravel									
	and Coal Cinders	5 —		1	SS	8,3,				
						1,1				
		10	716.7							
			, 201 ,	*2	SS	3,4, 7,8				
	Lt. Tan SLAG FILL					1,8				
		15			SS	2,3,				
				3	- 22	2,1				
	PETROLEUM ODOR	20-	706.7					4004 million (100		
	Coal Cinder FILL		706.7	*4	SS	1,0, 1,1				
						لله و له				
		25			SS	1,1,				
	Damp Grey Clayey SILT			5	55	1,1	0.75	0.40	466	
	SHELBY TUBE #256-1,27'-29' RECOVERY = 0.0 ft					1,1,				
		30	696.7	*6	SS	1,1		0.25	59.4	
		35-								
	Wet Grey/Brown SANDSTONE w/			7	SS	9,15, 28,30				
	Fragments of Shale									
	Augur Refusal @ 38.2'	40	686.7							
		-								
		45								
			4							
		50 -								
				1	<u> </u>	L	<u>l</u>	1	<u> </u>	<u> </u>

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Project: ALCOSAN GEOTECHNIC Client: ALCOSAN						7			
Boring: 257 Date Started: 10/3	1/95 D	ate Co	mplete	ed: <u>1</u>	0/31/95	5	and the state of the		
Location: See Location Plan			4459-6044879-6844503-684480-684				alanal alanga kana sana sana alanga		
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" E	rop					
ELEVATIONS				WA ⁻	TER LE	EVELS			
Ground Surface: 727.5				While	Drilli	ng: 2	21.0'		
End of Boring: 686.5				At Co	ompleti	ion: 🗧	31.2'		
Ũ				After	24 Ho	urs: (Caved	in @	7 fl
* Indicates	s pH, Ch	loriãe,	Sulfa	ate Sar	nple Co	ollecte	ed		
Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Cp	Мс	γ
Brn. FILL w/ Coal Cinders,		ł							
Gravel, Traces of Slag, & Kiln Bricks	-								
	5								
			1	SS	1,1, 1,1				
	10	717.5			6.0				
2" Red Brick @ 11.0'			*2	SS	6,8, 11,5				
	15-		3	SS	1,1,				
			3	55	1,1				
STRONG PETROLEUM ODOR in	20	707.5	*4	SS	1,5,				
SAMPLE #4					3,9				
Black Slag & Cinders, Wet	25-		Management and the second						
Grey Clayey SILT, Wet			5	SS	1,1, 1,1	0.75	0.50	42.5	
					~/~				
SHELBY TUBE #257-1,27'-29'	30	697.5			0,0,				
RECOVERY = 2.0 ft			*6	SS	2,1			48.7	
	entendente								
	35-		energene en		18,20,				
Grey/Brown SANDSTONE w/ Shale Fragments			7	SS	19,33				
		C07 5							
Tan/Grey CLAYSTONE	40-	687.5	*8	SS	30, 55/5"				
End of Boring @ 41.0'					22/2"				
	45								
posturements	50								

Project: ALCOSAN GEOTECHNIC Client: ALCOSAN						7			
Boring: 259 Date Started: 10/3									
Location: See Location Plan	*****	1996-1977-1996-1996-1996-1996-1996-1996-					advanta politika na selenji mana na selenji mana na selenji mana na selenji mana selenji mana selenji mana sele		-
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" E	rop					
ELEVATIONS				WA ⁻	TER LE	EVELS)		
Ground Surface: 726.5					e Drillii				
End of Boring: 696.2					omplet				
					24 Ho				
* Indicates	s pH, Ch	loride	difference of the second s	1	-	ollect	ed	r	r
Soil Description	Depth	Elev	Sample No	Sample Type	[≇] N	Qu	Cp	Мс	Уd
Cinder FILL w/ Gravel		ł							
	5		1	SS					
			ىلى مەرىپىيە	55	4,4, 5,7		-		
Dk. Brown Clayey Sandy FILL	10	716.5	*2	SS	3,4,				
w/ Traces of Slag					3,3				
2" Grey Sandstone @ 15.0'	15			SS	2,1,				
- Brown Clayey SAND w/ Med.			3		2,4				
— Size Gravel Traces of Brick @ 20'									
PETROLEUM ODOR	20	706.5	*4	SS	4,7,			35.8	
Grey Clayey SILT	-				6,2				
	25-								
			5	SS	2,2, 2,3		0.0	38.5	
Grey Clayey SILT w/ Gravel					0,0				
	30	696.5	6	SS	50/3				
Grey SANDSTONE	-			1					
	-								
	35								
					nem economicale				
	40	1							
	-	1							
	45	1							
		J							
	50 -	4				L			

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ALCOSAN - EPM TEAM

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/30/95 [Date Co	omplet	ed: <u>1</u>	0/30/9	5		- Childranistany Tennest Balances aug	
	a ciclos contentini este di al 1910				At musice an according to the		0-14-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Belevine and and
, 7" O.D.	Auger,	30" I	prop					
			WA	TER LE	EVELS	3		
			While	Drilli	ng: :	21.0'		
			At Co	mplet	ion:	21.0'		
			After	24 Ho	ours:	16.1'		
es pH, Ch	loride	, Sulfa	ate San	mple Co	ollect	ed		
Depth	Elev	Sample No	Sample Type	N	a	Qp	Mc	8
	ł							
5				<i>c c</i>				
Cristman		1	SS			-		
10	715.5			2 1				
		*2	SS	1,2				
15				21				
		3	- 55	2,2				
20	705.5	*4		8 11				
			55	4,3				
25		5	SS	0,1,	0.00	0.50		
				2,2	0.68	0.50	41.1	
	040.5	*6	SS	4,6,	0- M		43.0	
	7					0.0	-5.0	
				50/3"				
40								
45								
			a fill for a second s					
	, 7" O.D. es pH, Ch Depth 1 5 1 0 1 5 2 0 2 5 3 0 3 5 4 0	, 7" O.D. Auger, es pH, Chloride Depth Elev 1 5 1 0 715.5 1 5 2 0 705.5 2 5 3 0 695.5 7 3 5 4 0 4 5	, 7" O.D. Auger, 30" I es pH, Chloride, Sulfa Depth Elev Sample 1 0 715.5 *2 1 5 3 2 0 705.5 *4 2 5 5 3 0 695.5 *6 7 3 5 7 4 0 7 4 5 7 5 7 7 7 7 7 7 7 7 7 7 7 7 7	7" O.D. Auger, 30" Drop WA' While At Co After es pH, Chloride, Sulfate Sample Depth Elev Sample Depth 7 5 10 7 15 3 20 705.5 *4 ss 25 5 5 ss 30 695.5 *6 ss 40 40 45 1 40	, 7" O.D. Auger, 30" Drop WATER LE While Drilli At Complet After 24 Ho es pH, Chloride, Sulfate Sample Or Depth Elev SampleSample N 1	WATER LEVELS While Drilling: 3 At Completion: After 24 Hours: a bepth Elev Sample Sample N Qu Depth 1 Elev Sample Sample N Qu	7" 0.D. Auger, 30" Drop WATER LEVELS While Drilling: 21.0' At Completion: 21.0' After 24 Hours: 16.1' es pH, Chloride, Sulfate Sample Collected Depth Elev Sample Sample N Qu Qp 1 5 1 5 1 5 5 2 20 705.5 *4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	7" 0.D. Auger, 30" Drop WATER LEVELS While Drilling: 21.0' At Completion: 21.0' At Completion: 21.0' Atter 24 Hours: 16.1' es pH, Chloride, Sulfate Sample Collected Depth Elev Sample Sample N Qu Qp Mc 1 5 1 5 5 5 2.1, 10 715.5 72 SS 2.1, 10 715.5 72 SS 2.1, 15 3 SS 2.1, 20 705.5 *4 SS 8.11 4.3 25 5 5 SS 0.1, 30 695.5 *6 SS 4.6, 7 5 5 SS 0.1, 30 695.5 *6 SS 4.6, 7 5 5 SS 0.1, 10 715.5 70.0 43.0

Anna an Anna Anna Anna Anna Anna Anna A

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Project: <u>ALCOSAN GEOTECHNI</u> Client: <u>ALCOSAN</u> Boring: <u>262</u> Date Started: <u>3/8</u> Location: <u>See Site</u> Plan	F	^p roj No):	an a	Read of the Contract of Long			alahan saka kacamatan	ante anti-sector de sector de s National de la Calendaria de sector de se
140# Hammer, 3.25" I.D. Auger, ELEVATIONS Ground Surface: 728.3' End of Boring: 662.8'	7* O.D. IX Rock Co		WA Whil Prior	ATER I e Dril • to Co • 24 H	ling: E bre: Di Hours:	DRY RY N/A	∍, DB =	(GF #6	
 Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Ср	Мс	₹d .
Brown Silty Clayey FILL with Gravel 2.0									
Coal Cinders, Slag, Concrete, Old Foundations	5	721.9	1	SS	ал Ала У У Ала Ала Ала Ала				
15.0		716.9	2	SS .	1,2				
Augur Refusal at 15.0, Trial #3		711.9	3	SS	50/0		-		
Three holes located within 8 feet of original location were attempted								n National Antonio National Antonio	
Trial #1 Augur Refusal at 3.0 ft	25								
Trial #2 Augur Encountered Concrete 4.0-7.0, Boring Terminated at 7.0	30								
Trial #3 Augur Refusal at 15.0	35								
	40								
	45	- sa ana adda ata ing a sa waxaa ka sa ah ya ah ya ah ya							
	disasing								

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ALCOSAN - EPM

Project: ALCOSAN					PHOG	IRAM		-		dan ing kana kana kana kana kana
Client: ALCOSAN				CONTRACTOR OF CONT		·····	an the second		december of the second	
Boring: <u>262-A</u> Date		<u>9/96 [</u>	Date Co	omplet	ed:	5/19/90)	Martin State Colonge State State	Management and	
Location: See Sit		nn na sana ang kang kanan sang kati sa s	.	ana ay a dawa ta ay a ay a ay a ay a ay a ay a ay			NATIONAL CHARGE COLONNAL COMPANY	WWW.com.org.com.eter.com		-
140# Hammer, 3.25*	I.D. Auger,	7* O.D.	Auger,							
ELEVATIONS				WA	ATER L	EVEL	S			
Ground Surface:	728.3'				e Drill					
End of Boring: 6	78.7'			0 hr	's afte	r Cori	ng: 16	6.6'		
				After	24 H	ours:	N/A			
ZZZ = Shelby Tub)e	X Rock Co	ore SS	6= Split S	Spoon S	T= Shel	by Tube	e, DB =	Diamor	nd Bit
Soil Descri	otion	Depth	Elev	Sample No	Sample Type	N	QJ	Qp	Mc	₹ ^d
6" Topsoil		-0.5 -	-			14,16				
			-	1	SS	18,8				
		5-	723.3	2	SS	1,1				
Cinders & SI	ag, FILL	-	-		55	1,0				
Bannon Steraution	9.0		-							
Dk Prowe CAND	n in an in an	110	718.3	3	SS	2,1,				
Dk. Brown SAND	~ (*VV	-	•		~~	1,1				
Benefitien Schwarz	14.0		•							
Dk. Brown Sandy GR	AVEL, Trace	1 5	713.3	4	ss	1,1,				
Clay, Wet, Slightly C	Compact GW 19.0					0,1				
Grey Clayey Gravel,										
Brown Clayey Grav	The second s	20	708.3	5	SS	1,1,				
	GW					1,1				
providenting the providence of										
Trace Cinde		25	703.3	6	SS	5,6, 16,43			.	
	- 2								÷	
	30.0									
Grey Very Fine San		30	698.3	7	SS	8,7 8,10				
Loose, Wet ML					**********	-,				
**Slight Petroleum Odd	34.01	35	693.3	8	SS	50/.1				
Grey SILTSTONE, V	1	0.0	5.5			507.1				
									-	
		40	688.3	Q	SS !	50/.1				
			000.3							
CORE INFORMATION 39.6-40.1 Grey Sandy Si			r r	(((())))						
40.1-41.1 Grey Siltston	e w/ Lime Nodule	=1.0 s,	h h							
Med. H	ard, Mod. Brkn.,1	RQD=0.34	r F	(111)	DB				a de la companya de la compa	
41.1-43.3 Grey Sandston Hard, (e w/ lime nodule: Occasionally Brk		81	(111)						
L43.3-43.7 Grey Silty Sh	ale, Soft, Broker	n, RQD=0.	0	<u> </u>						
43.7-45.5 Grey Sandy Si 45.5-49.6 Grey Sandstone	ltstone, Mod. Bri e w/ Mica Very H:	kn, Hard ard Bod-	RQD=0.65	Ľ	AGE	1 of	1			
		مديد ، دلايانة=	0.00	r	70L	, 01	1			

	Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG		PRO	GRAM				
	Client: ALCOSAN									
	Boring: 263 Date Started: 3/6	/96	Date Co	omplete	ed:	3/7/96				
	Location: <u>See Site Plan</u>				tin the interview the second	and the second				
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30° E	rop			(GF #:	3)	
	ELEVATIONS				WA	TER L	EVELS	S		
	Ground Surface: 729.4'				While	e Drilli	ing: 2	1.0'		
	End of Boring: 681.3'					omple				
	SS = SPLIT SPOON, ST = SHELBY TUBE, DE				AFTE	R 48 I			d in a	
	SHELBY TUBE	X ROCK C	ORE		1	+	dry	at	20.	.4
	Soil Description	Depth	Elev	Sample No	Sampl Type	¶ N	a	Сф	Mc	Υd
	Black CinderFILL	describer.	ł							
	w/Gravel & Slag	osturem Miccologi	-							
		5	724.4	1	SS	6,8,				
					•	9,6				
			719.4							
-			/19.4	2	SS	3,3,				
[2,2				
	- Andreas -	1 5	714.4			2,5,				
F	naukun			3	SS	15,12				
	Saufuston									
	Petroleum Odor in #4	20	709.4	4	SS	4,4				
					فيتافية	4,6				
		25	704.4							
E	Petroleum Odor in #5		704.4	5	SS	2,3, 3,4				
						2,4				
		30	699.4			1 10				
F	52.0			6	SS	1,10, 5,2				
	Grey Silty CLAY Shelby Tube #263-1, 32.0-			777	ST					
	34.0, 1.8 Recovery 34.0	35	694.4	7	SS	1,4, 7,6				
	Grey/Green SANDSTONE	Construction of				.,.				
L	Grey/Green SANDSTONE 40.0	40	600 A							
	/////	+	689.4	8	SS	1,5,				
F	Wet Very Soft Grey Silty CLAY w/Wood Fibers					23,27				
F	46.0	45	684.4			11,13				
Ļ	Brown SANDSTONE 48.0			9		12,28				
	- Grey SANDSTONE 48.1		F		SS	50/.1				
				10						

Augur Refusal @ 48.0' End of Boring @ 48.1'

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	Project: ALCOSAN GEOTECHNIC Client: ALCOSAN				PROG	RAM				an 3-7
r	Boring: <u>264</u> Date Started: <u>3/6/</u>		•	Brown 27 CONTRACTOR NOT CONTRACTOR OF CALL	ed:	3/6/96			*****	
	Location: <u>See Site Plan</u>									
	140# Hammer, 3.25" I.D. Auger,	7* O.D.	Auger,	30" D	rop			(GF #	4)	
	ELEVATIONS					TER LI		-		
	Ground Surface: 726.1					Drilli				
	End of Boring: 693.3' SS = SPLIT SPOON, ST = SHELBY TUBE, DI							23.5 : 19.5'		
	SI = SHELBY TUBE					24 1		. 19.0		
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu		Мс	Yd
	Black Cinder FILL									
	w/Gravel									
	5.0	5	721.1	1	SS	15,15				
	w/Cinders, Slag & Gravel				•	5,3				
		10	716.1		SS	1>1FT				
				2	22	1,1				
			-							
Ì	Petroleum Odor in Sample #3	15	711.1	3	SS	1>1FT 1,1				
	 — Petroleum Odor in Sample #4	20	706.1		SS	1,2				
				4	22	2,2				
	25.0	25	701.1							
	Very Soft Grey Silty CLAY	20	/01.1	5	·SS	1,2 2,3		0.0	42.0	
L				()))	ST	2,2				
ŀ	Sample Discarded	30	696.1	(//)	ST					
	Repushed Tube 29.0-31.0	_		6	SS	1>1FT				
L		35	691.1			4, 50/.2				
	Grey SANDSTONE									
F	Augur Refusal @ 32.8 FT.	40		*******						
	- End of Boring @ 32.8 FT									
		45								
					normalio vagida del collegen					
ــا - (50 -								
- 1										

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	Project: ALCOSAN GEOTECHNIC	CAL INV	<u>ESTIG</u>	ATION	PROG	RAM	-		4	
1	Client: ALCOSAN		Proj No	Constant of the second s			and a subscription of the			an a
	Boring: 265 Date Started: 3/7/	<u>96</u>	Date Co	omplete	ed:	3/8/96	allan ana ing katalah sa	nike ani kuni ya ditiki kana kana kana k		
	Location: <u>See Site Plan</u>					ada ana amin'ny soratra amin'ny s	an a		an in State and the bear and	******
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,			· · · · · · · · ·		(GF	#2)	
	ELEVATIONS				ATER					
	Ground Surface: 727.3'				le Dri	_			ı	
	End of Boring: 669.3'				Jompi	etion:				coring
	SS = SPLIT SPOON, ST = SHELBY TUBE				r 48	Hour		.5' at	ter co	oring
Г		= Shelb	Ì		Sample		1		1	
	Soil Description	Depth	Elev	No	Type	N	a		Mc	Åч
	Brown Sandy Fill w/Gravel 2.5		-					A CONTRACTOR OF		
ļ	Brown/Black Cinder &		•							
ŀ	Slag FILL	5	722.3	1	SS	2,2				
F						2,4				
		10	717.3							
			1.1.5	2	SS	4,3, 2,2		0-11-11-11-11-11-11-11-11-11-11-11-11-11		
ł						5,5				
		15	712.3			1,1				
ŕ				3	SS	1,1				
		000000000 000000000								
	No Sample #4 Retrieved	20	707.3.	4	SS	1,0				
				aad analis kaad aan san tarah kanga kanan		1,0				
	25.0	25	702.3							
	Very Soft Grey Silty CLAY	2 J	102.5	5	SS	1,1		0.00	35.8	75.8 PCF
	 Shelby Tube #265-1.	dentered to		$\mathcal{I}\mathcal{I}$	ST	-,-				
	27.0-29.0, 1.5 Recovery	30—	697.3	6	SS	1,0,		0.00	36.0	75.8 PCF
F		4944553451985 4533546995				2,2				
		onenceartra:								
-	36.0	35	692.3	7		17,20				
F	Grey/Brown Very Dense	sources				29,26			8.7	
E	SAND & GRAVEL 40.0	40	687.3							
E	Med. Coarse Brown SAND		007.3	8	SS	5,5				
						9,12			12.4	
	46.0	45	682.3			~ ~ ~ ~				
	- Dense Grev/Brown SAND & GRAVEI			9	SS	23,16 20,18			12.4	
·'	Grey SANDSTONE	48.0 —		777	DB					
	Augur R	ofucal						<u> </u>		L

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@ 48.0 FT. **PAGE 1 of 2**

				GEOTECHNIC				PROC	GRAM	Nor-Interaction Network Contracted Int	100-000-000-000-000-000-000-000-000-000	505 51 50 FM 10	1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 - 1920 -		
		Client: AL		Started: <u>3/7/</u>		-	CARGO	ad.	2/0/0		and a second		en mar fille deget i se fan de fer en filleze		
			<u>See Site</u>				unpier	cu	2/0/7	2					
	1			I.D. Auger,	7" O.D.						(0	F #2)			
			ATIONS				WATE			.					
			Surface: Boring: 6				hile D Com	-10-			ior to	corine	۲		
	<u> </u>	7 = NX Bool	k Core						1		after co		3		
S C	SS =			LBY TUBE, DB =	DIAMOND	BIT Aft	1	1	1	1	1	1			
			oil Descript	ion	Depth	Elev	Sample No	Type	N	Qu	C p	Mc	Хd		
		Grev Hard	SANDSTON												
	elonedinistration	Gre	Y SANDSTON		5 5	672.3		DB							
	******	RQD	= 0.65			074.5		1	N STATUTE AND A STATUTE AN						
	******	End o	f Boring	58.0 @ 58.0 FT.					-						
		and the former	End of Boring @ 58.0 FT. 60												
	*****	Beg	yin: 48.0	ЪŪ											
		- End	5: 58.0 FI												
Ī	****	Cor	ing Data	•											
		Depth	Time Elapsed	Pull Down Pressure						nu - supporter da la conserva	Government de anglige de desenvolution de				
		0	0:00	300 psi						ne management de la d	No. of the second s				
		5	16:00	300 psi	atmitistente en antre				a						
	nije od teoretari	6	19:00	300 psi	anatologiana anatologiana antologiana										
	*******	7	20:30	300 psi											
		8	21:40	300 psi											
		9	22:50	300 psi		000-7-11-0-2000-00-00-00-00-00-00-00-00-00-00-00									
		10	24:50	300 psi											
					ationiteititeiteiteeneen Approximisee										
	-														

Contraction of the second	*******	Wet Wet and a state of the stat	en man se antis de la companya de la												

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ALCOSAN - EPM

IGATION	PROG	RAM	107-00-00-00-00-00-00-00-00-00-00-00-00-0	1001/148/0000000000000000000000000000000	Måle Mindahan starpastan por starpast	
No:			- control of the state of the s			
Complet	ed:	5/17/96	5			
					*****	*****
er, 30" I	rop					
W/	ATER L	EVEL	S			
Whil	e Drill	ling: 1	6.0'			
O h	rs afte	r Cori	ng: 16	6.5'		
After	· 24 H	ours: (Caved	l at 1	1.5'	
SS= Split S	Spoon S	T= Shel	by Tube	, DB =	Diamor	nd Bit
ev Sample No	Sample Type	N	QJ	ф	Mc	\mathcal{F}^{d}
	-	6				
	SS	18,8				
1.8 2	SS	1,1				
		1,0				
5.8						
1.8						
					ŀ	
3	SS	2,1,				
		1,1				
4	SS	1,1,				
		0,1				
.8		1,1,				
		1,1				
	SS	5,6,				
8		16,43				
		87				
.8 7						
0 8	cc	50/1				
. 8	00					
1	1	25,38		1	1	
	No: e Complet ger, 30" I W/ Whil O hi After SS= Split S ev Sample 1 1.8 2 6.8 1.8 5.8 3 1.8	No: Completed: ger, 30" Drop WATER L While Drill O hrs afte After 24 He SS= Split Spoon S ev Sample Sample Type 1 SS 1.8 2 SS 6.8 1.8 2 SS 6.8 1.8 4 SS 6.8 1.8 4 SS 6.8 1.8 5 SS 6.8 1.8 5 SS 6.8 1.8 7 SS	e Completed: 6/17/96 ger, 30" Drop WATER LEVELS While Drilling: 1 0 hrs after Cori After 24 Hours: 0 SS= Split Spoon ST= Shell ev Sample Sample N 1 SS 14,16 1 SS 14,16 1.8 2 SS 1,1 1.8 2 SS 1,1 1.8 3 SS 2,1, 1.8 3 SS 2,1, 1.8 4 SS 1,1 1.8 4 SS 1,1, 1.8 5 SS 2,1, 1.8 6 SS 5,6, 1.8 5 SS 1,1, 1.8 5 SS 1,6,43 8 7 SS 8,7 8 7 SS 8,7	No: 6 6/17/96 ger, 30" Drop WATER LEVELS While Drilling: 16.0' 0 hrs after Coring: 16 After 24 Hours: Caved SS= Split Spoon ST= Shelby Tube ev Sample Sample N Qu 1 SS 14,16 1 SS 1,1 1.8 2 SS 1,1 6.8 1,1 1,0 6.8 1,1 1,0 6.8 1,1 1,0 6.8 1,1 1,1 1.8 4 SS 1,1,1 1.8 4 SS 1,1,1 1.8 5 SS 1,1,1 1.8 4 SS 1,1,1 1.8 4 SS 1,1,1 1.8 5 SS 5,6,1 1.8 5 SS 5,6,1 1.8 7 SS 8,7 8 7 SS 8,7 8 7 SS 8,7 8 7 SS 8,70	No: 6 Completed: $6/17/96$ ger, 30" Drop WATER LEVELS While Drilling: 16.0' O hrs after Coring: 16.5' After 24 Hours: Caved at 1 SS= Split Spoon ST= Shelby Tube, DB = ev Sample Sample N Qu Qp 1 SS 14,16 1 0 1.8 2 SS 1,1 1,0 6.8 1 1,0 0 0 6.8 1 1,0 0 0 6.8 1,1 1,0 0 0 6.8 1,1 1,0 0 0 6.8 1,1 1,1 0,1 0 6.8 1,1 0,1 0 0 6.8 1,1,1 0,1 0 0 6.8 1,1,1 0,1 0 0 6.8 1,1,1 0,1 0 0 6.8 5,6,1 1,4,3 0 0 8 7 SS 8,7 8,10	No:

PAGE 1 of 2

	ALCOSAN	V - EF	РM						
Project: ALCOSAN GEOTECHNIC	CAL INVE	ESTIG	ATION	PROC	GRAM				
Client: ALCOSAN	F	roj No);						
Boring: 266 Date Started: 6/14	<u>796</u> D	ate Co	omplet	ed:	6/17/96	5		9900-001-004-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	
Location: See Site Plan			ı						
140# Hammer, 3.25" I.D. Auger, '	7" O.D.	Auger,	. 30" I	Drop				Mananina kananga kanang	
ELEVATIONS			V	VATEF	R LEVE	LS			
Ground Surface: 726.8'			WF	nile Di	rilling:	16.0'			
End of Boring: 672.4'					After			5.5'	
End of Boring. 072.4					Hours				
Shelby Tube	K Rock Cor	e SS			ST= Shelt				
	1			Sample	1	1	1	1	
Soil Description	Depth	Elev	No	Type	N	Qu	C C P	Mc	₹d
Grey CLAYSTONE, Soft									
54.0			10						
54.4	55	671.8		SS	50/.4				
Grey/Red CLAYSTONE, Soft				Augusta and Country and					
	60—	666.8							
	_								
End of Boring @ 54.4 FT.									
	65 —		<i>.</i>						
	_								
NEW MER AND									
	50000000000000000000000000000000000000					ti she tiri v sakistare			
				LILLOUGHAN					
	_								

ALCOSAN - EPM

	Project: ALCOSAN GEOTECHNIC	CAL INVE	ESTIG	ATION	PROG	RAM				
)	Client: ALCOSAN									
	Boring: 267 Date Started: 5/28	<u>/96</u> D	ate Co	mplete	ed:	5/28/9	6			
	Location: <u>See Site Plan</u>			-						
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop					
	ELEVATIONS			WA	TER L	EVEL	.S			
	Ground Surface: 727.0'			While	e Drill	ling: ⁻	13.0'			
	End of Boring: 663.0'			Prior	to C	ore: 1	2.6',	After	Core	: 12.6'
	-			After	24 H	lours:	14.2'			
-	Shelby Tube = N	X Rock Co	re SS	= Split S	poon S	T= She	lby Tub	e, DB =	Diamo	ond Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	9	Mc	₹ ^d
F	Concrete 0.67						1	1	1	
	Slag FILL 3.5			1		11,29				
Ļ	Black Cinders, Red Bricks,	5 —	722.0	2	SS	2, 4,				
þ	Slag, FILL	639568999 610109999				2,3				
L		10	717.0	3	SS	1,4,				
E		Grandama				3,3				
F						0.0				
		15	712.0		SS	2,2, 2,2				
						-,-				
	Very Soft, Wet Grey/Black/Olive	20—	707.0	5	SS	2,1,	0 50		0000	
	SILT, Some Clay ML 20.5		10110			2,2	0.52	0.50	29.2	102 PCF
L										
F	Very Loose Grey/Black	25	702.0	6	ss	0,1,				
F	Fine Silty SAND, Wet to Moist					2,2				
	5F-5M									
	30.5	30	697.0	7	SS	9,11,				
						7,5				
┢	_	0 E -								
F	Med. Dense Brown SAND & GRAVEL	35	692.0	8		5,10, 13,15				
	- Moist to Wet	siannaiste Standiniste								
	SP	40	687.0	9	SS	15,12				
						12,12				
		45	682.0	10	SS	9,15,				
F	48.0		ſ			17				noodlaavyee
F	Grey Silty SHALE, Weathered				SS DB	50/0				
Bourouse	Moderately-Extremely Broken,			77777						

RQD = 0.15

PAGE 1 of 2

RECORD OF	r SUBS	SURF.	ACE	EXPL	ORA	TIO	N			
	ALCOSA	N - EP	M							
Project: ALCOSAN GEOTECHNI	CAL INV	<u>ESTIG</u>	ATION	PROG	RAM		de Altrian michige des actuel marc			
Client: ALCOSAN		Proj No):							
Boring: <u>267</u> Date Started: <u>5/2</u>	<u>8/96</u>	Date Co	omplet	ed:5	5/29/9	5		0.014.015.018.019.019.019.019.019.019.01		
Location: <u>See Site Plan</u>			an anna an tartain tartain a tarainne		nondati a line data a cada cada a data			-		
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,								
ELEVATIONS			V	VATER	LEVE	LS				
Ground Surface: 727.0'				nile Dr	~					
End of Boring: 663.0'				or to (er Co	ring:	12.6'
			Afte	er 24	Hours	: 14	.2'			
Shelby Tube = N	X Rock Co	re SS	S= Split S	Spoon S	T= Shel	by Tube	e, DB =	Diamon	d Bit	
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	φ	Mc	₹d	7
52.		$\frac{1}{2}$	V U	1				1		1
Grey CLAYSTONE, Soft	T		$\langle \rangle \rangle \langle \rangle$	1						
Extremely Broken, Weathered 54.	6 55	672.0	$\langle \rangle \rangle \rangle$	DB						
Grey/Red CLAYSTONE,Soft	-		$\langle \rangle \rangle \rangle$							
Moderately Broken, Weathered 59.	3 -		$\langle \rangle \rangle \rangle \langle \rangle$							
Grey Silty SHALE/SILTSTONE, Hard		667.0	$\langle \rangle \rangle \rangle$							
Occasionally Broken, RQD = 0.67			())))							
64.	165 —		$\overline{777}$							
End of Boring @ 64.0 FT.										
1 Sample of SILTY SHALE/SILTSTONE										
taken from 61' for Compression Testin	9									
Coring Data										
Tooth In										
Depth Recovery										
49.0-54.0 4.6'										
54.0-59.0 4.8'										
59.0-64.0 4.8 ¹										
				and control of the second s	*					
				v da svensk goddau						

PAGE 2 of 2

ALCOSAN - EPM

	Project: ALCOSAN GEOTECHNIC	CAL INVI	<u>ESTIG</u>	ATION	PROG	RAM	and the state of the	M Marked Market States		
•	Client: ALCOSAN	F	^p roj No							
	Boring: <u>268</u> Date Started: <u>6/3/</u>	<u>96</u>	ate Co	omplete	ed:	5/3/96		an ann an Anna		ter for the second second second second
	Location: <u>See Site Plan</u>					e në taja ke së të	alan di manangan sa		ander alle and the second s	
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,							
	ELEVATIONS					_EVEL				
	Ground Surface: 727.0'					ling: 9				
	End of Boring: 663.0'								Core	: 11.5'
						lours:				
	Sheiby Tube = N	X Rock Co	re SS	S= Split S			by Tub	e, DB =	= Diamo	ond Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	<u>a</u>	Cip	Mc	Ra
	Concrete 0.67 Brown Gravel & Sand FILL 3.0	1.0		an a						
	Black Cinders, Red Bricks, Slag, FILL	5 —	722.0	1	SS	5,7, 10,10			North Frank Control of	
			717.0	2	SS	2,3, 2,4		in man with any unit of the second	o Prody v Trideana (- o van an rema a a daaaad	
		15-	712.0	3	SS	2.2, 3,4				
	Strong Sewage Odor					0,4				
	Clayey SILT, Trace Sand ML 23.0		707.0	4	SS	0,0, 0,1	0.95	0.00	27.1	102 PCF
6	Very Loose Grey/Black Fine SAND & SILT, Wet		702.0	5	SS	0,0, 0,0				
	SP-SM	30	697.0							
	SP-SM 34.0									
ł	Very Fine Grey SAND, Wet 35.8	35	692.0	6	SS	3,4,				
Bull	Med. Coarse Brown SAND & GRAVEL, Wet SW 39.0				<i></i>	4,10				
	Dense to Very Dense Med. Coarse Brown SAND & GRAVEL, Trace	40	687.0	7	SS	8,13, 18,20				
	Sandstone, Wet 5.8 Grey Claystone, Trace Sandstone,Weath	45 <u></u>	682.0	8	SS	7,18				
414	Grey Silty SHALE, Weathered	ereu	F	9 /////	SS	50/.4				
ŀ	Moderately-Extremely Broken.	NUMERAL CONTRACTOR	t t	III)	DB					
	RQD = 0.20			and and a second se						

PAGE 1 of 2

	ALCOSAN	7 - EP	M							
Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG	ATION	I PROG	RAM					
Client: ALCOSAN	F	Proj No): 							
Boring: 268 Date Started: 6/3.	<u>/96</u>	Date C	omplet	ted:	6/3/96		interiori de la composición de la comp		a managangan gangan	
Location: See Site Plan		an and a state of the	4.9.0.00 (10.000) (10.000)							
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger	, 30" 1	Drop						
ELEVATIONS			V	VATER	LEVE	LS				
Ground Surface: 727.0'	While Drilling: 0.01									
End of Boring: 663.0' Prior to Coring: 15.6, After Cor								oring:	11.5	
3.			Aft	er 24	Hours	: 15.3	3'			
Shelby Tube = N	X Rock Col	re SS	S= Split \$	Spoon S	T= Shel	by Tube	e, DB =	Diamon	d Bit	
Soil Description	Depth	Elev	Sampl No	eSample Type	N	Qu	Qp	Mc	Ra	
51.9		+	$\overline{///}$	1				1	+	1
			()))]						
Grey/Red Silty CLAYSTONE,Soft Extremely Broken, Weathered	55	672.0	())]						
			()))	DB						
Grey SHALE w/ Lime Nodules,			())	}						
Med. Hard, Fissured at 59.0 Grey Sandy SHALE,Extremely	60	667.0	())]						
	\$ 1.0		())							****
Grey Silty SHALE/SILTSTONE, Hard	distantion of		$\Delta D D$	3						The second s
Occasionally Broken, RQD = 0.95	65 —				1					
End of Boring @ 64.0 FT.				17-11-12-12-12-12-12-12-12-12-12-12-12-12-						
1 Sample of SILTY SHALE/SILTSTONE										
taken from 62' for Compression Testing										
				ovidee-even on the first state of the state						
Coring Data										
Depth Recovery										
46.4-51.4 3.7'										
51.4-58.0 4.8'										
58.0-64.0 5.7'										
		:								
austropolations and a state of the state of	**************************************									

ALCOSAN - EPM

A	LCUSAN	- 111 111								
Project: ALCOSAN GEOTECHNIC	CAL INVE	ESTIG	ATION	PROG	IRAM	•	Materian (a midentra mana			
Client: ALCOSAN		roj No							arona da su a companya da mangana di para su a su a companya da su a companya da su a companya da su a company	
Boring: 269 Date Started: 5/31	<u>/96</u> D	ate Co	omplete	ed:	5/31/90	6			****	
Location: <u>See Site Plan</u>						0.0000.2000.0000.0000.0000.0000.000	and a subscription of the			
140# Hammer, 3.25" I.D. Auger,	7° O.D.	Auger,				_				
ELEVATIONS	WATER LEVELS									
Ground Surface: 727.0'	While Drilling: 15.5'									
End of Boring: 662.9'	Prior to Core: 14.6', After Core: 1							: 14.6		
					lours:					
= Shelby Tube = N	X Rock Co	re SS	S= Split S	Spoon S	T= Shel	by Tub	e, DB =	Diamo	nd Bit	
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Qp	Mc	₹ _d	
Concrete 0.9										
	approximation of the second se									
Black Cinders, Red Bricks,	5	722.0	1	SS	10, 4,					
Slag, FILL	40000000				4,5					
	10	717.0	2	SS	4,3,					
and a second s					2,3					
Maraneous and a second and	15	712.0	3	SS	1,1,					
					3,3					
19.5										
Vary Soft Wat Croy/Plack/Oliva	120	707.0	4	SS	1,1,	1.00	0.75	35.2	HO2 PCF	
Very Soft, Wet Grey/Black/Olive Clayey SILT, Some Sand ML 24.0				ST	Recov	ery =	1.7 ft		an a	
Clayey SILT, Some Sand ML 24.0			5	SS	0,0,					
Very Loose Grey/Black	25	702.0			1,1					
Fine Silty SAND, Wet to Moist										
SP-SM 30.5	30	697.0	6		1,4,					
Brown Silty SAND w/ some Gravel		097.0		SS	3,2					
An instructional and a second and										
SP-SM 35.0	35	692.0	7	SS	2,1,					
33.0			8		3,6		u-lo-i-threatign			
of American Street St					14,17, 28,25					
	40	687.0			20,25					
V.Fine, V. Dense, Med. Coarse Brown SAND, Some Gravel										
SP	*******									
46.5	45	682.0	9/10	SS	5,7,					
				SS	12,10					
Grey Silty SHALE, Weathered			())))	~	50/0					
Extremely Broken, RQD = 0.00			$\overline{7777}$	D8			1			

ALCOSAN - EPM

	Project: ALCOSAN GEOTECHNIC Client: ALCOSAN	F	roi No	:						automore and a second	
*	Boring: <u>269</u> Date Started: <u>5/31</u> Location: <u>See Site Plan</u> 140# Hammer, 3.25* I.D. Auger, 5	a gang mang a the second state of the second	n niesos andresis z na vežkala			>/31/96		tagen and a State of Carlow Street Press		enderstelsenterse waard ooraa. Normanische stelstelsenterstaanse	
	ELEVATIONS			V	VATER						
	Ground Surface: 727.0'				ile Dr or to (or Co	ring	11 61
	End of Boring: 662.9'				er 24					nng.	14.0
	Shelby Tube = NX	(Rock Cor	e SS	s= Split S	Spoon S	T= Shelb	y Tube	, DB =	Diamono	d Bit	-
	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	60	Mc	₹d	
	51.6 Grey/Red CLAYSTONE,Soft to Med. Hard, Moderately Broken, Weathered 56.0		672.0		DB						
	Grey Silty SHALE/SILTSTONE, Very Hard, Occasionally Broken, RQD = 0.95	60-	667.0								
	End of Boring @ 64.0 FT.	65									a form of a proposition and a first start whether the start of a marrier
9	1 Sample of SILTY SHALE/SILTSTONE taken from 61' for Compression Testing										
	Coring Data	00000000000000000000000000000000000000									
	Depth Recovery										
	49.6-54.1 3.7'										
	54.1-64.1 10.0'										
A											
		contrinuer.com									
Å Å		145303344 07903450			a ya kata kata kata kata kata kata kata						

ALCOSAN - EPM

Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN Boring: 270_ Date Started: 5/29/96 Location: See Site Plan 140# Harmer, 3.25* I.D. Auger, 7* 0.D. Auger, 30* Drop ELEVATIONS Ground Surface: 727.0' End of Boring: 663.0' Soli Description Depth Soli Description Depth Soli Description Depth Elev Annows, Wet Fill 10- 717.7 Very Loose, Wet Grey/Black/Olive Clarey, Silly Very Fine SAND SM 30.0 30.0 30.0 30.0 30.0 30.0 Ser P-SM 30.0 Ser Size Ser 7.2 Ser 7.8 Grey/Brown Fine SAND, Wet SP - Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet SP 40 687.0 8 SP 40 687.0 8 SP 5 5.8											
Client: ALCOSAN Proj No: Boring: 220_Date Started: 5/29/96 Date Completed: 5/29/96 Location: See Site Plan Namer, 3:25 r. D. Auger, 7" 0.D. Auger, 30" Drop 1404 Hammer, 3:25 r. D. Auger, 7" 0.D. Auger, 30" Drop WATER LEVELS Ground Surface: 727.0' While Drilling: 17.0' End of Boring: 663.0' Prior to Core: 11.5', After Core: 14.5 Matter 24 Hours: 14.8 Matter 24 Hours: 14.8 VZZI = shelby Tube SSI = NX Rock Core SSE Split Spoon ST= Shelby Tube, DB = Diamond Bit Soil Description Depth Elev SampleSample N Bleck Cinders, Red Bricks, 5 - 722.0 1 cs 2, 11. Siag, Loose, Wet FILL 10 - 717.0 2 ss 1, 2, 3. Very Loose, Wet Grey/Black/Olive 20 - 707.0 77.0 55 1, 2, 3. Clayey, Sitty Very Fine SAND 20 - 702.0 5 55 1, 1, 2 0.0 28.4 Grey/Brown Fine SAND, Wet 30.0 30 - 697.0 6 55 1, 2 7, 8 1 Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet 35 - 692.0 7 55 5, 8 5, 8 5, 8		Project: ALCOSAN GEOTECHNIC	CAL INVI	ESTIG	ATION	PROC	<u>ARAM</u>	salisspectry in space states and a	and the second		
Location: <u>See Site Plan</u> 140# Hammer, 3.25* I.D. Auger, 7* 0.D. Auger, 30* Drop ELEVATIONS Ground Surface: 727.0' End of Boring: 663.0' End of Boring: 663.0' <u>Varter 24 Hours: 14.8</u> <u>VZZJ = Shelby Tube</u> <u>SNN = NX Rock Core</u> <u>SSS split Spoon ST= Shelby Tube, DB = Diamond Bit</u> <u>Soil Description</u> <u>Depth</u> <u>Elev</u> <u>Sample N</u> <u>Qu</u> <u>Qp</u> <u>Mc</u> <u>Xd</u> <u>Concrete</u> <u>0.8</u> <u>Black Cinders, Red Bricks,</u> <u>Siag, Loose, Wet Grey/Black/Olive</u> <u>10.777.0</u> <u>2</u> <u>sS</u> <u>2.3</u> , <u>17.7</u> <u>Very Loose, Wet Grey/Black/Olive</u> <u>20.771.0</u> <u>4</u> <u>SS</u> <u>1.2.3,8</u> <u>ST Recovery = 0.0 ft</u> <u>Grey/Brown Fine SAND SM</u> <u>30.0</u> <u>30.6697.0</u> <u>6</u> <u>sS</u> <u>1.2.788</u> <u>1.2.7888</u> <u>1.2.78888</u> <u>1.2.78888</u> <u>1.2.7888888768888888888888888888888888888</u>		Client: ALCOSAN	F	^p roj No				E-100011-1000-000-000-000-000-000-000-00			
Location: <u>See Site Plan</u> 140# Hammer, 3.25* I.D. Auger, 7* 0.D. Auger, 30* Drop ELEVATIONS Ground Surface: 727.0' End of Boring: 663.0' End of Boring: 663.0' <u>Varter 24 Hours: 14.8</u> <u>VZZJ = Shelby Tube</u> <u>SNN = NX Rock Core</u> <u>SSS split Spoon ST= Shelby Tube, DB = Diamond Bit</u> <u>Soil Description</u> <u>Depth</u> <u>Elev</u> <u>Sample N</u> <u>Qu</u> <u>Qp</u> <u>Mc</u> <u>Xd</u> <u>Concrete</u> <u>0.8</u> <u>Black Cinders, Red Bricks,</u> <u>Siag, Loose, Wet Grey/Black/Olive</u> <u>10.777.0</u> <u>2</u> <u>sS</u> <u>2.3</u> , <u>17.7</u> <u>Very Loose, Wet Grey/Black/Olive</u> <u>20.771.0</u> <u>4</u> <u>SS</u> <u>1.2.3,8</u> <u>ST Recovery = 0.0 ft</u> <u>Grey/Brown Fine SAND SM</u> <u>30.0</u> <u>30.6697.0</u> <u>6</u> <u>sS</u> <u>1.2.788</u> <u>1.2.7888</u> <u>1.2.78888</u> <u>1.2.78888</u> <u>1.2.7888888768888888888888888888888888888</u>	r	Boring: 270 Date Started: 5/29	<u>9796</u>	ate Co	omplete	əd:	5/29/9	6	and the second secon		
WATER LEVELS WATER LEVELS Ground Surface: 727.0' End of Boring: 663.0' Prior to Core: 11.5', After Core: 14.5 Matter 24 Hours: 14.8 VIII = Shelby Tube Set = NX Rock Core SSE Split Spoon STE Shelby Tube, DB = Diamond Bit Soil Description Depth Elev Sample Sample N Qu Qp Mc Md Black Cinders, Red Bricks, 5 722.0 1 SS 2, 11, 8 9 9 9 9 9 0 9 Mc Md Black Cinders, Red Bricks, 5 722.0 1 SS 2, 11, 8 9							and the second statement of the second s	iene stalie and a sector of calebook	Ni Kulo w Webging and Succession	n to she have been a strong of the strong	1075-00111000-0-005-000-0-0-0-0-0-0-0-0-0-0
LEEVATIONSGround Surface: 727.0' End of Boring: 663.0'While Drilling: 17.0' Prior to Core: 11.5', After Core: 14.5 After 24 Hours: 14.8VZZZ = Shelby TubeShelby TubeShelby Tube. DB = Diamond BitSoil DescriptionDepthElevSample SampleN QuQuM \overline{C} Black Cinders, Red Bricks, Slag, Loose, Wet FILL5722.02SS $2, 11.$ NQUQMQQM \overline{C} Very Loose, Wet Grey/Black/Olive Clayey, Silty Very Fine SAND S M Grey/Brown Clayey SILTM20707.0Z3.024.0707.0Z3.029.4Grey/Brown Clayey SILT Med. Dense to Dense Brown SAND & GRAVEL, Moist to WetSPS1.1.2. S7.20.029.4Med. Dense to Dense Brown SAND & GRAVEL, Moist to WetSPSPS30.0S5.1.2. 7.830.0S5.1.1. S1.1.2-0.029.4		140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,							
End of Boring: 663.0' End of Boring: 663.0' Frior to Core: 11.5', After Core: 14.5 After 24 Hours: 14.8 $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		ELEVATIONS						-			
After 24 Hours: 14.8ZZZ = Shelby TubeSign and the system of th		Ground Surface: 727.0'					965 1				
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		End of Boring: 663.0'							After	Core	: 14.9'
Soil Description Depth Elev Sample Nb Qu Qp Mc X d Concrete 0.8 - </td <td></td> <td></td> <td></td> <td>~~</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>				~~						-	
Concrete 0.8 Type No Type N Cut		Shelby Tube N = N	X Rock Co	re 55 I	apata ana ana ana ana ana ana ana ana ana	-		iby lub t	e, DB =	Diamo	nd Bit
Black Cinders, Red Bricks, Slag, Loose, Wet FILL 5 722.0 1 SS 2, 11, 8,9 10 717.0 2 SS 2,3, 4,3 15 712.0 3 SS 1.1,2,2 15 707.0 4 SS 1,2,3,8 Recovery = 0.0 ft 20 707.0 5 SS 1,1,1, 1.2 Grey/Brown Clavey SILT ML 24.0 702.0 5 SS 1,1,1, 1.2 - 0.0 29.4 - Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet 30.0 30 697.0 6 SS 1,2, 7,8 - 0.0 29.4 - 40 687.0 8 ss 4,7, - - 0.0 29.4 -		Soil Description	Depth	Elev		Sample Type	¶ N	Qu	Cp	Mc	₹ _d
Slag, Loose, Wet FILL $10 - 717.0$ 2 35 $8,9$ $10 - 717.0$ 2 55 $2.3, 4.3$ $15 - 712.0$ 3 55 $1,1,2,2$ 12.0 3 55 $1,2,3,8$ Netropy Loose, Wet Grey/Black/Olive $20 - 707.0$ 55 55 $1,1,2,2$ Clayey, Silty Very Fine SAND $5M$ $20 - 707.0$ 55 55 $1,1,1$ Grey/Brown Clayey SILT ML $24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 25.5 - 702.0 - 5 - 555 55 1.1, 1, 2 - 0.0 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 -$		Concrete 0.8							1		
Slag, Loose, Wet FILL $10 - 717.0$ 2 35 $8,9$ $10 - 717.0$ 2 55 $2.3, 4.3$ $15 - 712.0$ 3 55 $1,1,2,2$ 12.0 3 55 $1,2,3,8$ Netropy Loose, Wet Grey/Black/Olive $20 - 707.0$ 55 55 $1,1,2,2$ Clayey, Silty Very Fine SAND $5M$ $20 - 707.0$ 55 55 $1,1,1$ Grey/Brown Clayey SILT ML $24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 24.0 - 25.5 - 702.0 - 5 - 555 55 1.1, 1, 2 - 0.0 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 - 29.4 0.0 -$		· · · · ·									
$\frac{10}{10} - \frac{717.0}{2} SS = \frac{2.3}{4.3}$ $\frac{10}{4.3} SS = \frac{1.1.2.2}{4.3}$ $\frac{15}{712.0} \frac{3}{3} SS = \frac{1.1.2.2}{4.3}$ $\frac{15}{712.0} \frac{3}{3} SS = \frac{1.1.2.2}{4.3}$ $\frac{15}{712.0} \frac{3}{3} SS = \frac{1.1.2.2}{1.2.3,8}$ $\frac{15}{707.0} \frac{707.0}{5} SS = \frac{1.1.2}{1.2} - \frac{0.0}{10} 29.4 - \frac{100}{10}$ $\frac{30.0}{5} SP = \frac{30.0}{5} SP = \frac{30.0}{5} SP = \frac{100}{5} S$			5 —	722.0	1	SS					
$\frac{17.7}{17.7}$ Very Loose, Wet Grey/Black/Olive Clayey, Silty Very Fine SAND SM "STRONG PETROLEUM ODOR" Grey/Brown Clayey SILT ML 25 Grey/Brown Fine SAND, Wet SP-SM Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet SP $\frac{30.0}{5}$ $\frac{30.0}{5}$ \frac		Slag, Loose, Wet FILL	scentier scentier				8,9				
$\frac{17.7}{17.7}$ Very Loose, Wet Grey/Black/Olive Clayey, Silty Very Fine SAND SM "STRONG PETROLEUM ODOR" Grey/Brown Clayey SILT ML 25 Grey/Brown Fine SAND, Wet SP-SM Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet SP $\frac{30.0}{5}$ $\frac{30.0}{5}$ \frac					1997/09/29/29/29/20/20/20/20/20/20/20/20/20/20/20/20/20/						
$\frac{17.7}{17.7}$ $\frac{17.7}{17.7$				717.0	2	SS	5				
$\frac{17.7}{Grey/Brown Clavey Silt Very Fine SAND SM}$ $\frac{17.7}{Grey/Brown Clavey Silt ML}$ $\frac{20}{30.0}$ $\frac{30.0}{30.0}$ $\frac{30.0}{30}$ $\frac{30.0}{697.0}$ $\frac{1.1}{5}$ $\frac{1.2}{5}$ $\frac{1.1}{1.2}$ $\frac{1.1}{1$											
$\frac{17.7}{Grey/Brown Clavey Silt Very Fine SAND SM}$ $\frac{17.7}{Grey/Brown Clavey Silt ML}$ $\frac{20}{30.0}$ $\frac{30.0}{30.0}$ $\frac{30.0}{30}$ $\frac{30.0}{697.0}$ $\frac{1.1}{5}$ $\frac{1.2}{5}$ $\frac{1.1}{1.2}$ $\frac{1.1}{1$			15	712.0	3	~~	4 4 0 4				
Very Loose, Wet Grey/Black/Olive Clayey, Silty Very Fine SAND STRONG PETROLEUM ODOR** $20 - 707.0$ STRecovery = 0.0 ft23.023.023.023.023.023.024.05SS1.1,1,Grey/Brown Clavey SILTML24.025 - 702.05SS1.2,-0.029.4Grey/Brown Fine SAND, Wet SP-SM30.030 - 697.06SS1.2,-0.029.4Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet35 - 692.07SS6,6,5,85,84,040 - 687.08SS4,7,555,8 </td <td></td> <td>17.7</td> <td></td> <td>/</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		17.7		/							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		ระหวดสาวการการการการการการการการการการการการการก			$\overline{}$						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			20—	707.0	<u> </u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Recov	ery = (.0 π		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		**STRONG PETROLEUM ODOR**	23.0 -								
Grey/Brown Fine SAND, Wet $2.0 - 702.0$ $1.2.0$ 30.0 30.0 $30 - 697.0$ 6 $5S$ $1.2.0$ Med. Dense to Dense Brown SAND & GRAVEL, Moist to Wet $35 - 692.0$ 7 SS $6.6.0$ SP $40 - 687.0$ 8 SS $4.7.0$		Grey/Brown Clayey SILT ML	24.0		5	SS			0.0	29.4	****
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		Grey/Brown Fine SAND, Wet	23-	702.01			1,2				
Med. Dense to Dense Brown SAND & 35 692.0 7 SS 7,8 GRAVEL, Moist to Wet 35 692.0 7 SS 6,6, 40 687.0 8 SS 4,7,			ana								
Med. Dense to Dense Brown SAND &		30.0	30	697.0	6	55	1,2,				
GRAVEL, Moist to Wet 35 692.0 7 SS $6, 6, 5, 8$ 40 687.0 8 SS $4, 7, 7$			noviciamia inconstan	ŀ			7,8				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				Ļ							
			35-	692.0	7	SS					aqosa Artes A good and a
						SS	5,8				
			10-	~~~ ~ +	0		47				
				007.0	<u> </u>	SS					
	F		Kanakaring a								
45-682.0 9 SS 12,12			45	682.0	9						
47.5			*********		4.0	1					
Weathered Grey Claystone 49.0 - 10 SS 50/0		Weathered Grey Claystone 49.0		k		1	50/0				
		Grey Silty SHALE, Weathered			1111			l		<u>l</u>	

Grey Silty SHALE, Weathered Extremely Broken, RQD = 0.00 PAGE 1 of 2

Project: <u>ALCOSAN GEOTE</u> Client: <u>ALCOSAN</u>											
Boring: 270 Date Started	: 5/29	9/96 D	ate Co	omplete	ed:	5/29/96	5				
Location: See Site Plan	-			*			MoinenactumSimtraficultum				
140# Hammer, 3.25" I.D. A	uger,	7" O.D.	Auger,								
ELEVATIONS					VATER						
Ground Surface: 727.0'					ile Dr						
End of Boring: 663.0'					or to (er Co	ring:	14.9
	·				er 24						
Shelby Tube	$\mathbf{N} = \mathbf{N}$	X Rock Cor	re SS		Spoon S	สู่หลางการการการการการการการการการการการการการก	by Tube	e, DB =	Diamono 1	Bit	T
Soil Description		Depth	Elev	Sample No	Sample Type	N	a	Cp	Mc	1 d	
	51.5	· · · · · · · · · · · · · · · · · · ·	•	\overline{M}							
Grey CLAYSTONE,Soft, We		55	672.0								
	55.4		072.0	$\langle \rangle \rangle \langle \rangle$	DB						
Red CLAYSTONE,Soft, Wea				())							
Grey Silty SHALE/SILTSTONE,	60.0 Very	60	667.0	()))							-
Hard, Occasionally Broken,				$\langle \rangle \rangle \rangle$							
<u>ROD = 0.95</u>	64.0	65 —		7777							
End of Boring @ 64.0 FT											
	•										
1 Sample of SILTY SHALE/SILTS taken from 63' for Compression											
Coring Data					demund biotra , ch were ne						
Depth Recov	ery										
49.0-59.0 8.7	t										
59.0-64.0 4.9	1								Mark Alaka di Kalandari Kalandari Kalandari Kalandari Kalandari		
Control Contro		_									
		_									
		_									
							l				

/3.	LCOSAN	* £11A	X						
Project: ALCOSAN GEOTECHNIC	AL INVE	ESTIG/	ATION	PROG	RAM				
Client: ALCOSAN	F	roj No):		_				54199945848395979999599999999999999999999
Boring: 271 Date Started: 5/30	<u>/96</u> D	ate Co	omplete	ed:	5/30/9	5			
Location: <u>See Site Plan</u>	an a	and the second state of th			and in the indian				
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop					
ELEVATIONS			WA	TER L	EVEL	S			
Ground Surface: 728.0'				e Drill	0				
End of Boring: 662.0'			Prior	to Co	ore: 1	4.6',	After	Core	: 14.6'
-			After	24 H	ours:	12.2'			
Shelby Tube = N	X Rock Col	re SS	6= Split S	Spoon S	T= Shel	by Tube	e, DB =	Diamo	nd Bit
Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Ср	Mc	Υ _d
Augured Directly to 49.0 Ft				4					
Weathered Grey Claystone 47.5-49.0 49.0				Augur					
Grey Silty Shale, Extremely	50	678.0	$\overline{\partial}$						
Broken, Soft, RQD = 0.0 51.7 Grey Limestone, Hard, Mod. Broken									
RQD = 0.17 53.6									
Grey CLAYSTONE, Soft,	55—	673.0							
Mod. Broken				DB					
Red/Grey CLAYSTONE, Soft 61.9		668.0							
Grey SILTSTONE w/Limestone			$\langle \rangle \rangle \rangle$						
Nodules, Mod. Broken, Hard 63.8	65—	663.0							
Grey Silty SHALE, Hard,			7777						
Blocky, RQD = .90 66.0	olimones				40 Million address				
	70-								
									e Al-Silvieri av van de de
			n 11 martin 440 ang						
			-						
Americana and a second and a									norte estate spinolet de
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	Unication								
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	conservation			u vitil de la constante de la constant				Second Second	
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ALCOSAN - EPM

Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG	ATION	PRO	GRAM				
Client: ALCOSAN		^p roj No							
Boring: 272 Date Started: _6/6	/96 [Date Co	mplete	ed:	6/7/96				
Location: See Site Plan									
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop					
ELEVATIONS					LEVEL	S			
Ground Surface: 725.6'			While	e Dril	lling: 1	17.2			
End of Boring: 664.5'					After C		14.8'		
End of Doning. Conto					lours:				
= Shelby Tube	IX Rock Co	se SS			ST= Shel		DR -	Diamo	nd Rit
	1		Sample	1	1	1	, <i>00 -</i>		
Soil Description	Depth	Elev	No	Type	4 N	Qu	C p	Mc	ð,
Verv Dense Brown Gravel, Some Sand	40.5 -	+	$+ \underline{\leftarrow}_1$	SS	50/.5				
Blue/Green Slag, Hard	-3.0 -	•	-						
	5	720.6	2	SS	13, 13				
Grey Gravel & Sand, Some Silt,					12,11				
- Dense, Damp									
	10	715.6	• 3	SS	3,4,				
-6" Black Shale Fragments 10.5 - 11.01		1 2010		00	4,2				
F/Med. Coarse Brown SAND & GRAVE		710.6	4	SS	1,2,				
Moist, Slightly Compact				50	1,13				
	- 20	705.6	5	SS	3,5				
Black Sandy SILT w/ WOOD, Wet	automatic attention			~~	20,10				
PETROLEUM ODOR 24.0) -								
6* Fine Black SAND,wet, 24-24.5	125	700.6	6	SS	4,7,				
Bik. CINDERS.SLAG. & WOOD	25.8 _				9,4				
Grey/Black GRAVEL&SAND,Wet	29.0 _								
Soft Grey SILT, Trace Sand ML 30.0	30	695.6	7	SS	2,1,	dada sasar		40.5	-
F/Med. Grey SAND, Slightly Compact,					2,3				
— Moist SP									
35.6	35	690.6	8	SS	2,10,				
Grey Sandy GRAVEL, Wet GW					7,6				
	40	685.6	9	SS	28,28				
wet SW-SM					29,39				
43.3									
Brown SANDSTONE, Weathered	45.2 -	680.6	10	SS	81,60 111				
	45.2								
			-11	SS	50/.1				
Grey Silty SHALE, Extremely Broken, Med. Hard, RQD=0.0		<u> </u>	<u>UUU</u>	DB					

Med. Hard, RQD=0.0

PAGE 1 of 2

	Project: ALCOSAN GEOTECHNIC	CAL INVE	ESTIG,	ATION	PROG	RAM	****			
6	Client: ALCOSAN	F	Proj No	:						
9	Boring: 272 Date Started: _6/6/	<u>96</u> D	ate Co	mplet	ed:	5/7/96				
	Location: <u>See Site Plan</u>		accessing and a second seco						-	
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	rop					
	ELEVATIONS			V	VATER	LEVE	LS			
	Ground Surface: 725.6'			Wh	ile Dr	illing:	17.2'			
	End of Boring: 664.5'			At	0 Hrs	After	Corir	ng: 14	1.8'	
				Afte	er 24	Hours	: 15.	.0'		
	Shelby Tube = N	X Rock Cor	e SS	i= Split S	Spoon S	T= Shell	oy Tube	, DB =	Diamon	d Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	a	Ср	Mc	R.
	51.1		Ì	\overline{M}	5					
	Grey SILTSTONE,Med. Hard,Mod. Broken,Many 30 deg. Cracks,Lime			()))						
	Nodules @ 55.5ft,RQD=0.17	55	670.6	$\langle \rangle \rangle \langle \rangle$]					
	56.9			$\langle \rangle \rangle \langle \rangle$	DB					
l	Grey CLAYSTONE,Soft,Mod. Broken			$\langle \rangle \rangle \rangle$	ş.					
	60.0	60	665.6	()))						
ŀ	Red/Grey CLAYSTONE, Soft, Occassionally Broken 61.1			handrade and her						
ŀ										
ł		65 —								
L	End of Boring @ 61.1 FT.									
ť										
F										
1										
ł	Coring Data									
F	Depth Recovery									
F	49.1-56.1 6.7'									
F	56.1-61.1 4.0'									
F		Salis Avenue								
		01044010000000000000000000000000000000								
			rgana ili kanadoni kati ka							
				in this is not over						
L										
F										
L										



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Project: ALCOSAN GEOTECHNIC	<u>CAL INV</u>	ESTIG/	AHON	PHOG	<u>iHAM</u>	a contrato anti di Childrefa da contrato si su			
	F				5/12/04		****		
Boring: 273 Date Started: _6/13	<u>/96</u> L	Date Co	omplete	ed:	0/10/90	<u>)</u>			Neinterneinteleinen sin die vorm
Location: <u>See Site Plan</u>		<u></u>	~~ ~ ~	denine-sid-sasin-side and an os		1971 - TALIA IL MANDA AND AND AND AND AND AND AND AND AND		2011-20-000-00-00-00-00-00-00-00-00-00-00-00	
140# Hammer, 3.25" I.D. Auger,	/" O.D.	Auger,			EVEL	c			
ELEVATIONS									
Ground Surface: 725.0'					ling: 1 After C		7 0'		
End of Boring: 666.0'					ours:		1.2		
	V Dank Or				ST= Shel		DR-	Diamo	nd Rit
Shelby Tube = N	X Rock Co T	1	T	1			, <u>DD -</u>		
Soil Description	Depth	Elev	Sample No	Type	N	Qu	Cp	Mc	<i>V</i> _d
Brown Gravel & Sand	1.0 =	+	1	SS	6,15,				
Grey/Black FILL, w/ Gravel & Slag		•			12,14				
	5 —	720.0	2	SS	8,10				
	50050000	•			4,14				
9.0									
Brown Sand, Gravel, Slag	10	715.0	3	SS	2,4,				
Trace Cinders, FILL	and a second sec				5,8				
NOTE: Difficult auguring	10000000000000000000000000000000000000								
from 11.0 -19.0 ft.	15	710.0	4	SS	5,5 6,8				
GW					0,0				
19.0		705 0							
Black Gravel & Sand, Med. Dense,	20	705.0	5	SS	5,5, 5,5				
Wet, Trace Slag									
GW	25-	700.0	6	SS	6,5				
NOTE: Large cobbles returned to					3,2				
surface by augur when head was									
at 29 ft	30	695.0	7	SS	2,7,				
33.0					15,12				
Very Dense Brown Gravel, Some SAND	35-	690.0	8	SS	16,19 24,20				
					24,20				
40.0	40	685.0	9	~~					
		0.680	3	SS	3,5,6 16			20.2	
Wet, Dense ML 44.0									
Hard Grey/Brwn GRAVEL, some Sand	45	680.0	10	SS	12,35				
	-		Roller		37,41				
GW			Bit						
			7777	DB					

	RECORD OF				EXPL	ORA	TIO	N		
		ALCOSAN								
	Project: ALCOSAN GEOTECHNIC				PROG	RAM		gaganiana dan katalan tagan kana	an a	10.1210.000.000.000.000.000
	Client: ALCOSAN				r /	112/06		na se angelin na shine dha ing gana	-	
	Boring: 273 Date Started: 6/13	<u>196</u> D	ate Co	omplete	ed:	0/13/90		and the second secon	ladan profilizi di mati ingenera	ana da se su
	Location: See Site Plan	-		204 5		1412-1512-1412-1412-1412-1412-1412-1412-	alan on al it is which it is a			
	140# ####er, 3.25" I.D. Auger,	7" O.D.	Auger,			LEVEI	C			
	ELEVATIONS					illing:				
	Ground Surface: 725.0'					After			21	
	End of Boring: 666.0'					Hours:				
	= Shelby Tube = N	X Rock Cor	e 55			T= Shelt			Diamon	d Rit
		1	1	-	Sample	1	1	1	1	
	Soil Description	Depth	Elev	No	Туре	N	Qu	C.p	Mc	8d
	Grey SILTSTONE, Med. Hard-Hard			$\langle \rangle$						
	Extremely Broken, RQD = 0.10 54.0			$\langle \rangle \rangle \langle \rangle$						
] 55	669.0	())))	DB					
	Grey SILTSTONE, Hard Occasionally Broken, RQD = 0.40			()))						
	59.0	1		$\overline{}$						
	End of Boring @ 59.0 FT.	60	665.0							
		65 —								
	NOTE: 7" Sample of SILTSTONE									
85.	taken from 58 ft for testing									
	Coring Data									
	Depth Recovery									
	49.0-59.0 10.0'									
ŀ	ala ay kanala da ay kanala ay k									

		5000000							1	
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ALCOSAN - EPM

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	Project: ALCOSAN GEOTECHNIC				PROG	RAM			n milit standarfyr a niw fan synarst	
	Client: ALCOSAN	F			a sina kata kata kata kata kata kata kata ka	5215-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-07-01-0	nip)e/idouariinininensimense			Walter Compton conversions
	Boring: 274 Date Started: 6/13	<u>196</u>	ate Co	omplete	ed:	6/13/96	-)			
	Location: See Site Plan				99 g - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 - 19 2 -			den film film in the second state at a second state of the second state of the second state of the second state		
	140# Hammer, 3.25" I.D. Auger, '	7" O.D.	Auger,	30" E	rop					
	ELEVATIONS			WA	TER 	EVEL	S			
	Ground Surface: 725.0'			Whil	e Dril	ling: 1	8'			
	End of Boring: 677.5'			At 0	hrs A	After C	ore:	10.2'		
				After	24 H	ours:	15.3'			
	= Shelby Tube = N	X Rock Co	re SS	s= Split S	Spoon S	ST= Shell	oy Tube	e, DB =	Diamor	nd Bit
	Soil Description	Depth	Elev	Sample	Sample	1 N	Qu	~		X
		Debu		No	Type	14	<u> </u>	Сф	Mc	δ _d
				1	SS	12,14				
	Grey/Black FILL, w/ Gravel & Slag					12,18				
	Red Bricks in sample #2	5 —	720.0	2	SS	6,7				
						9,11				
	9.0									
	Brown Sand, Gravel, Slag	10	715.0	3	SS	6,7				
	Trace Cinders, FILL GW					9,14				
		15	710.0	4	SS	12,9				
	SP 19.5					9,6				
	F/Med. Brwn SAND Some Gravel,We									
		[°] 20—	705.0	5	SS	2,5				
	Black Cinders w/Slag, med. Sand					7,9				
	& Gravel GP 25.0									
	Very Dense Grey/Brown	25	700.0	6	SS	10,18				
	SANDY GRAVEL, Wet					27,17				
	Ture 0									
	30.5	30	695.0	7	SS	6,7, 6,5				
	Med. Coarse Grey SAND w/ Gravel, Trace Clay,Med. Dense, Wet SM 34.0					0,0				
	GRAVEL,Dense,Wet, Trace SAND	35	690.0	8	SS	10,11				
	GRAVEL, Dense, Wei, Trace SAND					7,8				
	40.0									
		40	685.0	9	SS	4,7,8				
	Silt, Wet, Dense SM					13				
	44.0 Hard Grey/Brwn GRAVEL, some Sand SP			10		30,60		TUTARROLANA JANA		
		45	680.0	10	SS	44,66				
	Carroscono proces ni cita or sample #10									
	CLAYSTONE, Soft	ennesher								
1										

Augur Refusal @ 47.5 ft

ALCOSAN - EPM

		ALCUSAT								
	OSAN GEOTECHNIC	<u>al inve</u>	ESTIG/	ATION	PROG	RAM			ala ang kalang kalang kang kang kang kang kang kang kang k	
Client: ALC	OSAN							ana ana amin'ny sorana amin'ny sorana amin'ny sorana amin'ny sorana amin'ny sorana amin'ny sorana amin'ny sora	and a stand of the state of the s	1942-1940-1941-1941-1941-1941-1941-1941-1941
	Date Started: _6/12	<u>/96</u> D	ate Co	mplete	ed: <u> </u>	5/12/90)	ing of the second s		
	ee Site Plan						******			
	3.25" I.D. Auger, '	/" O.D.	Auger,				0			
ELEVAT	IONS									
	urface: 725.5'					ling: 1 After C		15 7		
End of Bo	ring: 667.5'					ours:		15.7		
		V Daak Ca				ST= Shel		DR -	Diamor	nd Rit
		X Rock Co	Ī		Sample			l		
Soil	Description	Depth	Elev	No	Type	N	â	Cp	Mc	₹d
Gri	avel, Sand, FILL	1.0 _								
— •										
	Sand, Gravel, Slag, FILL e to Hard, Dry to Moist	5 —	720.5	1	SS	7,9,9				
V. Dens	e to hard, Dry to Moist					24				
Auguring		10	715.5	2	SS	14, 7, 5,5				
- nr		-				0,0				
Difficult	Red Bricks in #3	4 E	710.5	3		12,12				
		15-	/10.5	3	SS	7,50				
	20.0	20—	705.5	4	SS	6,4				
Med. Den	se GRAVEL, Wet GP 24.0				Bad" Bad"	5,3				
ElMod Coo	rse Blk.SAND,Dense,Wet									
	ed Brick & Wood SP	25	700.5	5	SS	0,0,0,0				
	27.0	uti dana		6		1,1,				
LIG. GRAVEL	L, Loose, Wet GP 30.0			0	SS	2,3				
		30	695.5							
GRAVEL,Son	ne Sand, Very Dense, Wet	(15)18(5)1								
	GP	35	690.5	7	SS	21,11				
						13				
	40.0	40	685.5	8		13,16,				
GRAVEL	e Brown/Tan SAND & SP-SM					13				
	44.0									
	Dense Grey/Brown NDSTONE & Gravel	45	680.5	9 Roller	SS	55,30	Address How address			
Gr SA	48.0			Bit	TAT					
•		49.0 -	ŀ	$(\Pi \Omega)$	DB					
	SILTSTONE, Weathered, Ext ILTSTONE, Moderately Bro					GE 1	-		k.	

Grey SILTSTONE, Moderately Broken, Med. Hard-Hard Some Interbedded Clay at 55.8, RQD = 0.27

	RECORD OF	SUBS	URF	ACE	EXPI	ORA	TIOI	N		
		ALCOSAN								
	Project: ALCOSAN GEOTECHNIC				PROG	RAM			N Martin Contractor Contractor	NGO MERCINA AND AND AND AND AND AND AND AND AND A
	Client: ALCOSAN		roj No			5/10/06		970 (0.000) (0.000) (0.000) (0.000)	-	*****
60°	Boring: <u>276</u> Date Started: <u>6/12</u>	<u>796</u> D	ate Co	ompiete	ea:)/12/90	ana ang na mang	ang ber an an a star of the	Kanada ang kang kang kang kang kang kang kang	***
	Location: <u>See Site Plan</u> 140# Hammer, 3.25" I.D. Auger,	ם איק	Auger.	30" T	rop			*****	tin de la companya d	
	ELEVATIONS	, 0.2.				LEVE	_S			
	Ground Surface: 725.5'	*		Wh	ile Dr	illing:	15.5'			
	End of Boring: 667.5'			At	0 Hrs	After	Corir	ng: 15	5.7'	
	2			Afte	er 24	Hours:	15.	.8'		
	= Shelby Tube = N	(Rock Cor	e SS			T= Shelb	y Tube	, DB =	Diamono	d Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	QJ		Mc	2ª
	Grey SILTSTONE,Moderately Broken,		•	$\langle \rangle \rangle$						
	Med. Hard-Hard,Some Interbedded Clay at 55.8, RQD = 0.27			$\langle \rangle$	DB				-	
		55	670.5	()))						
	57.8	58.0 -		\overline{U}						
	Grey LIMESTONE, V. Hard,	60								
	Occassionally Broken									
		65								
	End of Boring @ 58.0 FT.									
	<u>Corino Data</u>	******								
	. Depth Recovery									
	48.0 - 58.0 8.9 ft								 [
ŀ										
-		Winterdokat Kacheronikat								
				der er om en operationen men gaar aan de ser op een o op een op eeen op een op een op een op een op een op						
		antinansa asimoneka								
		antanan an								
ŀ							оголободарумалады			
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ALCOSAN - EPM

		ALCUSA	v - Cr	M						
	Project: ALCOSAN GEOTECHNIC	CAL INVE	ESTIG	ATION	PROC	BRAM		and a state of the		
	Client: ALCOSAN		^p roj No):						
	Boring: 277 Date Started: 6/6/	<u>96</u>	ate Co	omplete	ed:	6/6/96				
	Location: <u>See Site Plan</u>				*****		NE GEMENDER WAR DE GRAAMME			
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30* E	rop					
	ELEVATIONS			WA	ATER I	_EVEL	S			
	Ground Surface: 724.0'					ling: 1				
*	End of Boring: 661.0'					After C		12.8'		
						ours:				
pres	Shelby Tube = N	X Rock Co	re SS	S= Split S	Spoon S	ST= Shell	by Tube	, DB =	Diamo	nd Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Ср	Мс	R ^d
	Cement, Sand, Gravel, Slag, FILL	1.0 _		1	SS	49, 57 29,37	5			
	V. Dense to Hard, Dry to Moist	5 —	719.0	2	SS	50/.4				
		10	714.0	3	SS	4,12, 9,40				
		15-	709.0	4	SS	1,5, 10,24				
	Black Cinders, FILL, Loose, Wet					10,24				
	Loose, Wet, Grey Sandy GRAVEL, Traces of Wood SP 24.0	20	704.0	5	SS	1,2				
	Traces of Wood SP 24.0 F/Med. Coarse Brn.SAND,Dense,Wet	500000000 500000000								
H	Menelatana Melaniana ang Pangana ang Pa	^{24.5} —	699.0	6	SS	22,21				
	 GRAVEL,SAND,SLAG,& CEMENT V. Dense,Wet S P 	decacana antiquena				34,19	******			
	29.0									
	Black Cinders, FILL, Loose, Wet	30	694.0	7	SS	1,9,				
	Med. Dense, Wet, Cinders 34.0					16,15				
F	Med.Dense,F/Med. Brwn. SAND SP 35.0									
	GRAVEL, Dense, Wet, Trace SAND	35	689.0	8	SS	1,2, 15,17				
	GP 38.5			-9						
		40	684.0		SS	50/.2				
	 Very Dense GRAVEL w/ Sand & Sandstone fragments, wet GP 									
	udger									
	44.7 Grey SANDSTONE, Weathered	45	679.0	10	SS	90, 50/.5				
	- Grey Silty SHALE, Extremely Broken,	40.2 -				207.5				
	- RQD=0.0		ł.		DB					
looutetor				7777		and the second	and the second]

PAGE 1 of 2

	RECO)RD OF	SUBS	URFA	ACE 1	EXPL	'ORA'	TIOI	N		
			ALCOSAN								
	Project: ALCOSAN GEC	TECHNIC	AL INVE	ESTIG	ATION	PROG	RAM	11.2000/11.0000/11.0000/0000000000000		unter de Malancia Colasi de casa de de	ninateleviteskoetaan
-	Client: ALCOSAN		F	roj No	5 000000000000000000000000000000000000						-
	Boring: 277 Date Star		<u>96</u> D	ate Co	mplete	ed:6	/6/96		a dan tanàna kaominina dia	1997 - C. 1	
	Location: See Site Pla								an a	ossanaoissa maisa magazina ang kana sa	a analogic activity and a state of
	140# Hammer, 3.25" I.D	. Auger,	7" O.D.	Auger,				0			
	ELEVATIONS					ATER					
	Ground Surface: 724	4.0'				ile Dr			a: 10	0	
	End of Boring: 661	1.0'				0 Hrs er 24				0	
	Shelby Tube	<u> </u>	(Rock Cor	e SS		spoon S				Diamono	d Bit
	Soil Description		Depth	Elev	Sample No	Sample Type	N	QJ	Gp	Mc	Яď
					$\langle \rangle \rangle \rangle$						
	Grey Silty SHALE,Med. Extremely Broken, RQD				())))						
		56.0	55	669.0	$\langle \rangle \rangle \rangle$	DB					
	Grey CLAYSTONE,Soft		instantion		((((
	Extremely Broken				(((((
		62.0	60	664.0	((((
	Red CLAYSTONE, Soft	63.0			$\overline{700}$						
			65 —								
		、									
	End of Boring @ 63.0	J F I.									
			beninan be beninan belance bester bes								
	<u>Coring Data</u>										14990001100
	Depth Re	ecovery									
	45.0-51.0	2.5'									
	51.0-56.0	4.6'									
	56.0-61.0	0.0'	A DECEMBER OF								
		0.0	*******								
	61.0-63.0	0.8'									



		ALCOSA	N - Er	M						
	Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG/	ATION	PROC	GRAM			an She Navata and She and She and She at the	1455 Martin Contractory
	Client: ALCOSAN	F	Proj No):				NV-MAX-COVER-24-WHERE		
	Boring: 278 Date Started: 6/7/	<u>96</u>	Date Co	omplete	ed:	6/10/9	5	Sitti deletto por essentaro ano		manananananananananananan
	Location: See Site Plan	1001 1991 1991 1991 1991 1991 1992 1993 1993				*******		The concentration of the second second		
	140# Hammer, 3.25" I.D. Auger,	7* O.D.	Auger,							
	ELEVATIONS					LEVEL	_			
	Ground Surface: 724.6'					ling: 1				
	End of Boring: 664.1'					er Cori		2.5'		
						ours:				
	Shelby Tube = N	X Rock Co	ore SS		yona and a second second second	ST= Shel	by Tube	e, DB =	Diamo	nd Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	¶ N	Qu	Cp	Мс	Х ^д
ŀ	Very Dense Brown Gravel,Some Sand	0.5 _	1	\leftarrow_1	SS	3, 50/.3				
F	Cement, Gravel, Sand,	3.0 —	-							
F		5	719.6	2	SS	16, 22 16,17	,			
	ad vance		•							
			•							
L	1	10-	714.6	3	SS	7,4,37 50/0				
-	- 5			A		5070				
F				<u></u>	SS	50/.2				
Ľ	1 7.2	15	709.6							
F	Brown Sand&Gravel, Slag,FILL		•							
	20.5	20-	704.6	5	SS	8,6,				
ļ	Black Clayey SILT w/Cinders, Wet 🔺				فساقينا	2,2				
-	Wood in Sample #5 MH									
F		25	699.6	6	SS	1,1,2,2	4		45.2	
E		26.5 -		7		No Reco	- 1			
	Grey/Black Silty SAND, some Gravel,Wet ML 30.0				SS	13,12 4,3				
Ļ	**************************************	30-	694.6	8	SS	9,16,				
F	Grey/Black GRAVEL & SAND, Med. Dense,Wet	entrestante freedomine				9,15				
H	GP-GM 35.0	35—	689.6							
F	Brown Sandy GRAVEL, Wet		002.0	9	SS	13,15				
F	Very Dense GW	antistaine				12,17				
	41.0	40	684.6			= 0				
	Reddish Brown SANDY GRAVEL,	entisiakee ditiamaage		10	SS	5,8, 13,12				
	Dense, Moist, Some SILT SM	45005050000								
	45.8	45	679.6	11	SS	22 50				2000
F	Blue/grey SANDSTONE, Weathered	Rosinosome				32,56, 85				и
F	Augur refusal at 50.0	25-27-96-96 25-27-96-96								
Les							<u> </u>			

	RECORD OF	r SUBS	URF.	ACE	EXP	LORA	TIO	N			
	ALCOSAN - EPM Project: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Boring: 223 Date Started: 6/72/96 WATER LEVELS WATER LEVELS Mater Cat Hours: 11.0' Selby Tube Started: Started: Started: 50 Soil Description Depth Elev Starter Levels Starter S										
ana 12	ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM Client: ALCOSAN Proj No: Boring: 278 Date Started: 6/7/96 Location: See Site Plan 140# Harmer, 3.25* I.D. Auger, 7* O.D. Auger, 30* Drop ELEVATIONS WATER LEVELS Ground Surface: 724.6' While Drilling: 19.5' End of Boring: 664.1' At 0 Hrs After Coring: 12.5' After 24 Hours: 11.0' Image: Solid Description Depth Elev Sample Sample N Qu Qp Mc Xd Grey/Red CLAYSTONE,Med. Hard 56.5 669.6 DB DB DB DB Grey/Red CLAYSTONE,Soft 60.5 664.1 DB DB DB DB Get At 1 DB DB DB DB Get At 1 Get At 1<										
						an a		filebari kana sana sa kana sa kana sa	and the second second second		
	Boring: 278 Date Started: 6/7	<u>/96</u>	ate Co	omplet	ed:	6/10/9	5	Mantan Tille Geräckentren ein angebyen		alatine maintaine anna an a	
			-				979-407-1280-404-140-140-140-		and the second	NG NG STREAM STREAM STREAM ST	-
		7* O.D.	Auger,				10				
								ŧ			
									2 51		
	End of Boring: 664.1								0		
	= Shelby Tube = N	X Rock Cor	e SS						Diamor	id Bit	
	Soil Description	Depth	5	afree and the second	Sample	1					6000
		Depin	LICV	No	Type			φ		bv l	
	Grey SILTSTONE.Med. Hard			())	1						
				())	1						
	56.5	55-	669.6	()))	DB			-			
		1 =		()))							
		60-	CC4 4								
	End of Boring @ 60.6 ET		004.1								
		65 —									
											and commencement of the second
											AT A R A R A R A R A R A R A R A R A R A
	Coring Data										and the second se
	Depth Becovery										
	50.0-55.0 4.3'										and the second second
	55.0-60.5 5.5'			condition with the start							
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ALCOSAN - EPM

	ALCOSA									
Project: ALCOSAN GEOTECHNI	CAL INV	ESTIG,	ATION	PROG	RAM	the man also successive states and successive		aline Contention and a particular	-	
Client: ALCOSAN	F	⊃roj Nc) (*****	and share the second			
Boring: <u>279</u> Date Started: <u>6/1</u>	0/96 [Date Co	omplete	ed:	5/11/96	5			and the second secon	
Location: See Site Plan	an a	and a state of the								
140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" D	rop						
ELEVATIONS	ELEVATIONS WATER LEVELS									
Ground Surface: 725.5'			While	e Dril	ling: 1	16'				
End of Boring: 669.5'			0 hr	's afte	er Cori	ng: 1	1.0'			
			After	24 H	ours:	11.0'				
= Shelby Tube	VX Rock Co	ore SS	S= Split S	Spoon S	ST= Shel	by Tube	e, DB =	Diamo	nd Bit	
Soil Description	Depth	Elev	Sample No	Sample Type	₹ N	Qu	Qp	Мс	₹d	
Very Dense Brown Gravel,Some Sand	10.5 -	+			2,3,					
Slag, Gravel, Sand, Glass,	3.0 —	*	1	SS	3,2					
Bricks, FILL	5	720.5	2	SS	8, 11,					
Large Cobbles Returned to surface				50	8,10					
by auger 9.0		-								
	10	715.5	3	SS	3,4,					
		-			4,6					
Brown Sand&Gravel,					4					
Med. Dense, Moist	15	710.5	4	SS	3,4,					
SP SP					5,6					
19.		•								
Grey Sand & Gravel, Wet	20	705.5	5	SS	2,5					
SP-SM					3,5					
24.0	none automatic		6		5,.4,					
PETROLEUM ODOR	25	700.5	6	SS	5,20				er er order vok den men	
Black Cinders & Slag, some Gravel,Wet	26.5									
29.5		695.5	7	SS	8,20,				ooste uit verkaansooste	
Grey/Brown GRAVEL & SAND,		000.0	,	00	20,33					
Very Dense. Dense,Wet										
GW 35.5	35-	690.5	8	SS	13,13					
Fine/Med. Brown SAND, Trace					10,14					
GRAVEL, Dense, Wet SM 39.5							:			
Blue/grey SANDSTONE & Gravel,	 40──	685.5	9	SS	4,40, 42,53					
Weathered										
SP SP	estativities									
46.0	45-	680.5	10	SS	50,56, 66,					
White SANDSTONE. Hard 46.3			(11)		50/.2				An a disconfiguration of the	
Grey Silty SHALE, Weathered Med. Hard, Extremely Broken			())))	DB						
RQD=0.0		L	17777		<u> </u>					

PAGE 1 of 2

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	4	ALCOSAN	v – EF	°М						
	Project: ALCOSAN GEOTECHNIC	AL INVI	ESTIG	ATION	PROC	BRAM	del manistri - des abis a daries	un en		
	Client: ALCOSAN									
NINT N	Boring: 279 Date Started: 6/10	<u>/96</u> D	ate Co	omplet	ed:	6/11/96	5			
	Location: See Site Plan									
	140# Hammer, 3.25* I.D. Auger, 7	7" O.D.	Auger,	30" I	rop					
	ELEVATIONS					LEVE	LS			
	Ground Surface: 725.5'			Wh	nile Di	rilling:	16'			
	End of Boring: 669.5'			At	0 Hrs	After	Corir	ng: 1	1.0'	
	End of Doring. 000.0			Afte	er 24	Hours	: 11	.0'		
	= Shelby Tube = NX	Rock Cor	e SS	S= Split S	Spoon S	T= Shelt	oy Tube	e, DB =	Diamon	d Bit
Γ		1	Elev		Sample		a	1	Mc	₹d
	Soil Description	Depth	Elev	No	Type			P		Va
F	Grey SILTSTONE W/ Interbedded	51.0 —		$\langle \rangle \rangle \rangle \langle \rangle$						
F	clay seams, Med. Hard, Extremely			$\langle \rangle \rangle \rangle \langle \rangle$	DB					
	to Moderately Broken, RQD = 0.13 56.0	55		$\langle \rangle \rangle \langle \rangle$						
F	any principal matrix and the second		669.5			1. The second				
E	End of Boring @ 56.0 FT.				araina kata ang pang					
\vdash		60								
F										
\vdash	And Provide State State	65 —								
C										
,	year Counted ages									
F										
\vdash	Coring Data									
	Depth Recovery	65								
	46.0-51.0 2.6'									
	51.0-56.0 4.5'									
F										
	waaroodooloo									
F										
						(construction)	And the second se			

		ALCOSA	N - EP	M						
	Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG	ATION	PROC	GRAM			a de la composition d	
	Client: ALCOSAN		^p roj No		lan antoning the state of the state of the	and the second	1999 - T. S. K. M. S			
	Boring: 280 Date Started: _6/14	<u>1/96</u> [Date Co	pmplete	ed:	6/14/9	5	a culture del constant presidente del	an esterni con una care apocarca	
	Location: <u>See Site Plan</u>		and the second secon				n da Tanahar manang manang mang mang mang mang mang			
	140# Hammer, 3.25" I.D. Auger,	7* O.D.	Auger,							
	ELEVATIONS					LEVEL				
	Ground Surface: 726.8'					lling: 1				
	End of Boring: 665.8'					er Cori				· • **
						lours:				•
	Shelby Tube = N	X Rock Co	ore SS			ST= Shel	by Tube	, DB =	Diamo	nd Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	e N	Qu	Cp	Мс	Ra
	4" Asphalt Pavement	0.3 —	-	1	~~	13,11				
	Cinders & Slag	2.0 _	-	1	SS	8,8				
	Brown Gravel, Slag,	5 —	721.8	2	SS	3,3				
	Sand, Bricks, FILL	1000000				2,3				
		disposed manipular								
	Bricks returned to surface	10	716.8	3	SS	5,4				
	by augur during drilling.					3,3				
	Wood in Sample #4	15	711.8	4	SS	5,4 6,7				
						0,.				
	19.0	20	706.8	5		4,4,				
	Very Loose Black Cinders, Wet		/00.0	S	SS	1,1				
						1.0				
	No Sample #6 Retrieved	25-	701.8	6	SS	4,2, 1,2				
	Traces of Bricks & Slag in #7			7	22	2,2,				
						1,1				
	30.0	30	696.8	8	SS	2,3,			35.6	
	Grey Silty SAND, Wet, Trace ML	619364894 835632648				3,2	l			
	Coal Cinders, Slightly Compact									
	35.0	35	691.8	9		16,15, 19,17				
		anisteday								
	Grey/Brown Sandy GRAVEL, Very Dense SP					14,16				
	SP	40	686.8	10	SS	21,20				
•										tabura washoo may carata a
		45			~~	40,55				
ľ	47 F	4 J	681.8		SS	60				
4	Grey SILTY SHALE. Weathered,	nemininkineris optimizationis		7777						ya wakana ya ku
) t	Extremely Broken		k	$\overline{700}$	DB					
8°										

	ALCOSAN	- EP	M						
Project: ALCOSAN GEOTECHN	VICAL INVE	ESTIG	ATION	PROG	RAM		en sin ministration international con		ang tanàné ng kang kang kang kang kang kang kang k
Client: ALCOSAN		^v roj No);				-	-	interfetitionen aussaulute
Boring: 280 Date Started: _6/	<u>14/96</u> D	ate Co	omplete	ed:6	17/96	5	apaula materia da Balada da	an a	Americanonalogioge
Location: <u>See Site Plan</u>					under den state fan de skriver of st	ier mit oberen af det en inder state de s	uradu Malandari Madamiani ka		Constantino and
140# Hammer, 3.25" I.D. Auger	, 7" O.D.	Auger,							
ELEVATIONS				VATER					
Ground Surface: 726.8'				ile Dr	-				
End of Boring: 672.4'				0 Hrs					
				ər 24					
= Shelby Tube	NX Rock Cor	e SS	-	Spoon S	••••••••••	y Tube	, DB =	Diamono	d Bit
Soil Description	Depth	Elev	Sample No	Sample Type	N	Q	Qp	Mc	₹d
		ļ	()))						
			$\langle \rangle \rangle \rangle$						
Grey CLAYSTONE, Soft	57.5	671.8	$\langle \rangle \rangle \langle \rangle$	DB		-			
Grey SILTSTONE,Med. Hard, Moderately Broken, RQD = 0.10			$\langle \rangle \rangle \rangle \langle \rangle$						
Moderately Broken, HQD = 0.10			\sim						
	60	666.8	$\overline{\nabla}$						
Grey LIMESTONE, Very Har	rd, 01.0								
Occassionally Broken, BQD = 0.22	65 —								
End of Boring @ 61.0 FT.			-						
End of Boring @ 61.0 FT. 5.5" sample of Limestone									
taken for testing from 60 ft									
Coring Data									
Depth Recovery									
47.5-56.8 No Recover	-								
47.5-56.6 NO HECOVEL	y								
57.7-61.0 3.0'									

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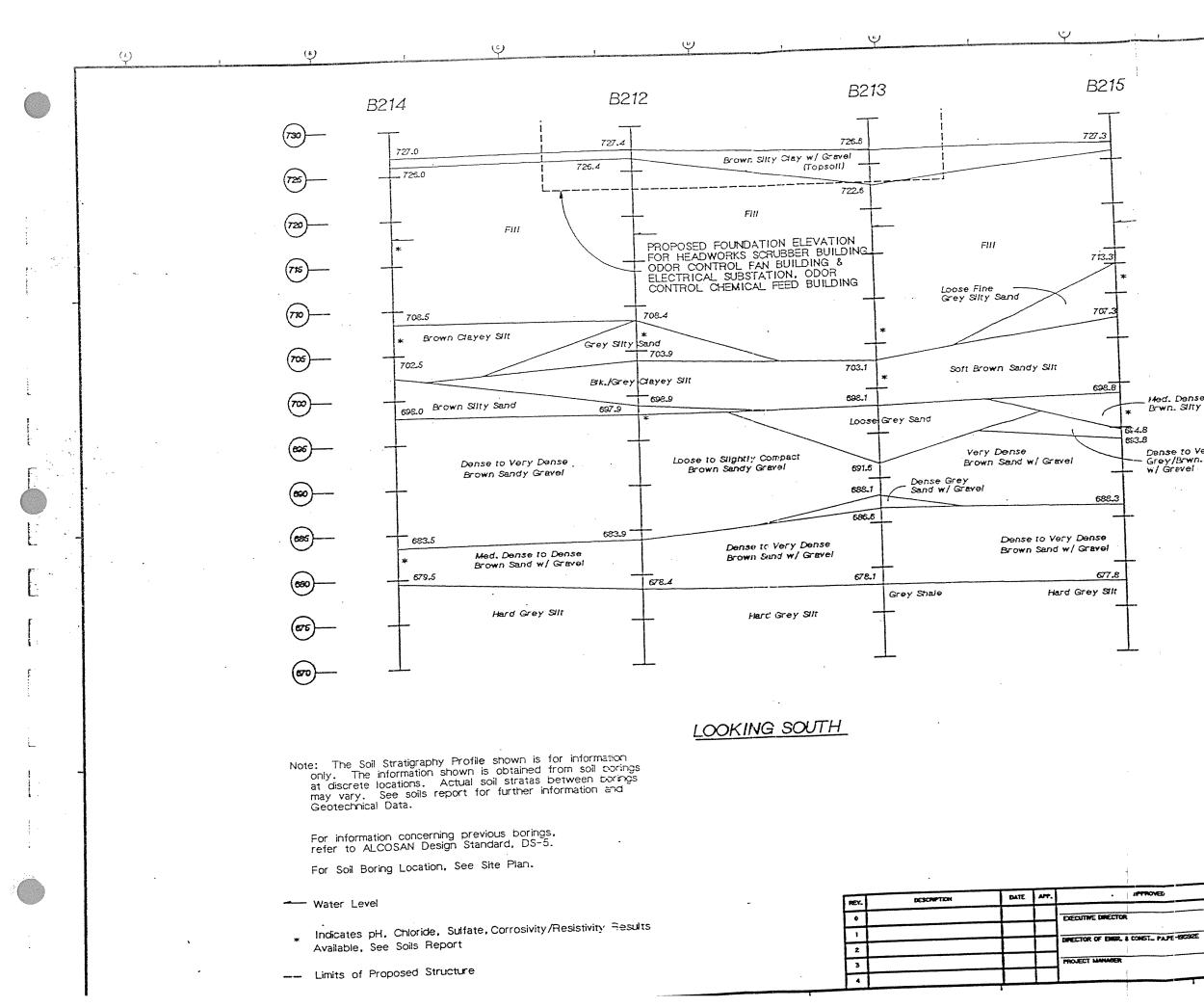
		ALCOSA								
	Project: ALCOSAN GEOTECHNIC	CAL INV	ESTIG	ATION	PRO	GRAM			10000000000000000000000000000000000000	
	Client: ALCOSAN		Proj No):			undan kunstalaki ettek aleman engi			10000001100010000000000000000000000000
	Boring: 281 Date Started: 6/11	/96 [Date Co	omplet	ed:	6/11/96	5	-		in Minde confidence and
	Location: See Site Plan				ng ga paga di patro da tina da tina da					and the second
	140# Hammer, 3.25" I.D. Auger,	7" O.D.	Auger,	30" I	rop					
	ELEVATIONS			WA	\TER	LEVEL:	S			
	Ground Surface: 725.7'			Whil	e Dri	lling: 1	8'			
	End of Boring: 665.7'			Οhι	rs afte	ər Cori	ng: 1	2.6'		
	-			After	· 24 ŀ	lours:	12.0'			
	= Shelby Tube = N	X Rock Co	ore SS	S= Split S	Spoon	ST= Shell	by Tube	e, DB =	Diamo	nd Bit
ſ	Soil Description	Depth	Elev	Sample	Sampl	e N	a			
	Soli Description	Depin	LIEV	No	Type		<u> </u>	Cap	Mc	βd
Ē				1	SS	1,7,				
F	Brown Gravel, Slag,		•			12,10				
	Sand, Bricks, FILL	5 —	720.7	2	SS	12, 7, 5,5				
ŀ			•			5.5				
┢										
ľ	10.0	10	715.7	3	SS	1,8,				
þ	Fine/Med. Coarse Brown SAND SP		•			3,3				
Ŀ	w/ Gravel, Slightly Compact, Moist	14.0 —								
F	Grey/Brwn Clayey SAND&GRAVEL, Dam	^p 15	710.7	4	SS	9,9,			16.1	
	SM					7,8				
L	Black Slag, Cinders, Sand, FILL									
ŀ		20	705.7	5	SS	7,9				
ł			•			8,4				
Ļ	24.0	ennoidean								
Ĺ	V. Fine Grey/Black Silty SAND, Moist, Slightly Compact	25	700.7	6	SS	2,3,				
L	analasian 2 MI									
	3" SILT Seam @25.0, Q _p = 1.0 30.0	~~				3,5,				
F	Dense Brown SAND, Some Gravel	30	695.7	7	SS	7,8				
þ	CD CH									
┢		35—	690.7	8	SS	7,13,				
F	V. Dense Brown GRAVEL, Wet		090.7		22	13				
F	GW 39.0	40005059998 10079504498								
	MLGrey Sandy SILT, Firm, Moist 40.5	40	685.7	9	~~	6,7,				
F	Grey/Brown SANDSTONE & Gravel,		000.7		SS	10,14		1.00	21.2	
F	Trace Silt, Dense	contractore one-constante								
	SM 45.0	4 5	680.7	10	SS	19,31,				
L	Very Dense SANDSTONE & Gravel	• • • • • • • • • • • • • • • • • • •	555.7			44				
-	- GP			-11						
	Grey SILTSTONE, Extremely Broken				SS	50/.2				

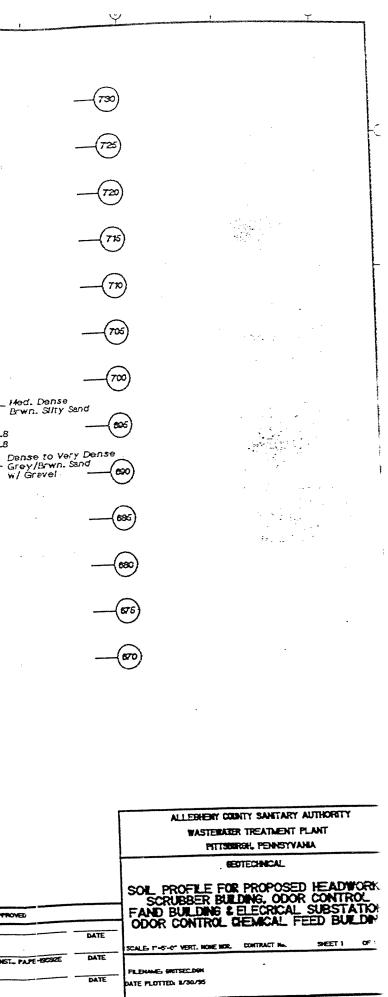
RECORD OF A REACE EXPLORATION

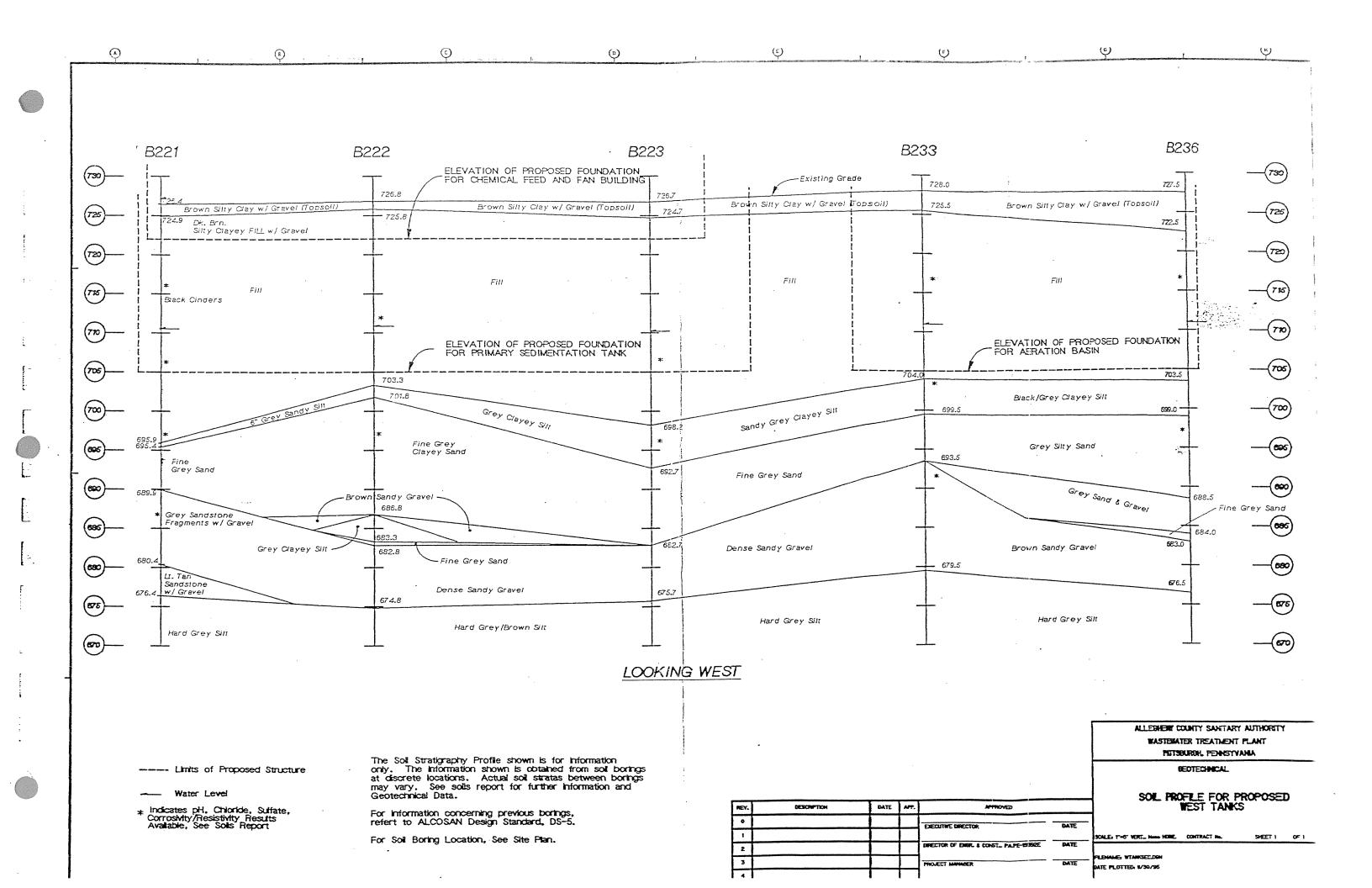
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* ^{ela} = .	Project: ALCOSAN GEOTECHNIC	CAL IN /	EST	ION	PROG	RAM				
										The life of the life in the life of the li
J	Project: ALCOSAN GEOTECHNICAL IN /EST Client: ALCOSAN EDUINT: 251_DateStarted: _6/11/5:Proj N Boring: 251_DateStarted: _6/11/5:D 3 Cc Docation: See Site Plan D 3 Cc Dieted: _6/11/96 Location: See Site Plan 140# Hammer, 3.25* I.D. Auger, 7* 0.D. Auger, 30* Drop ELEVATIONS Ground Surface: 725.7' End of Boring: 665.7' WATER LEVELS While Drilling: 18.0' At 0 Hrs After Coring: 12.6' After 24 Hours: 12.0' After 24 Hours: 12.0' EXID = Shelby Tube ISS = Shelby Tube, DB = Diamond B Soil Description VZZ = Shelby Tube Grey SILTSTONE W/ Interbedged clay seams, Med. Hard, Extremely To Adderately Broken, RDD = 0.03 60.0 Ss. Spite SSS Spite Noderately Broken, RDD = 0.03 60.0 Ss. Spite SSS Spite N QL Docassionally Broken, RDD = 0.37 655		RENGINITERINA COME							
	Location: See Site Plan					distantico estaco en concesso de conces				
	140# Hammer, 3.25 [°] I.D. Auger,	7" O.D.	Auger,	30" E	rop					ACARDONIC CONTRACTOR
	ELEVATIONS			Ν	VATER	LEVE	LS			
	Ground Surface: 725.7'			Wh	ile Dri	illing:	18.0'			
	End of Boring: 665.7'								2.6'	
				Afte	ər 24	Hours:	12.	0'		
	Shelby Tube = N	X Rock Cor	e SS	= Split S	poon S	T= Shelb	y Tube	, DB =	Diamono	I Bit
	Soil Description	Depth	Elev	Sample No	Sample Type	N	Qu	Cp	Mc	₹d
			96790 ¹¹ 0000000000000000000000000000000000	$\overline{}$		Nether Readers of Processing State				
		525		$\langle \rangle \rangle \rangle$						
			670.7	$\langle \rangle \rangle \rangle$	DB		~			
				$\langle \rangle \rangle \rangle$						
				\bigcirc						
	60.0	60—	665.7	7777	-				-	. <u>.</u>
	End of Boring @ 60.0 FT.			U Transmission						-
	-		The Street	*				-	÷.	
	5.5" sample of Limestone	00-								

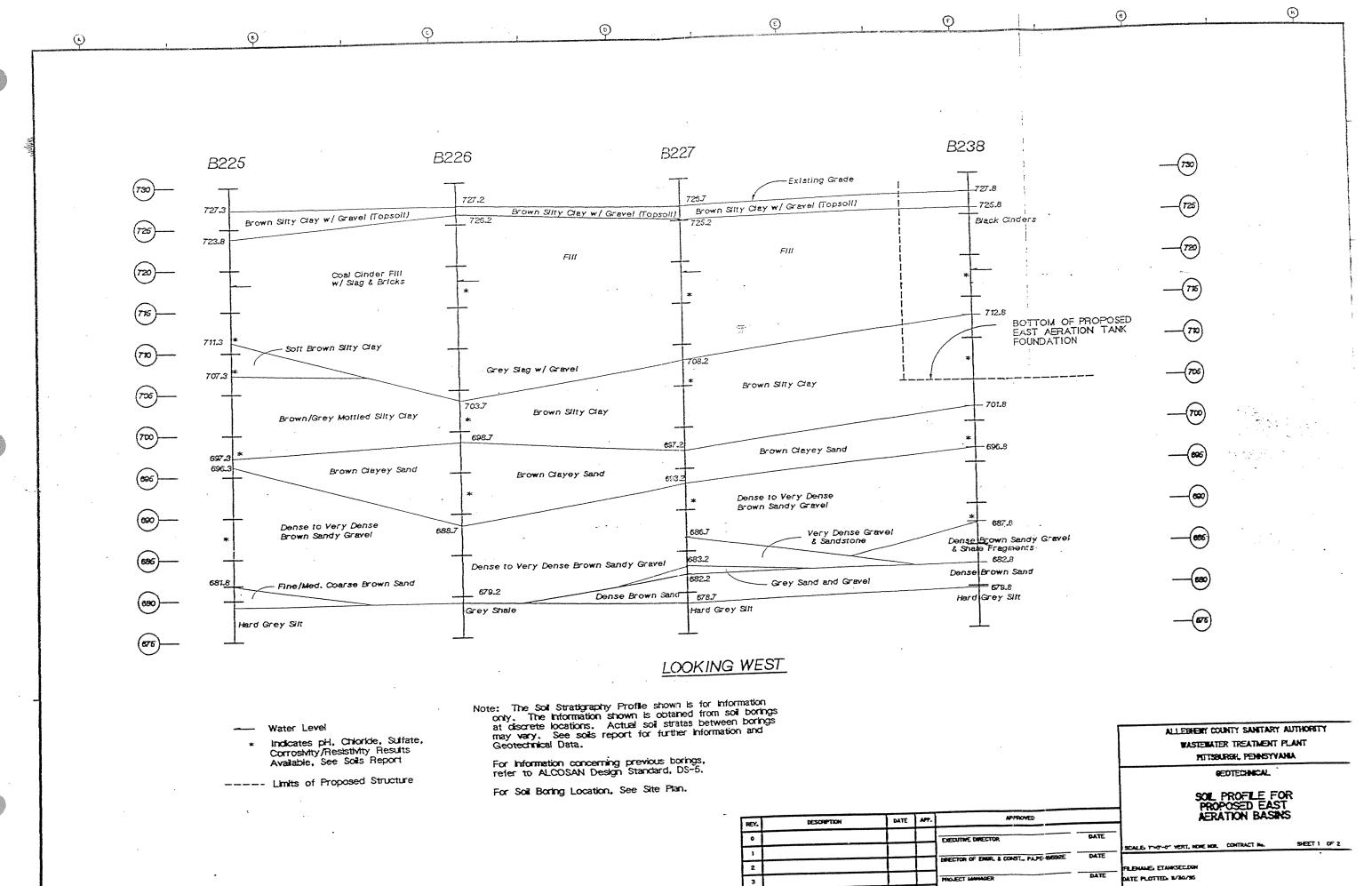
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		Damonger			or VMA deversabless of		and delayers of the second		-	-
										riiniyiliniysee siya
	Coring Data									
									-	
	Hecovery									
-	50.0-56.5 4.9'	******								
	56 5-60 0 2 2									
E	30.5-00.0 3.3	And and a second s								
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SOIL STRATIGRAPHY PROFILES



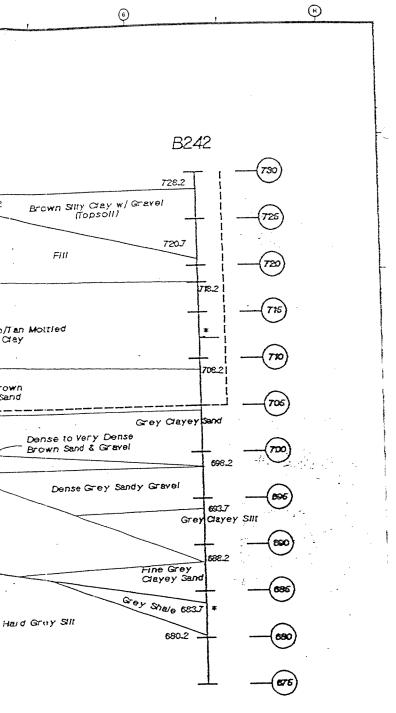


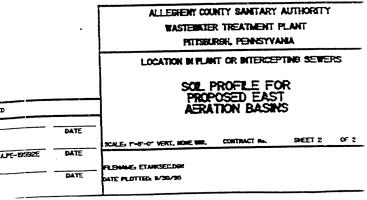


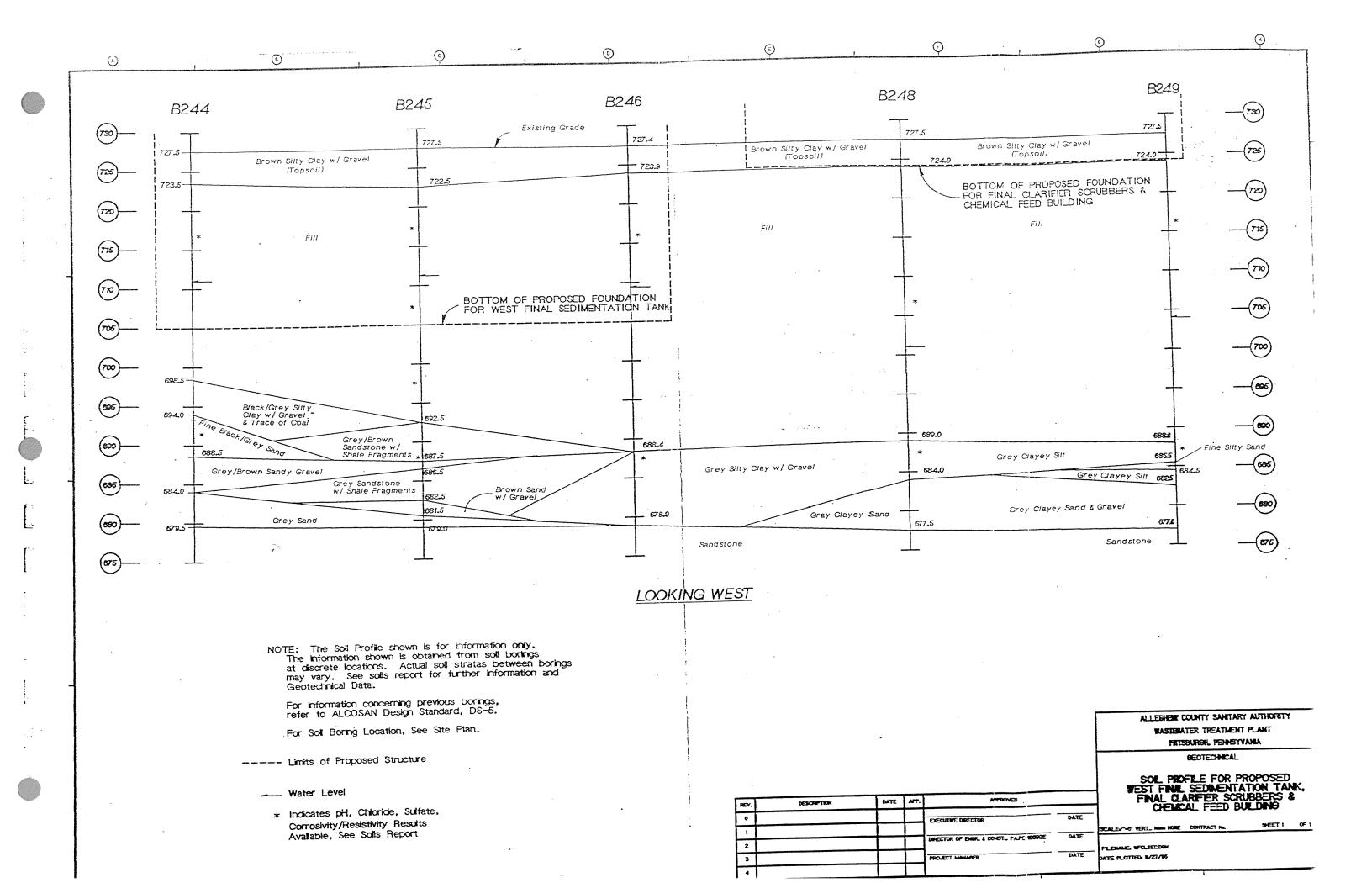


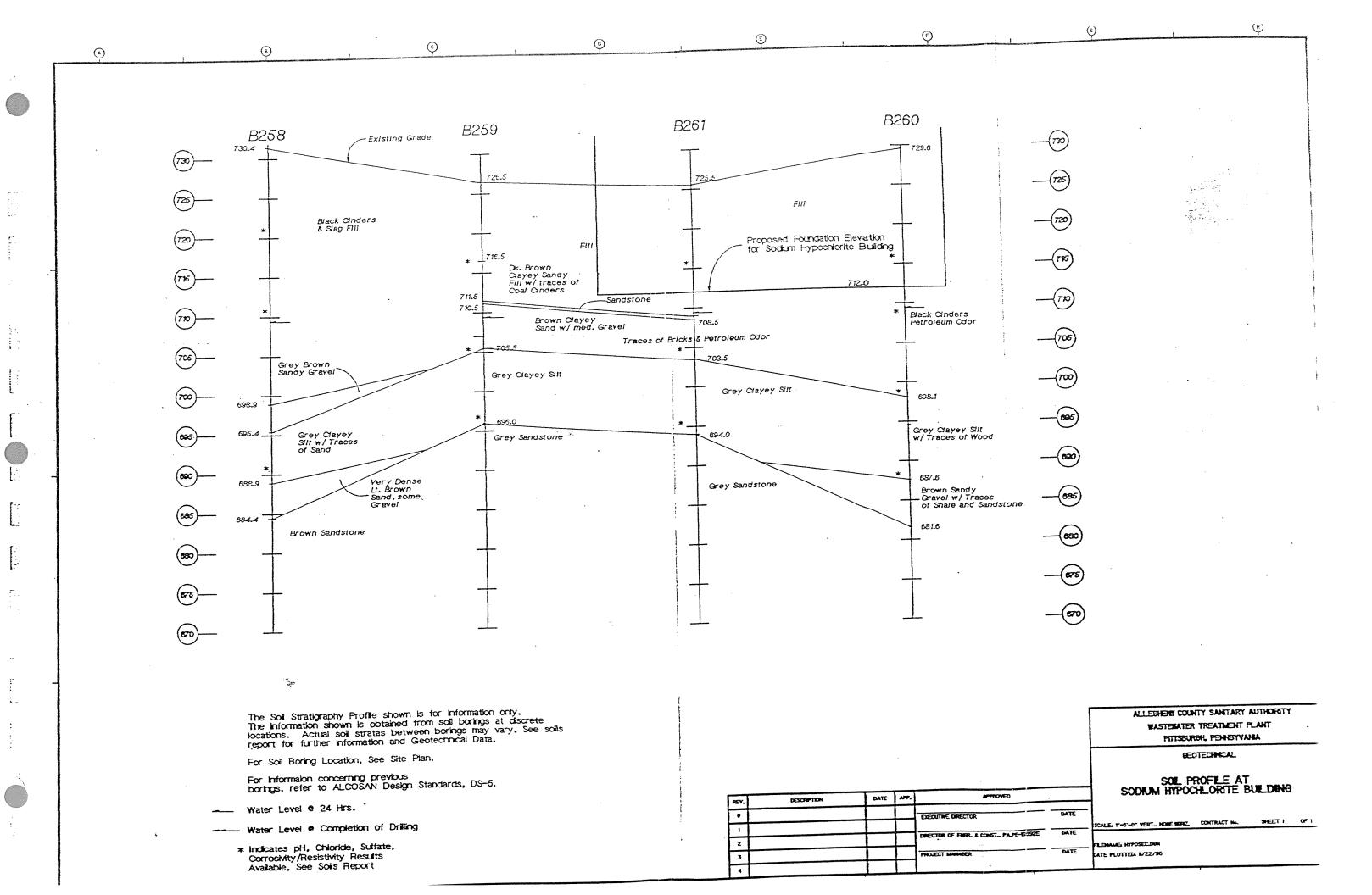
Ð E 0 ٩ ۲ \odot B241 B240 B239 B238 -Existing Grade 728.2 (730) 728.0 727.8 Brown Sitty Cley w/ Gravel (Topsoll) 727.2 727.8-720.8 725.8-(725) Black Cinders 722.0 FIII FIII 718.8 * (720) 718.8 77.0 Brown Silty Clay Brown/Tan Mottled Stity Clay (755) Brown Sitty Clay 712E BOTTOM OF PROPOSED EAST AERATION BASIN 709.7 = Fine Grey Sand FOUNDATION (770) 708.8 Loose Fine Brown Sitty Clayey Sand * 707.8 7047 (705) Fine to Med Brown Sand Grey/Tan Mottled Clayey Sand 700*.*7 701.8 _ 699.3 698.2 (700) 696.8 Dense to Very Dense Dense to Very Dense Brown Send & Gravel (895) Brown Sand & Gravel 688.2 688.8 (🚥) Sandstone & Gravel Sandstone & Gravel 687.8 (885) 683.3 682.8 681.5 Dense Brown Sand Hard Grey Silt Fine Grey Sand-679.8-Dense Brown Sand (ഞ) 0.970 -Hard Grey Sin 678.1 (675)-LOOKING WEST Note: The Soil Stratigraphy Profile shown is for information only. The information shown is obtained from soil borings at discrete locations. Actual soil stratas between borings may vary. See soils report for further information and Geotechnical Data. Water Level -Indicates pH, Chioride, Sulfate, Corrosivity/Resistivity Results * Available, See Soils Report For information concerning previous borings, refer to ALCOSAN Design Standard, DS-5. ---- Limits of Proposed Structure For Soil Boring Location, See Site Plan. APTROVE DATE APP. DESCRIPTION RE ۰ EXECUTIVE DIRECTOR 1 DIRECTOR OF ENGR. & CONST._ PAPE-19592E Z D.FT 3

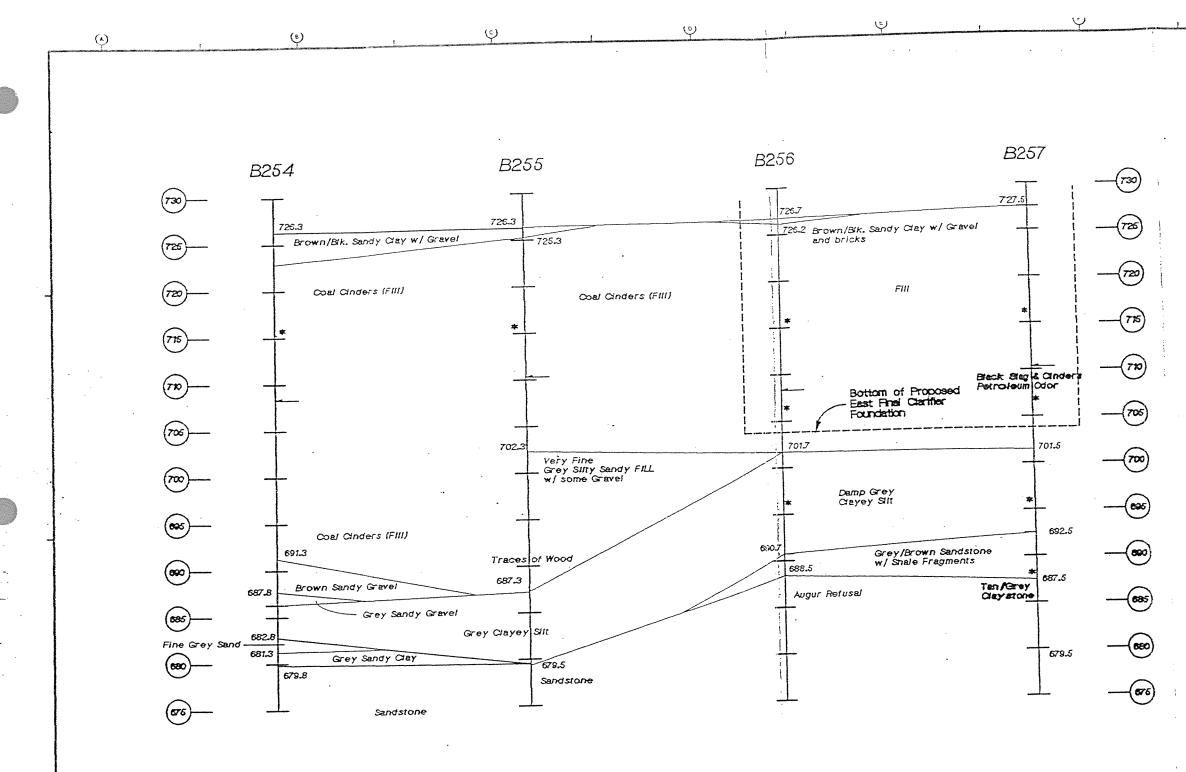
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LOOKING NORTH

Note: The Soli Stratigraphy Profile shown is for information only. The information shown is obtained from soli borings at discrete locations. Actual soli stratas between borings may vary. See solis report for further information and Geotechnical Data.

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For information concering previous borings, refer to ALCOSAN Design Standard, DS-5.

For Soil Boring Location, See Site Plan.

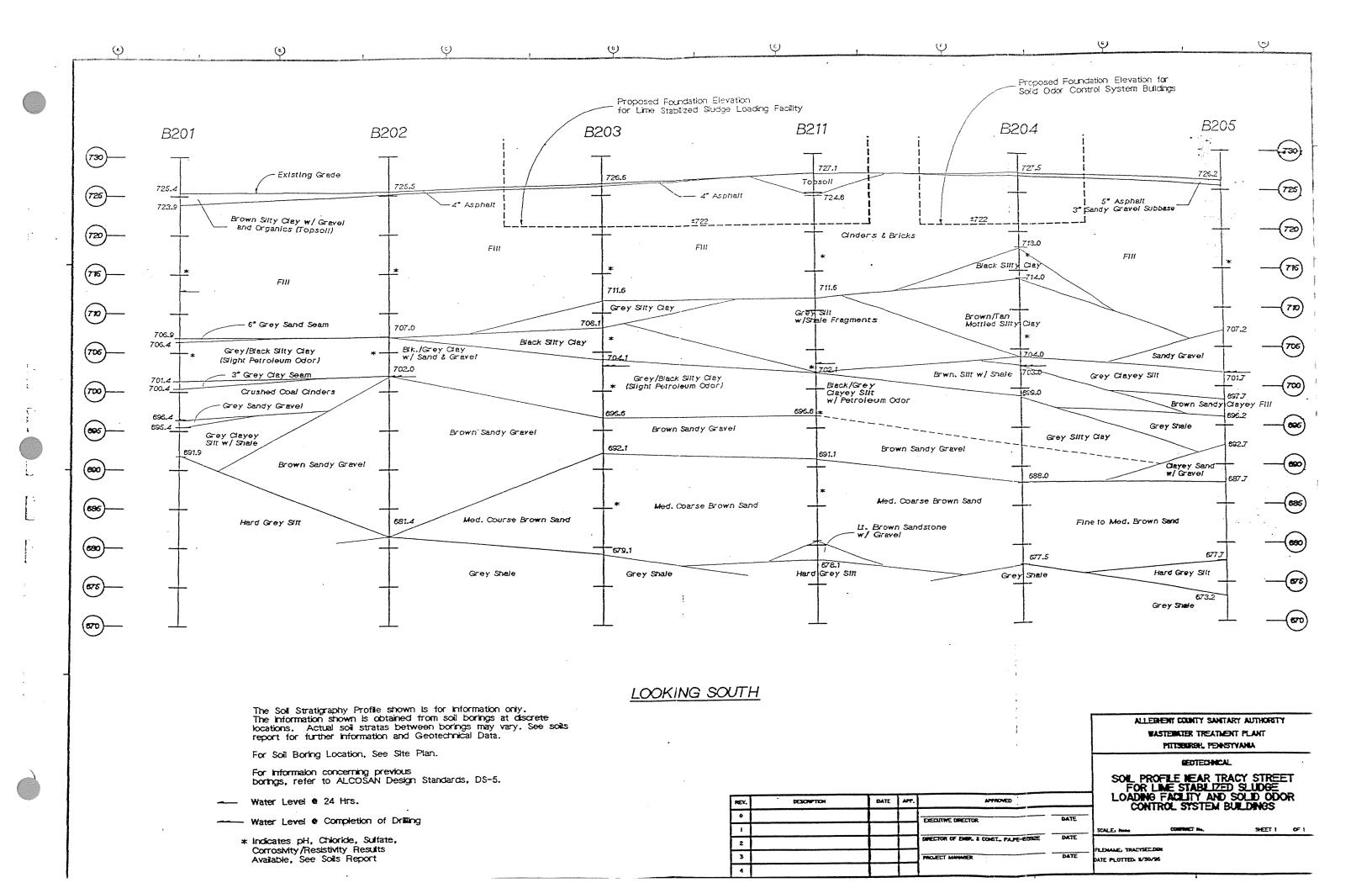
---- Water Level

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* Indicates pH, Chloride, Sulfate, Corrosivity/Resistivity Results Available, See Soils Report

-- Limits of Proposed Structure

ALLEGHENY COUNTY SANTARY AUTHORITY WASTEWATER TREATMENT PLANT PITTSBURGH, PENNSYVANA
LOCATION IN FLANT OR INTERCEPTING SEVERS
SOL PROFILE FOR PROPOSED EAST FINAL CLARIFERS
SCALE 1"-5"-O" VERT, NONE NOR, CONTRACT No. SHEET 1 OF 1
FILEMANE NFCLSELDEN DATE FLOTTED, 1/30/36



SHELBY TUBE LOG SHEET

ALCOSAN WASTE WATER TREATMENT PLANT Geotechnical Investigation Program

LOG OF THIN-WALLED SAMPLES & TESTING

Tube Number	Depth (ft)	Recovery (ft)	Testing Performed
203-1	15.0-17.0	2.0	
203-2	20.0-22.0	1.9	
204-1	30.0-32.0	2.0	
207-1	28.0-29.0	0.7	
209-1	17.0-19.0	2.0	
209-2	22.0-23.1	0.8	
210-1	22.0-24.0	2.0	Unit Weight, Consolidation
212-1	25.0-27.0	2.0	
213-1	25.0-27.0	0.0	
214-1	20.0-22.0	2.0	
215-1	20.0-22.0	2.0	
216-1	22.0-24.0	2.0	
222-1	40.0-42.0	2.0	
223-1	30.0-32.0	2.0	Unit Weight, Consolidation
	25.0-27.0	2.0	
227-1	20.0-22.0	2.0	
	25.0-27.0	2.0	
	25.0-27.0	1.5	Unit Weight, Consolidation, Classification
energy and a second	25.0-27.0	2.0	
235-1	25.0-27.0	2.0	
236-1	25.0-27.0	2.0	
237-1	25.0-27.0	2.0	Unit Wt, Consolidation, Triaxial(CU),LL,PI
			Sieve Analysis, Classification
239-1	10.0-12.0	2.0	
241-1	15.0-17.0	0.0	
242-1	15.0-17.0	1.5	
242-2	20.0-22.0	2.0	
242-3	40.0-42.0	0.0	
246-1	40.0-42.0	1.7	
248-1	40.0-42.0	0.0	
	40.0-42.0	2.0	Unit Weight, Permeability
	43.5-44.4	2.0	
	45.0-45.9	2.0	
and the second	45.0-46.5	2.0	
an a	27.0-29.0	0.0	
	27.0-29.0	2.0	Unit Weight, Permeability
	37.0-39.0	2.0	H
	22.0-24.0	2.0	
	32.0-34.0	2.0	
	22.0-24.0	2.0	
	32.0-34.0	1.8	Unit Weight, Consolidation
	29.0-31.0	2.0	Unit Weight, Consolidation
	27.0-29.00	1.5	Unit Weight, Triaxial Shear-CU
	21.0-23.0	1.7	Unit Wt, Consolidation, Triaxial(CU),LL,PI
		/	Sieve Analysis, Classification
270-1	18.0-20.0	0.0	unin name and an anna an de anna an anna anna an
	26.0-26.5	0.0	



ATTERBERG LIMITS USC SOIL CLASSIFICATIONS

Boring	Sample	USC	Flow Index	Liquid	Plastic	Plasticity
Number	Number	Classification	Fi	Limit	Limit	Index, Ip
	adam dar som sample som der som som som som	*****				
232	S-6	ML	-25.1	46.2	29.2	17.0
232	S-7,S-8	SM	-10.7	22.0	21.5	0.5
232	S-8, BOTTOM	SP.	N/A	N/A	N/A	N/A
232	S-9,S-10	M	-10.0	18.6	17.9	0.7
234	S-5	ME	-56.2	38.0	28.1	9.9
234	S-6,S-7	ME	-10.0	35.7	29.5	6.2
234	S-8	SM	-5.8	32.3	23.2	9.1
234	S-9	œ	N/A	N/A	N/A	N/A
234	S-10	SW	N/A	N/A	N/A	N/A
234	S-11	SP-SM	-8.6	20.8	17.5	3.3
235	S-6	MH	-14.3	50.3	35.8	14.5
235	S-7	ML	-13.4	39.5	27.2	12.3
235	S-8,S-9	\$	N/A	N/A	N/A	N/A
235	S-10,S-11	SW-SM	-7.1	21.2	19.0	2.2
237	S-3	ML	-8.1	34.9	23.4	11.5
237	S-6	MH	-26.8	50.5	35.8	14.7
237	S-7	SM	-7.7	22.6	22.3	0.3
237	S-8	Ŷ	N/A	N/A	N/A	N/A
237	S-9	GW	N/A	N/A	N/A	N/A
237	S-11	SW-SM	-10.7	17.8	17.2	0.6
243	S-3	ML	-9.1	31.5	23.5	8.1
243	S-4,TOP	a.	-3.3	28.7	18.7	10.0
243	S-4,BOTTOM	ME	-11.4	27.9	23.1	4.8
243	S-6	SP-SC	-8.8	26.9	21.0	5.9
243	S-7	SM	-7.0	27.9	20.5	7.4
262-A	S-4	GW	N/A	N/A	N/A	N/A
262-A	S-5,S-6	GW	N/A	N/A	N/A	N/A
262-A	S-7	ML	-13.4	44.9	34.1	10.8
266	S-6	GW	N/A	N/A	N/A	N/A
266	S-7	SP-SM	-2.7	20.3	18.1	2.2
266	S-8,S-9	GW	N/A	N/A	N/A	N/A
267	S-5,TOP	ML	-14.2	38.4	28.1	10.3
267	S-5,BOTTOM	SP-SM	-9.7	26.3	20.4	5.9
267	S-6	ME	-8.8	21.7	20.0	1.7
267	S-8,9,10	9P	N/A	N/A	N/A	N/A
268	S-4,S-5	ML	-10.2	34.5	25.0	9.5
268	S-6	SP-SM	-8.8	21.5	20.5	1.5
268	S-7,S-8	SW	N/A	N/A	N/A	N/A
269	S-4	ML	-11.1	34.5	27.2	7.3
269	S-5,S-6	SP-SM	-10.4	22.9	18.6	4.3
269	S-8,S-9	9 9	N/A	N/A	N/A	N/A
270	S-4	 SM	-22.0	26.4	23.4	3.0
270	S-5,TOP	ML	-7.8	26.7	23.0	3.7



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Boring	Sample	USC	Flow Index	Liquid	Plastic	Plasticity
Number	Number	Classification	F	Limit	Limit	Index, Ip
270	S-5 BOT,S-6	SP-SM	-5.0	22.5	18.0	4.5
270	S-7,8,9	3 9	N/A	N/A	N/A	N/A
272	S-4	SW	N/A	N/A	N/A	N/A
272	S-7	ML	-11.1	44.6	32.1	12.5
272	S-8	GW	N/A	N/A	N/A	N/A
272	S-9	SW-SM	-16.9	16.7	16.0	0.7
273	S-3,S-4	GW	N/A	N/A	N/A	N/A
273	S-5,6,7	GW	N/A	N/A	N/A	N/A
273	S-8	GW	N/A	N/A	N/A	N/A
273	S-9	ML	-7.6	21.5	17.7	3.8
273	S-10	GW	N/A	N/A	N/A	N/A
274	S-3,4	GW	N/A	N/A	N/A	N/A
274	S-5,TOP	\$	N/A	N/A	N/A	N/A
274	S-5,BOT	œ ^a	N/A	N/A	N/A	N/A
274	S-6	S.	N/A	N/A	N/A	N/A
274	S-7	SM	-6.4	27.4	23.6	3.8
274	S-8	GW	N/A	N/A	N/A	N/A
274	S-9	ME	-8.1	18.2	16.0	2.2
274	S-10	99	N/A	N/A	N/A	Ń/A
276	S-4	P	N/A	N/A	N/A	N/A
276	S-5	\$	N/A	N/A	N/A	N/A
276	S-6	œ	N/A	N/A	N/A	N/A
276	S-7	æ	N/A	N/A	N/A	N/A
276	S-8	SP-SM	-7.1	28.5	25.9	2.6
276	S-9	P	N/A	N/A	N/A	N/A
277	S-5	<u>Ş</u>	N/A	N/A	N/A	N/A
277	S-6	9	N/A	N/A	N/A	N/A
277	S-7	SM	-63.5	60.3	55.2	5.1
277	S-8,TOP	9	N/A	N/A	N/A	N/A
277	S-8,BOTTOM	æ	N/A	N/A	N/A	N/A
277	S-9	æ	N/A	N/A	N/A	N/A
278	S-6	MH	-15.7	53.5	40.9	12.6
278	S-7	ML	-3.4	35.0	26.4	8.6
278	S-8	GP-GM	-4.0	24.2	21.8	2.4
278	S-9	GW	N/A	N/A	N/A	N/A
278	S-10	SM	-11.1	34.2	26.9	7.3
279	S-3,S-4	9	N/A	N/A	N/A	N/A
279	S-5	SP-SM	-10.4	29.2	24.8	4.4
279	S-7	GW	N/A	N/A	N/A	N/A
279	S-8	SM	-7.1	20.2	20.3	-0.1
279	S-9	<u>9</u>	N/A	N/A	N/A	N/A
280	S-8	ML	-15.1	43.8	34.8	9.0
280	S-9,10,11	92	N/A	N/A	N/A	N/A

281 281 281 281 281 281 281	S-3 S-4,TOP S-6 S-7 S-8 S-9,TOP 9,BOTTOM	Classification SP SM SM SP-SM GW ML	FI N/A -8.3 -8.5 N/A	Limit N/A 36.8 30.7	Limit N/A 28.0 27.2	N/A 8.8
281 281 281 281 281 281 281 S-6	S-4,TOP S-6 S-7 S-8 S-9,TOP 9,BOTTOM	SM SM SP-SM GW	-8.3 -8.5 N/A	36.8 30.7	28.0	8.8
281 281 281 281 281 281 281 S-6	S-4,TOP S-6 S-7 S-8 S-9,TOP 9,BOTTOM	SM SM SP-SM GW	-8.3 -8.5 N/A	36.8 30.7	28.0	8.8
281 281 281 281 281 S-9	S-6 S-7 S-8 S-9,TOP 9,BOTTOM	SM SP-SM GW	-8.5 N/A	30.7		
281 281 281 281 S-6	S-7 S-8 S-9,TOP 9,BOTTOM	SP-SM GW	N/A		27.2	0 r
281 281 5-9 281 S-9	S-8 S-9,TOP 9,BOTTOM	GW				3.5
281 S-9	S-9,TOP 9,BOTTOM					
281 S-9	,BOTTOM	ML		N/A	N/A	N/A
			-9.8	27.9	25.5	2.4
281		Me	-8.5	25.0	21.6	3.4
	S-10	GP	N/A	N/A	N/A	N/A
Res	sults from	Soil Samples C	ollected during	Phase I	and Phase	
	Sample	USC	Flow Index	Liquid	Plastic	Plasticity
	Number	Classification	F	Limit	Limit	Index, ip
202	S-4	ME	-6.8	23.8	21.8	2.0
	4,5,6,7,8	GW	N/A	N/A :	N/A	N/A
204	S-3	ML	-6.5	30.6	25.8	4.8
206	S-5	ML	-14.9	32.6	28.5	4.1
206/208	S-7	GW	N/A	N/A	N/A	N/A
208	S-6	ML	-4.3	31.0	27.0	4.0
212	S-4	ML	-7.2	25.8	22.7	3.1
	S-8,S-9	en e	N/A	N/A	N/A	N/A
213	S-5	ML		30.1	25.2	4.9
	S-6,S-7	SM-SP	-7.8	21.5	21.3	0.2
213	S-9	<u></u>	N/A	N/A	N/A	N/A
	S-8,S-9	ML	-8.6	23.3	20.1	3.2
258	S-6	SM-SP	-3.2	25.3	18.5	6.8
258	S-7	ML	-13.6	46.2	31.4	14.8
259	S-5	ML	-11.2	40.9	31.3	9.6
260	S-6	ML	-9.2	36.7	31.7	5.0
	~ ~	MH	-14.2	51.2	39.8	11.4
260	S-7	1 Y & 1				
260 261	S-7 S-5	ML	-8.6	45.9	31.4	14.5

GRAIN SIZE DISTRIBUTIONS SIEVE ANALYSIS RESULTS

ALCOSAN GEOTECHNICAL JTIGATION PROGRAM

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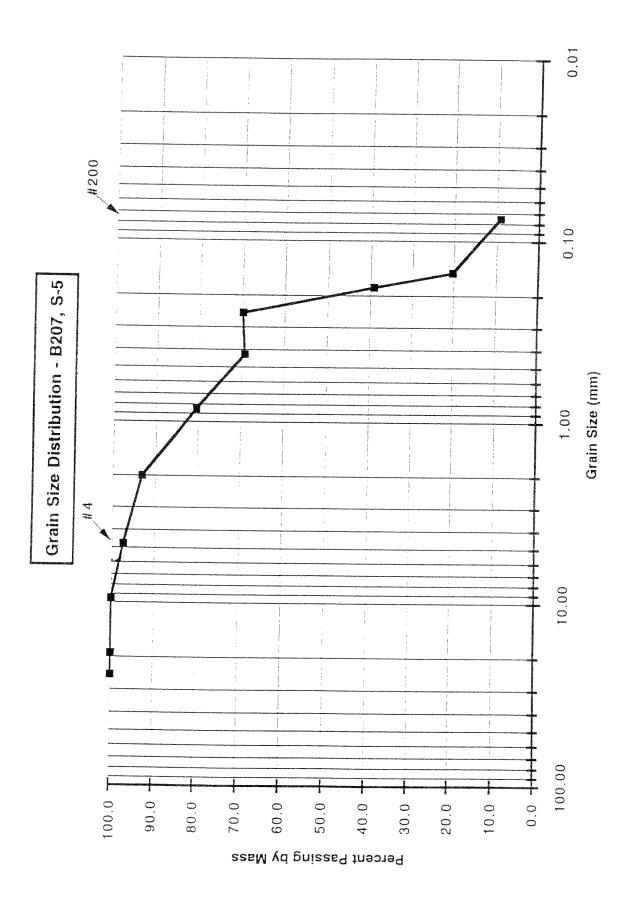
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Water Contraction



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B207	S-5	FIELD DESCRIPTION: Green/Black Silty Clay
BORING: B207	SAMPLE: S-5	FIELD DESCRIPTION:
342	162.9	179.1
Mass Dish + Sample	Mass of Dish	Mass Sample

		Mace Sieve	Macof	Mace Coil	Podiatod 70	0/ Docodina
Sieve Number	Diam. (mm)	plus Soil, g	Steve, q	Retained	by mass	by mass
	25.00	812.7	\$12.7	0.0	0.0	100.0
3/4"	19.00	814.8	\$14.8	, 0°0	0.0	100.0
3/8"	9.5	845.1	\$45.1	0.0	0.0	100.0
4	4.750	821.2	\$16.4	4.8	2.7	97.3
10	2.000	719.4	711.9	7.5	4.2	93.1
20	0.850	651.9	629.1	22.8	12.7	80.4
40	0.425	575.7	555.7	20.0	11.2	69.2
60	0.250	524.8	525.9		-0.6	69.8
80	0.180	568.4	513.5	54.9	30.7	39.2
100	0.150	546.6	512.6	34.0	19.0	20.2
200	0.075	511.0	491.3	19.7	11.0	9.2
PAN		508.0	492.0	16.0	6.8	where we want and a more university opposition was the tradition of the state of the state of the state of the

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2.7
% GRAVEL

ALCOON EPM

0.01 #200 ļ Ţ 0.1 Grain Size Distribution - B207, S-6 Otrain Size (mm) 4 :#±: 10 i 100 + 0.0 60.0 + 50.0 + 10.0+ 70.0 Ť 40.0 20.0 100.0 90.0 80.0 30.0 Percent Passing by Mass

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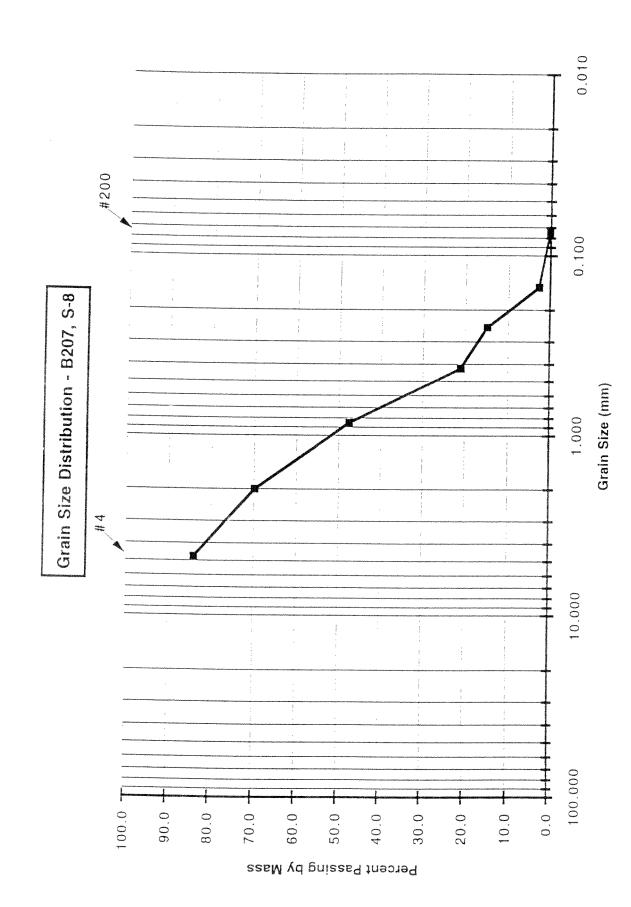
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BORING: B207	SAMPLE: S-6	FIELD DESCRIPTION: Grey Gravel, Trace Clay	Mass of Mass Soil % Retained % Passing
		Ш	Mass Sieve Mass (
411.3	162.9	248.4	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25	812.7	812.7	0.0	0.0	100.0
4	4.750	946.9	816.4	130.5	52.5	47.5
10	2.000	754.9	711.9	43.0	17.3	30.2
20	0.850	654.9	629.1	25.8	10.4	19.8
40	0.425	571.9	555.7	16.2	6.5	13.2
60	0.250	535.5	525.9	9.6	3.9	9.4
100	0.150	526.9	512.6	14.3	5.8	3.6
200	0.075	498.4	491.3	7.1	2.9	0.8
PAN		493.8	492.0	1.8	0.7	
					and a substant of the substant of t	

	GRAVEL 52.5	SAND 46.7	% SILT & CLAY 0.7
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₿207	S-8	FIELD DESCRIPTION: Fine/Medium Coarse Brown Sand	
BORING: B207	SAMPLE: S-8	FIELD DESCRIPTION:	
445.4	163.2	282.2	
Mass Dish + Sample	Mass of Dish	Mass Sample	

 g Sieve, g 816.4 711.9 629.1 555.7 555.7 512.6 491.3 	Mass Sieve	Mass of	Mass Soil	Mass Soil % Retained	% Passing
4.750 861.7 816.4 4.750 861.7 816.4 2.000 751.8 711.9 0.850 691.8 629.1 0.425 630.6 555.7 0.250 543.5 525.9 0.150 546.5 512.6 0.075 498.6 491.3		Sieve, g	Retained	by mass	by mass
4.750 861.7 816.4 2.000 751.8 711.9 2.000 751.8 711.9 0.850 691.8 629.1 0.425 630.6 555.7 0.4250 543.5 525.9 0.150 546.5 512.6 0.075 498.6 491.3					
2.000 751.8 0.850 691.8 0.425 630.6 0.4250 543.5 0.150 546.5 0.075 498.6		816.4	45.3	16.1	83.9
0.850 691.8 0.425 630.6 0.4250 543.5 0.150 546.5 0.075 498.6	ie je gegennents	711.9	39.9	14.1	69.8
0.425 630.6 0.250 543.5 0.150 546.5 0.075 498.6		629.1	62.7	22.2	47.6
0.250 543.5 0.150 546.5 0.075 498.6		555.7	74.9	26.5	21.0
0.150 546.5 0.075 498.6		525.9	17.6	6.2	14.8
0.075 498.6		512.6	33.9	12.0	2.8
		491.3	7.3	2.6	0.2
422.0	492.6	492.0	0.6	0.2	

% GRAVEL % SAND % SILT & CLAY



0.01 #200 0.1 Grain Size Distribution - B207, S-9 Grain Size (mm) #4 10 100 + 0.0 T 100.0 20.0 10.0 90.06 80.0 70.0 60.0 50.0 40.0 30.0 Percent Passing by Mass

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i: B207	: S-9	FIELD DESCRIPTION: Fine/Medium Coarse Brown Sand & Gravel	
BORING: B207	SAMPLE: S-9	FIELD DESCRIPTION	
380.5	162.9	217.6	o
Mass Dish + Sample	Mass of Dish	Mass Sample	ranovan nego stava se presente a nego se presente nego segundo se se se se se presente se se se se se se se se

		Mass Sieve	Mass of	Mass Soil	Mass Soil % Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
41	25	812.7	812.7	0.0	0.0	100.0
4	4.750	914.3	816.4	97.9	45.0	55.0
10	2.000	750.3	711.9	38.4	17.6	37.4
20	0.850	655.2	629.1	26.1	12.0	25.4
40	0.425	590.5	555.7	34.8	16.0	9.4
60	0.250	530.8	525.9	4.9	2.3	7.1
100	0.150	524.6	512.6	12.0	5.5	1.6
200	0.075	494.1	491.3	2.8	£.	0.3
PAN		492.7	492.0	0.7	0.3	

% GHAVEL	45.0
% SAND	54.7
% SILT & CLAY	0.3

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0.01 į #200 0.10 Grain Size Distribution - B209, S-3 Grain Size (mm) 1.00 l L 4 10.00 100.00 0.0 100.0 7 10.0 20.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0

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Percent Passing by Mass

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BORING: B209 SAMPLE: S-3

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Mass Dish + Sample

Mass of Dish	162.9			SAMPLE: S-3	S-3	
Mass Sample	208.1		FIELD DE	SCRIPTION:	FIELD DESCRIPTION: Green/Black Mottled Silty Clay	Aottled Silty C
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	825.2	816.4	8.8	4.2	95.8
10	2.000	727.9	711.9	16.0	7.7	88.1
20	0.850	658.2	629.1	29.1	14.0	74.1
40	0.425	576.8	555.7	21.1	10.1	64.0
60	0.250	555.9	525.9	30.0	14.4	49.5
80	0.180	568.7	513.5	55.2	26.5	23.0
100	0.150	532.9	512.6	20.3	9.8	13.3
200	0.075	509.0	491.3	17.7	8.5	4.8
				A REAL PROPERTY AND A REAL		AND

% GRAVEL % SAND % SILT & CLAY

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8.5 3.9

17.71 8.1

492.0

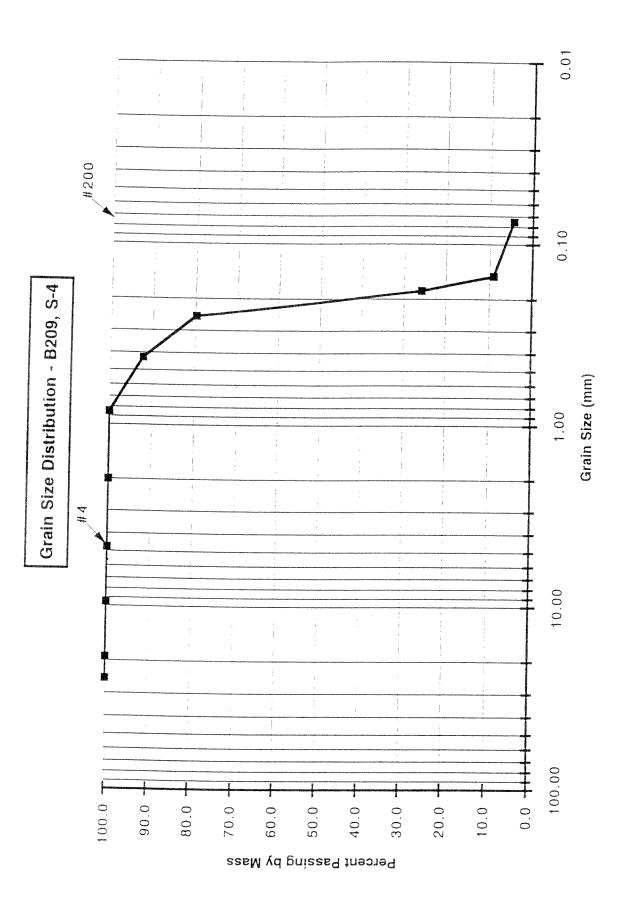
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BORING: B209	SAMPLE: S-4	FIELD DESCRIPTION: Green/Black Mottled Silty Clay
414.2	162.9	251.3 FIELD DESC
Mass Dish + Sample 41.	Mass of Dish 163	Mass Sample 25

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4 "	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.1	629.1	0.0	0.0	100.0
40	0.425	575.3	555.7	19.6	7.8	92.2
60	0.250	557.2	525.9	31.3	12.5	7.97
80	0.180	649.2	513.5	135.7	54.0	25.7
100	0.150	554.5	512.6	41.9	16.7	9.1
200	0.075	502.8	491.3	11.5	4.6	4.5
PAN		498.8	492.0	6.8	2.7	

Q	% SILT & CLAY
SA	2 S
	% SAND

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Grain Size (mm)

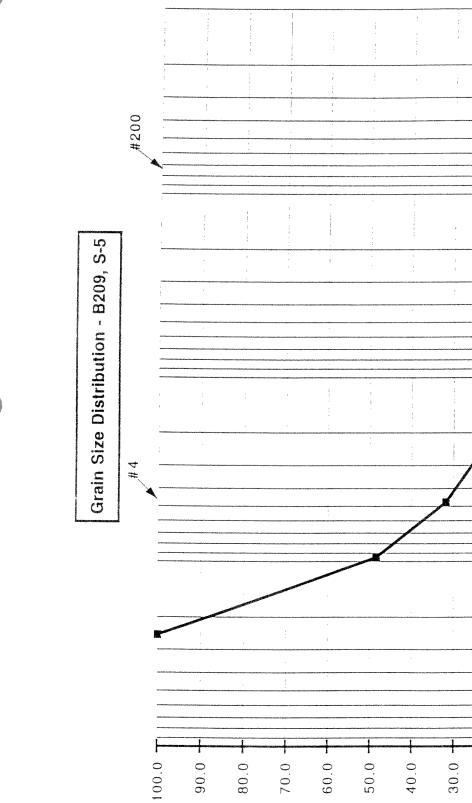
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Percent Passing by Mass

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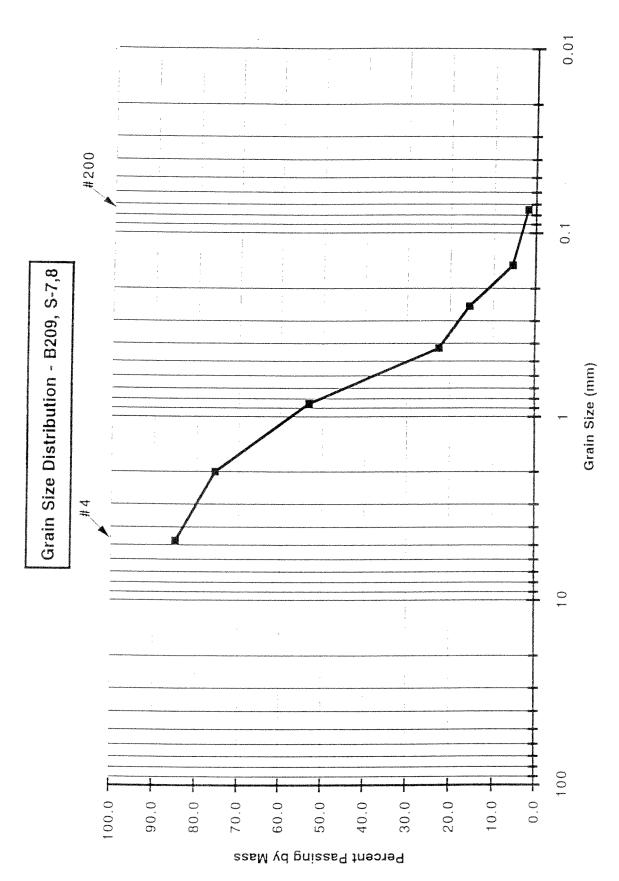
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B209	S-5	FIELD DESCRIPTION: Grey/Black Gravel w/ Sand	Mass of Mass Soil % Retained % Passing	
BORING: B209	SAMPLE: S-5	SCRIPTION:	Mass Soil	
		FIELD DE	Mass of	and the second
			Mass Sieve	And a state of the
416.4	163.2	253.2		and a second
Mass Dish + Sample	Mass of Dish	Mass Sample		
Ма				

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
ST. Opener	25	812.7	812.7	0.0	0.0	100.0
3/8"	9.5	975.6	845.1	130.5	51.5	48.5
4	4.750	858.5	816.4	42.1	16.6	31.8
10	2.000	741.0	711.9	29.1	11.5	20.3
20	0.850	645.1	629.1	16.0	6.3	14.0
40	0.425	569.1	555.7	13.4	5.3	R 7
60	0.250	535.6	525.9	9.7	3.8	6 7
100	0.150	517.2	512.6	4.6	1.8	3.1
200	0.075	495.9	491.3	4.6	1.8	1.3
PAN		495.2	492.0	3.2	1.3	
				CONTRACTOR OF A DESCRIPTION OF A DESCRIP	Australian and an an	and the second

% GRAVEI. % SAND % SILT & CLAY





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642.9	163.2	479.7
Mass Dish + Sample	Mass of Dish	Mass Sample

BORING: B209 SAMPLE: S-7,8 FIELD DESCRIPTION: Medium Coarse Brown Sand

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	
						and a second
4	4.750	888.7	816.4	72.3	15.1	84.9
10	2.000	756.7	711.9	44.8	9.3	75.6
20	0.850	736.4	629.1	107.3	22.4	53.2
40	0.425	703.2	555.7	147.5	30.7	22.5
60	0.250	559.4	525.9	33.5	7.0	15.5
100	0.150	560.2	512.6	47.6	9.6	5.6
200	0.075	508.7	491.3	17.4	3.6	1.9
PAN		499.8	492,0	7.8	1.6	

% GRAVEL	15.1
% SAND	83.0
% SILT & CLAY	1.6



0.01 #200 0.10 Grain Size Distribution - B210, S-4 Grain Size (mm) 1.00 ₽# 10.00 100.001 0.0 100.0 10.0 30.0 20.0 90.0 50.0 40.0 80.0 70.0 60.09

Percent Passing by Mass

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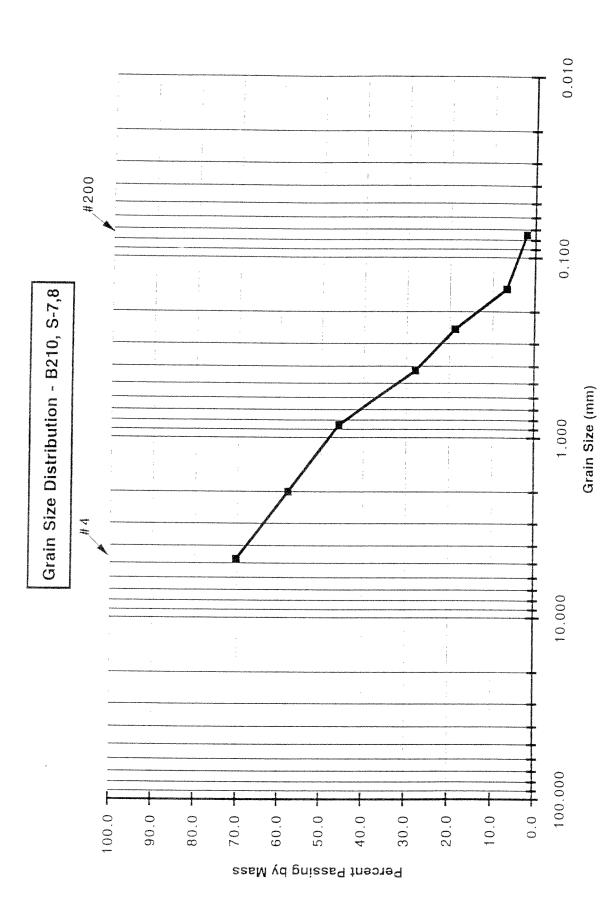
Mace Clove		
	178.1	Mass Sample
	162.9	Mass of Dish
¢	341	Mass Dish + Sample
	ь	

BORING: B210 SAMPLE: S-4 FIELD DESCRIPTION: Grey/Black Silty Clay

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.1	629.1	0.0	0.0	100.0
4 0	0.425	583.6	555.7	27.9	15.7	84.3
6.0	0.250	549.2	525.9	23.3	13.1	71.3
80	0.180	541.4	513.5	27.9	15.7	55.6
100	0.150	564.6	512.6	52.0	29.2	26.4
200	0.075	513.2	491.3	21.9	12.3	14.1
PAN		514.8	492.0	22.8	12.8	

0.0	85.9	12.8
% GRAVEL	% SAND	% SILT & CLAY

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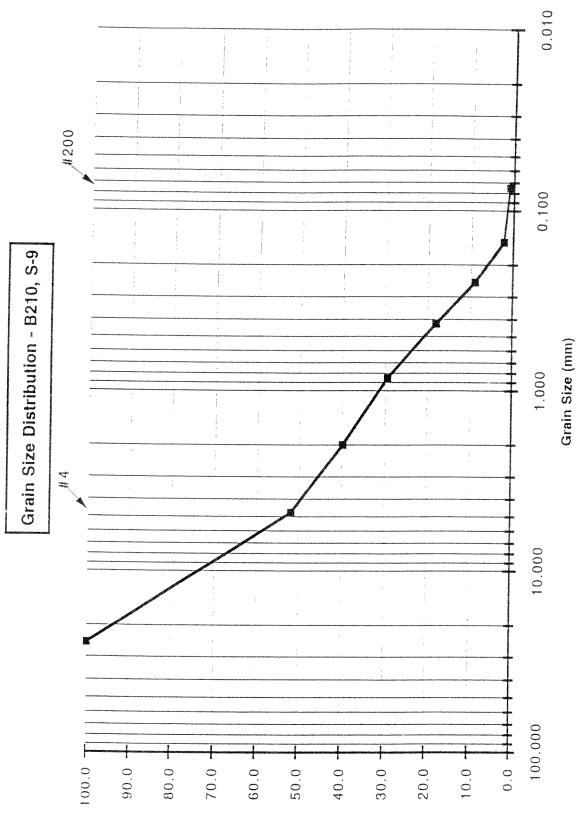
: B210	S-7.8	FIELD DESCRIPTION: Fine/Med. Coarse Brown Sand	
BORING: B210	SAMPLE: S-7.8	FIELD DESCRIPTION:	
735.1	163.2	571.9	AASC COUR
Mass Dish + Sample	Mass of Dish	Mass Sample	

Retained 170.6 70.2 69.3 102.3 52.8 68.0 26.4 10.7			Mass Sieve	Mass of	Mass Soil	% Retained	% Paceing
4.750 987.0 816.4 170.6 2.000 782.1 711.9 70.2 2.000 782.1 711.9 70.2 0.850 698.4 629.1 69.3 0.425 658.0 555.7 102.3 0.425 578.7 525.9 52.8 0.250 578.7 525.9 52.8 0.150 580.6 512.6 68.0 0.075 517.7 491.3 26.4 0.075 517.7 491.3 26.4	Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$				nanis na na kata na			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	4	4.750	987.0	816.4	170.6	29.8	20.2
0.850 698.4 629.1 69.3 0.425 658.0 555.7 102.3 0.250 578.7 525.9 52.8 0.150 578.7 525.9 52.8 0.150 580.6 512.6 68.0 0.075 517.7 491.3 26.4 502.7 492.0 10.7	10	2,000	782.1	711.9	70.2	12.3	57.0
0.425 658.0 555.7 102.3 0.250 578.7 525.9 52.8 0.150 580.6 512.6 68.0 0.075 517.7 491.3 26.4 502.7 492.0 10.7	20	0.850	698.4	629.1	69.3	12.1	45.8
0.250 578.7 525.9 52.8 0.150 580.6 512.6 68.0 0.075 517.7 491.3 26.4 502.7 492.0 10.7	40	0.425	658.0	555.7	102.3	17.9	0.27
0.150 580.6 512.6 68.0 0.075 517.7 491.3 26.4 502.7 492.0 10.7	60	0.250	578.7	525.9	52.8	2.6	18.7
0.075 517.7 491.3 26.4 502.7 492.0 10.7	100	0.150	580.6	512.6	68.0	11.9	6.8
502.7 492.0 10.7	200	0.075	517.7	491.3	26.4	4.6	0.0
	PAN		502.7	492.0	10.7	6.1	1

L 29.8	68.0	CLAY 1.9
% GRAVEL	% SAND	% SILT & CLAY

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Percent Passing by Mass

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B210	S-9	Brown Sandy Gravel
BORING: B210	SAMPLE: S-9	FIELD DESCRIPTION:
406.1	162.9	243.2
Mass Dish + Sample	Mass of Dish	Mass Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.000	812.7	812.7	0.0	0.0	100.0
4	4.750	933.4	816.4	117.0	48.1	51.9
10	2.000	741.1	711.9	29.2	12.0	39.9
20	0.850	654.4	629.1	25.3	10.4	29.5
40	0.425	583.6	555.7	27.9	11.5	18.0
60	0.250	547.7	525.9	21.8	9.0	0.6
100	0.150	528.9	512.6	16.3	6.7	2.3
200	0.075	494.6	491.3	3.3	1,4	0
PAN		492.3	492.0	0.3	0.1	-
				and the second se		

48.1	50.9	Y 0.1
% GRAVEL	% SAND	% SILT & CLAY



0.01 #200 1 0.10 Grain Size Distribution - B216, S-5 Grain Size (mm) 1.00 #4 10.00 ł 100.00 0.0 100.0 10.0 20.0 90.0 80.0 30.0 70.0 60.0 50.0 40.0

Percent Passing by Mass

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426.2	162.9	263.3
Mass Dish + Sample	Mass of Dish	Mass Sample

BORING: B216 SAMPLE: S-5 FIELD DESCRIPTION: Very Fine Sand, Trace Silt

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
11	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
. 20	0.850	629.1	629.1	0.0	0.0	100.0
4 0	0.425	557.9	555.7	2.2	0.8	99.2
60	0.250	594.3	525.9	68.4	26.0	73.2
80	0.180	611.5	513.5	98.0	37.2	36.0
100	0.150	556.2	512.6	43.6	16.6	19.4
200	0.075	516.0	491.3	24.7	9.4	10.0
PAN		516.1	492.0	24.1	9.2	

0.0
% GRAVEL

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0.01 ŝ #200 0.10 4 Grain Size Distribution - B216, S-6,7,8,9 Grain Size (mm) 1.00 ₩4 10.00 100.00 0.0 t Т 100.0 90.06 80.0 30.0 20.0 10.0 70.0 60.09 50.0 40.0

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Percent Passing by Mass

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B216	SAMPLE: S-6,7,8,9	FIELD DESCRIPTION: Brown Sand & Gravel	
BORING: B216	SAMPLE:	FIELD DESCRIPTION:	
1220.6	163.2	1057.4	
Mass Dish + Sample	Mass of Dish	Mass Sample	

In section we have a manufacture of the section of		Mass Sieve	Mass of	Mass Soil	% Retained	% Passino
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	1194.5	845.1	349.4	33.0	67.0
4	4.750	953.2	816.4	136.8	12.9	54.0
10	2.000	838.3	711.9	126.4	12.0	42.1
20	0.850	731.9	629.1	102.8	9.7	32.3
40	0.425	658.6	555.7	102.9	9.7	22.6
60	0.250	622.1	525.9	96.2	9.1	13.5
100	0.150	631.8	512.6	119.2	11.3	2.2
200	0.075	508.8	491.3	17.5	1.7	0.6
PAN		496.7	492.0	4.7	0.4	
The second s	n of the second seco	n versen og som en sen som en som		and the second secon	Posta rearrance of the state of the second sec	

46.0	53.4	0.4
% GRAVEL	% SAND	% SILT & CLAY

0.01 i #200 0.10 Grain Size Distribution - B219, S-7 Grain Size (mm) 1.00 #4 10.00 100.00 0.0 10.0 100.0 20.0 90.06 80.0 50.0 40.0 30.0 70.0 60.09

Percent Passing by Mass

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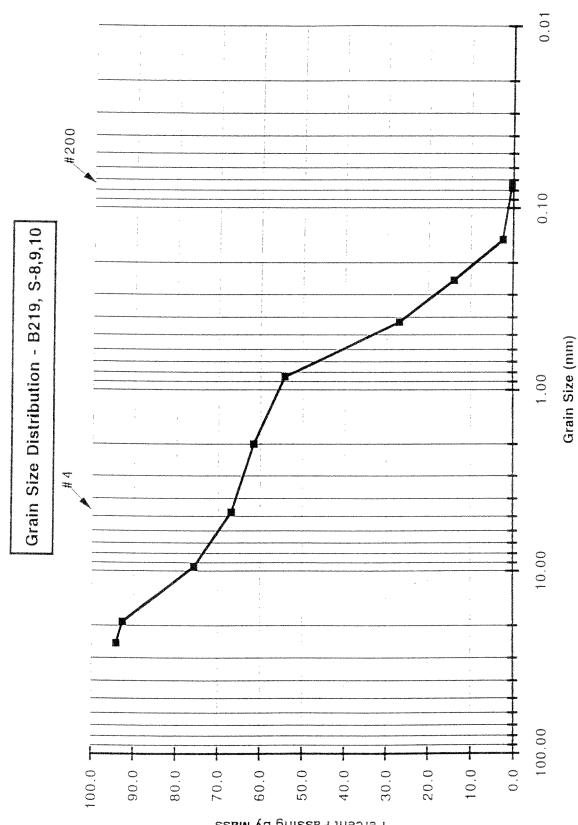
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FIELD DESCRIPTION: Very Fine Grey Silty Sand	FIELD DESCRIPTION:	183.36	Mass Sample
S-7	SAMPLE: S-7	162.9	Mass of Dish
B219	BORING: B219	346.26	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	818.5	816.4	2.1	*	98.9
10	2.000	725.4	711.9	13.5	7.4	91.5
20	0.850	652.2	629.1	23.1	12.6	78.9
40	0.425	579.8	555.7	24.1	13.1	65.8
60	0.250	596.8	525.9	70.9	38.7	27.1
100	0.150	554.1	512.6	41.5	22.6	4.5
200	0.075	494.8	491.3	3.5	ۍ ۲	2.5
PAN		494.1	492.0	2.1		
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	96.3	· · ·
% GRAVEL	% SAND	% SILT & CLAY





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BORING: B219	SAMPLE: S-8.9.10	FIELD DESCRIPTION: Brown Sand and Gravel	
942.2	162.9	779.3	a a na a mana ang kan
Mass Dish + Sample	Mass of Dish	Mass Sample	

na po po de como se se de la como de la como de		Mass Sieve	Mass of	Mass Soil	% Ratainad	0/ Dassing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	859	812.7	46.3	5.9	94.1
3/4 "	19.00	826.5	814.8	11.7	2	92 F
3/8"	9.5	976.8	845.1	131.7	16.9	75.7
4	4.750	885.3	816.4	68.9	8.8	66. A
10	2.000	752.7	711.9	40.8	5.2	61.6
20	0.850	685.9	629.1	56.8	7.3	54.3
40	0.425	769.0	555.7	213.3	27.4	26.9
60	0.250	627.2	525.9	101.3	13.0	13.9
100	0.150	601.4	512.6	88.8	11.4	2.5
200	0.075	507.3	491.3	16.0	2.1	0.5
PAN		494.0	492.0	2.0	0.3	
			NAMES AND ADDRESS OF ADDRESS OF ADDRESS ADDRES ADDRESS ADDRESS	and an and a set and a set of the	And a second sec	

27.2	66.3	0.3
% GRAVEL	% SAND	% SILT & CLAY

ALCOPIN EPM

0.01 1 #200 ļ 0.10 Grain Size Distribution - B224, S-5,6,7 Grain Size (mm) 1.00 #4 ì 10.00 100.00 0.0 10.0 100.0 20.0 30.0 90.080.0 70.0 60.0 50.0 40.0 Percent Passing by Mass

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Subsequences and data

		-			eperate solations	çana
ine Siltv Sand		% Passing	by mass	100.0	100.0	
BORING: B224 SAMPLE: S-5,6,7 FIELD DESCRIPTION: Green/Grev Fine Silty Rand		Mass Soil % Retained	by. mass	0.0	0.0	<
BORING: B224 SAMPLE: S-5,6,7 SCRIPTION: Green/G		Mass Soil	Retained	0.0	0.0	<
EELD DF	osaanaa ka saa saa saa saa saa saa saa saa sa	Mass of	Sieve, g	812.7	814.8	DAF 1
		Mass Sieve	plus Soil, g	812.7	814.8	L U U
732.5 162.9 589.6			Diam. (mm)	25.00	19.00	u c
Mass Dish + Sample Mass of Dish Mass Sample			Sieve Number		3/4"	= 0/ C
	ĥe	-	ann an	-	197952(2019	in constant

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by. mass	by mass
42	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	882.1	816.4	65.7	фана 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	88.9
10	2.000	770.4	711.9	58.5	9.9	78.9
20	0.850	672.5	629.1	43.4	7.4	71.6
40	0.425	601.0	555.7	45.3	7.7	63.9
60	0.250	686.2	525.9	160.3	27.2	36.7
100	0.150	679.5	512.6	166.9	28.3	8.4
200	0.075	515.6	491.3	24.3	4.1	4.3
PAN		494.8	492.0	2.8	0.5	

	84.6	٩٢ 0.5
% GRAVEL	% SAND	% SILT & CLAY

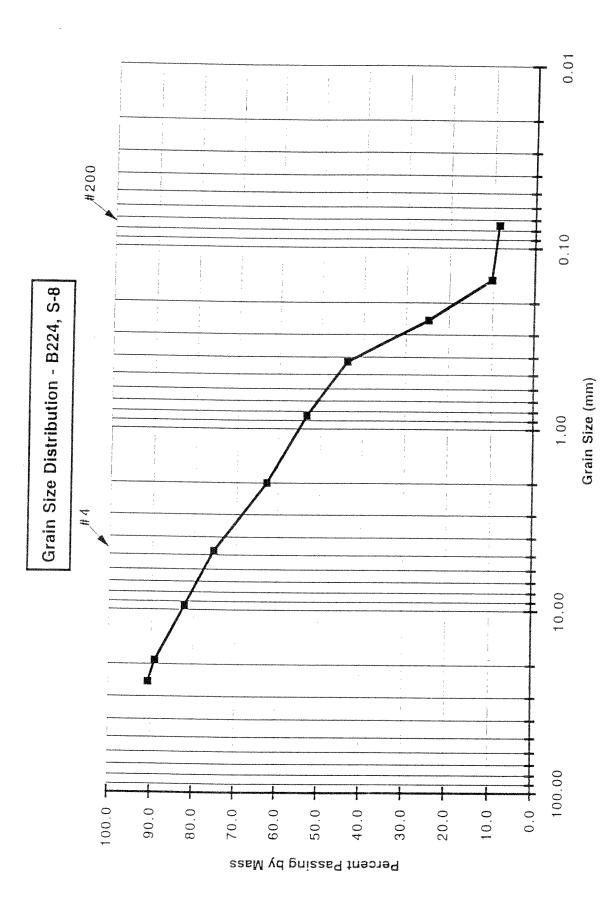
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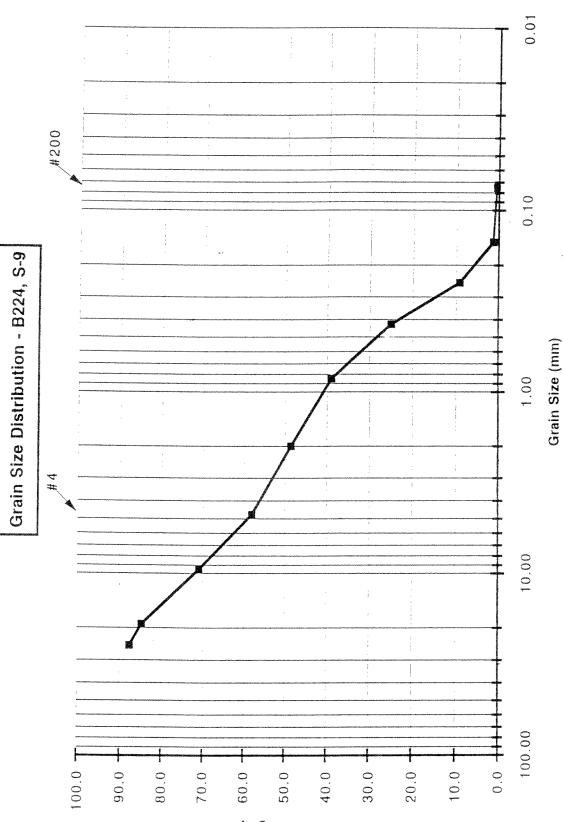
FIELD DESCRIPTION: Grey Sandy Silt w/ Gravel	499.2	Mass Sample
SAMPLE: S-8	162.9	Mass of Dish
BORING: B224	662.1	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
4	25.00	859.7	812.7	47.0	9.4	90.6
3/4"	19.00	822.3	814.8	7.5	1. 2	89.1
3/8"	9.5	879.5	845.1	34.4	6.9	82.2
4	4.750	850.8	816.4	34.4	6.9	75.3
10	2.000	774.8	711.9	62.9	12.6	62.7
20	0.850	676.1	629.1	47.0	9.4	53.3
40	0.425	603.7	555.7	48.0	9.6	43.7
60	0.250	620.4	525.9	94.5	18.9	24.7
100	0.150	585.1	512.6	72.5	14.5	10.2
200	0.075	499.0	491.3	.7.7	1.5	8.7
PAN		493.0	492.0	1.0	0.2	
And the second		many second s	A DESCRIPTION OF THE OWNER	THE REPORT OF THE F		Canada and a second sec

15.3	66.6 0.2
% GRAVEL	% SAND % SILT & CLAY

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Percent Passing by Mass

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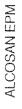
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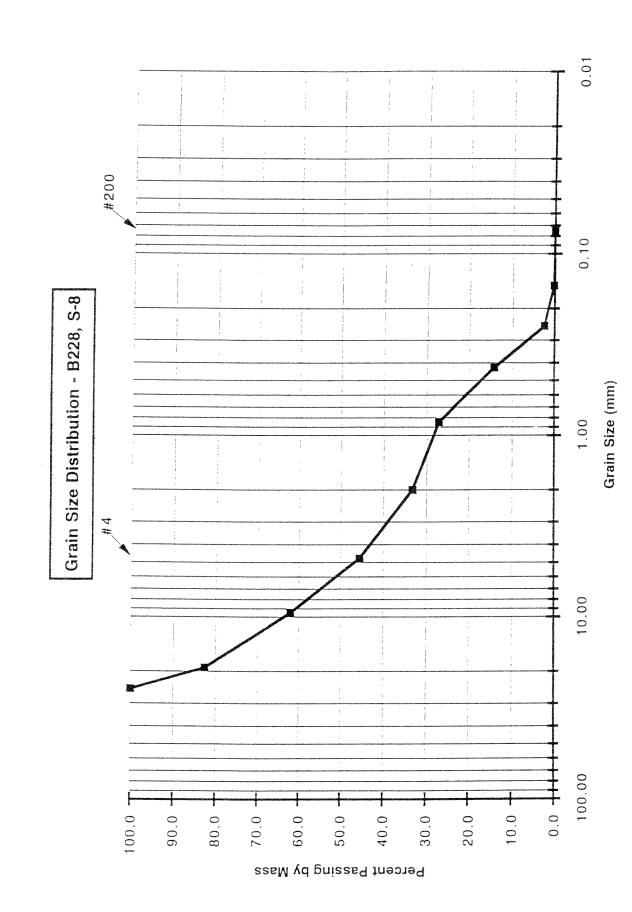
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andy Gravel	% Passing	by mass	87.6	84.7	20.02	0.01
BORING: B224 SAMPLE: S-9 FIELD DESCRIPTION: Brown/Grey Sandy Gravel	Mass Soil % Retained % Passing	by mass	12.4	6.0	13.8)
BORING: B224 SAMPLE: S-9 ESCRIPTION: Brown	Mass Soil	Retained	58.1	13.6	64.7	
HELD DI	Mass of	Sieve, g	812.7	814.8	845.1	and a sub-
	Mass Sieve	plus Soil, g	870.8	828.4	909.8	
631.4 162.9 468.5		Diam. (mm)	25.00	19.00	9.5	
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number	*	3/4"	3/8"	~

		ALCO CINE	annesionalizationalizationalizationalizationalizationalizationalizationalizationalizationalizationalizationaliz			
		INIASS SIEVE	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25.00	870.8	812.7	58.1	12.4	87.6
3/4"	19.00	828.4	814.8	13.6	2.9	84.7
3/8"	9.5	909.8	845.1	64.7	13.8	70.0
4	4.750	876.5	816.4	60.1	12.8	58.1
10	2.000	756.2	711.9	44.3	5 5	48.6
20	0.850	674.2	629.1	45.1	9.6	20.04
40	0.425	620.6	555.7	64.9	13.0	05.00
60	0.250	600.5	525.9	74.6	15.9	00
100	0.150	549.4	512.6	36.8	6.7	1.3
200	0.075	494.7	491.3	3.4	0.7	0.6
PAN		492.5	492.0	0.5	0.1	>

29.5	57.4	0.1
% GRAVEL	% SAND	% SILT & CLAY





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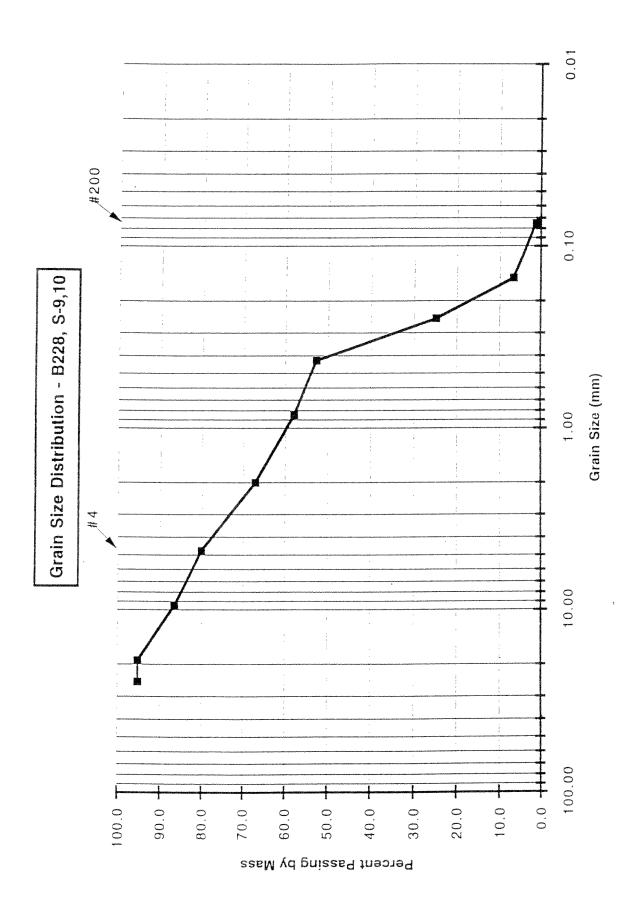
B228	S-8	FIELD DESCRIPTION: Brown/Grey Sandy Gravel
BORING: B228	SAMPLE: S-8	FIELD DESCRIPTION:
718.8	162.9	555.9
Mass Dish + Sample	Mass of Dish	Mass Sample

			A SA	and a second		
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100 0
3/4"	19.00	911.5	814.8	96.7	17.4	82 G
3/8"	9.5	959.4	845.1	114.3	20.6	62.0
4	4.750	908.0	816.4	91.6	16.5	45.6
10	2.000	780.1	711.9	68.2	12.3	33.3
20	0.850	663.0	629.1	33.9	6.1	27.9
40	0.425	627.8	555.7	72.1	13.0	14.2
60	0.250	591.4	525.9	65.5	11.8	7 6
100	0.150	525.1	512.6	12.5	2.2	0.2
200	0.075	492.2	491.3	0.9	0.2	0.0
PAN		492.2	492.0	0.2	0.0	

Prove and and	% GRAVEL 54.4	% SAND 45.5	% SILT & CLAY 0.0
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B228	S-9.10	FIELD DESCRIPTION: Brown/Grey Sandy Gravel
BORING: B228	SAMPLE: S-9.10	FIELD DESCRIPTION:
679.6	162.9	516.7
Mass Dish + Sample	Mass of Dish	Mass Sample

		Mass Sieve	Mace of	Noo Con		Anna a casa a sa s
Ciouc Mumber				INISS 2011	% Hetained	% Passing
	UIAM. (MM)	pius soil, g	Sleve, g	Retained	by mass	by mass
H +	25.00	837.3	812.7	24.6	4.8	95.2
3/4"	19.00	814.8	814.8	0.0	0.0	95.2
3/8"	9.5	889.8	845.1	44.7	8.7	86.6
4	4.750	849.9	816.4	33.5	6.5	80.1
10	2.000	779.2	711.9	67.3	13.0	67.1
20	0.850	676.2	629.1	47.1	20	58.0
40	0.425	582.4	555.7	26.7	5.2	50 R
60	0.250	670.2	525.9	144.3	27.9	24 9
100	0.150	606.6	512.6	94.0	18.2	6.7
200	0.075	519.1	491.3	27.8	5.4	
PAN		496.3	492.0	4.3	0.8	
				Construction of the second sec		

% SAND	78.8
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0.01 #200 0.10 Grain Size Distribution - B229, S-4,5 Grain Size (mm) 1.00 #4 10.00 100.00 0.0 T 100.0 20.0 10.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0

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Percent Passing by Mass

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	gastermi			Carinteniano	agametered	yenessa ile		6 000000000	20034450	69000000000	
ck Silty Sand	% Passing	by mass	100.0	100.0	100.0	98.5	87.3	77.4	65.4	14.0	1.5
B229 S-4,5 Fine Grey/Black Silty Sand	% Retained	by mass	0.0	0.0	0.0	1.5	11.3	9.9	12.0	51.4	12.5
BORING: B229 SAMPLE: S-4,5 FIELD DESCRIPTION: Fine G	Mass Soil	Retained	0.0	0.0	0.0	6.3	47.9	42.0	51.2	218.6	53.3
FIELD DE	Mass of	Sieve, g	812.7	814.8	845.1	816.4	711.9	629.1	555.7	525.9	512.6
	Mass Sieve	plus Soil, g	812.7	814.8	845.1	822.7	759.8	671.1	606.9	744.5	565.9
588.4 162.9 425.5		Diam. (mm)	25.00	19.00	9.5	4.750	2.000	0.850	0.425	0.250	0.150
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number		3/4"	3/8"	Υ	10	20	40	60	100

1.5	97.8	3LAY 0.1
% GRAVEL	% SAND	% SILT & CLAY

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1.5 0.7

12.5 0.8 0.1

53.3 3.3

491.3

494.6 492.3

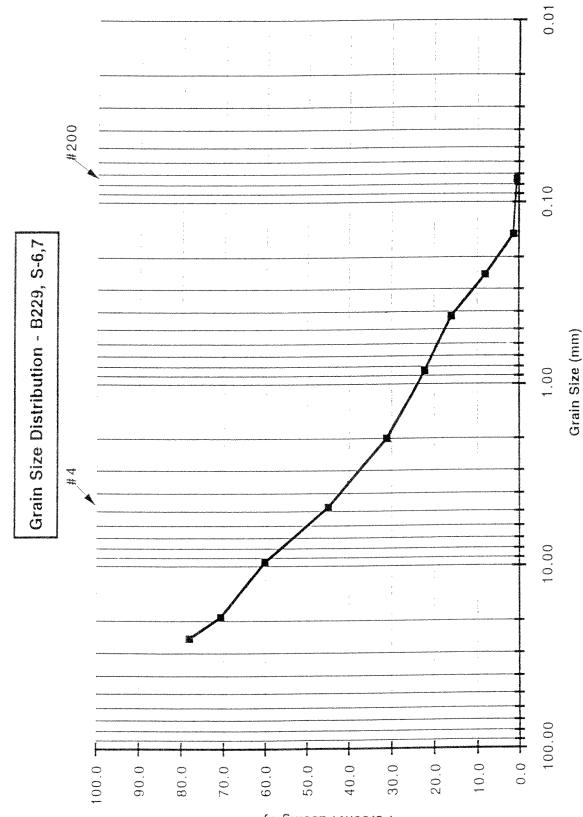
0.075

200 PAN

492.0

0.3





Percent Passing by Mass

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162.9	453.8	
	162.9	162.9 453.8 FIELD DE

		Mass Sieve	Mass of	Mass Soil	0/ Datainad	0/ D
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, a	Retained	hv mace	hu mage
2	25.00	912.4	812.7	66 7	0 0 0 CG	0 02
3/4"	19.00	848.3	814.8	33.5	7 4	70.6
3/8"	9.5	892.6	845.1	47.5	10 2	60.0
4	4.750	885.7	816.4	69.3	15.2	00.2
10	2.000	774.1	711.9	62.2	12.0	0 + 0
20	0.850	670.0	629.1	40.9	0.0	2.10
40	0.425	584.3	555.7	28.6	0.0	11.0
60	0.250	561.3	525.9	35.4	0.0 N	F.0
100	0.150	542.9	512.6	30.3	6.7	1.1
200	0.075	495.0	491.3	3.7	() 0 8 0	4
PAN		492.6	492.0	0.6	0.1	0.0

33.1	44.3	0.1
% GRAVEL	% SAND	% SILT & CLAY

0.01 j. #200 0.10 Grain Size Distribution - B229, S-8,9 1.00 #4 10.00 100.00 + 0.0 100.0 10.0 90.0 40.0 80.0 70.0 60.0 50.0 30.0 20.0

Percent Passing by Mass

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Grain Size (mm)

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		A second se				
88.3	11.7	67.5	812.7	880.2	25.00	
by mass	by mass	Retained	Sieve, g	plus Soil, g	Diam. (mm)	Sieve Number
% Passing	Mass Soil % Retained % Passing	Mass Soil	Mass of	Mass Sieve		a stalan del da de resta a sen es de terre a sen es adapter es de se per este este este este este de se este es
se Brown Sand	Medium Coars	SOURCE INCOM				
FIFI D DESCRIPTION Medium Coares Brown Sand	Madium Coard	SCRIPTION.	FIFI D DF		575.3	Mass Sample
	S-8,9	SAMPLE: S-8,9			162.9	Mass of Dish
	B229	BORING: B229			738.2	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	880.2	812.7	67.5	11.7	88.3
3/4"	19.00	833.7	814.8	18.9	8.3	85.0
3/8"	9.5	837.8	845.1	-7.3	-1.3	86.3
4	4.750	841.1	816.4	24.7	4.3	82.0
10	2.000	750.4	711.9	38.5	6.7	75.3
20	0.850	715.7	629.1	86.6	15.1	60.2
40	0.425	697.7	555.7	142.0	24.7	35.5
60	0.250	619.6	525.9	93.7	16.3	19.2
100	0.150	576.6	512.6	64.0		8.1
200	0.075	499.3	491.3	8.0	1.4	6.7
PAN		492.8	492.0	0.8	0.1	

6.3	75.2	0.1
% GRAVEL	% SAND	% SILT & CLAY

Grain Size Distribution - B230, S-6 4

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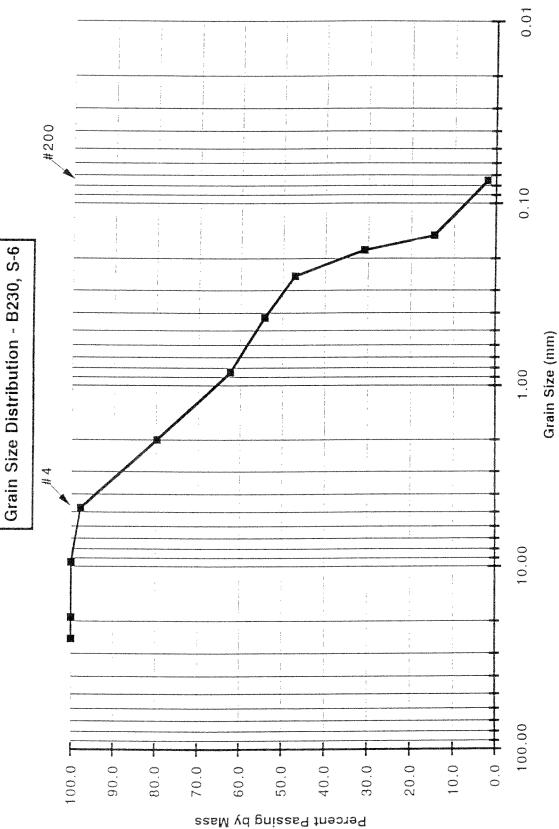
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428	162.9	265.1
Mass Dish + Sample	Mass of Dish	Mass Sample

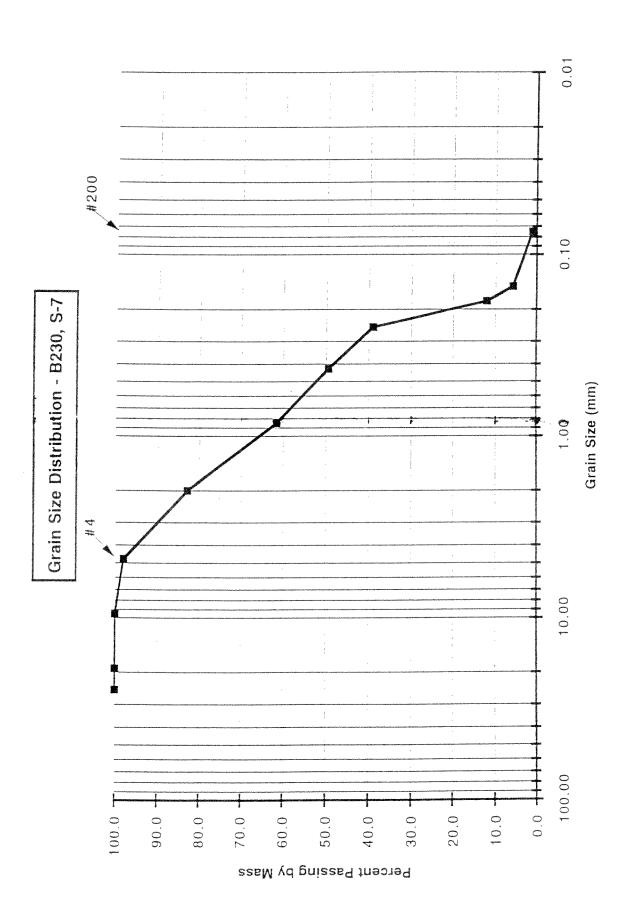
BORING: B230 SAMPLE: S-6 FIELD DESCRIPTION: Brown/Grey Sandy Silty Clay

eleven e deere and the second seco		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	822.2	816.4	5.8	2.2	97.8
10	2.000	759.7	711.9	47.8	18.0	79.8
20	0.850	675.2	629.1	46.1	17.4	62.4
40	0.425	577.3	555.7	21.6	8.1	54.2
60	0.250	544.8	525.9	18.9	7.1	47.1
80	0.180	556.6	513.5	43.1	16.3	30.9
100	0.150	555.7	512.6	43.1	16.3	14.6
200	0.075	524.2	491.3	32.9	12.4	0.0
PAN		495.4	492.0	3.4	1.3	ополните и продокторните на Прими. На полните и продокторните полните на полните полните на полните на полните на полните на полните на полните на
		Long produce a destablished where a second and a second destablished a destablished and a second destablished a	And international sectors are and the sector of the sector			

2.2	95.6	1.3
% GRAVEL	% SAND	% SILT & CLAY

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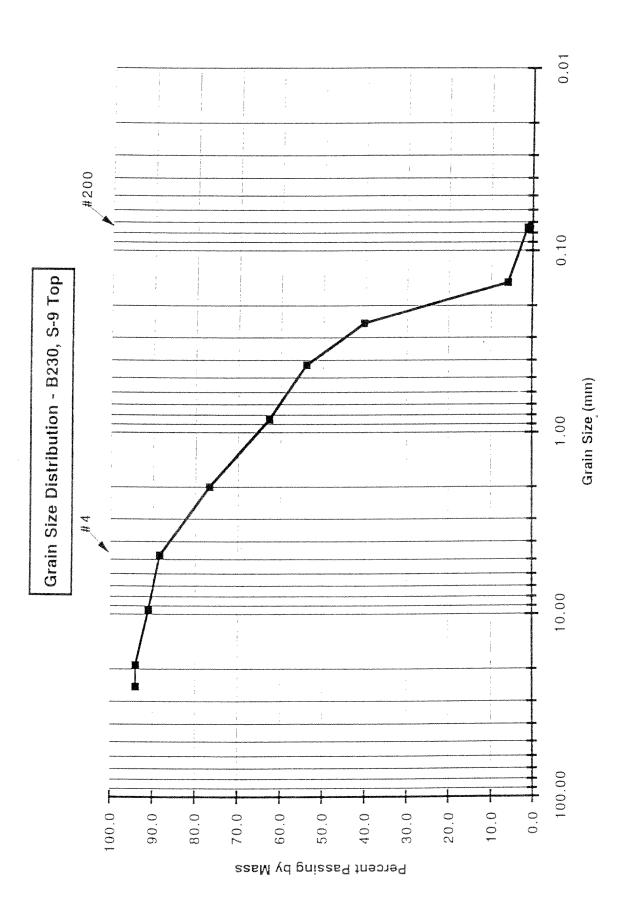
Clay			T	1	
andy Silty	% Passir	by mass	100.0	100.0	
SAMPLE: S-7 FIELD DESCRIPTION: Brown/Grey Sandy Silty Clay	Mass Soil % Retained % Passing	by mass	0.0	0.0	
SCRIPTION: Bro	Mass Soil	Retained	0.0	0.0	
FIELD DE	Mass of	Sieve, g	812.7	814.8	0.45 4
	Mass Sieve	plus Soil, g	812.7	814.8	0 A Ci +
502.8		Diam. (mm)	25.00	19.00	ч
		Sieve Number		3/4"	3 / B =

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
¥	4.750	826.2	816.4	9.8	1.9	98.1
10	2.000	788.2	711.9	76.3	15.2	82.9
20	0.850	736.3	629.1	107.2	21.3	61.6
40	0.425	616.5	555.7	60.8	12.1	49.5
60	0.250	578.5	525.9	52.6	10.5	39.0
80	0.180	649.0	513.5	135.5	26.9	12.1
100	0.150	543.9	512.6	31.3	6.2	5.8
200	0.075	514.8	491.3	23.5	4.7	1.2
PAN		495.6	492.0	3.6	0.7	

% GRAVEL	1.9
% SAND	96.9
% SILT & CLAY	0.7



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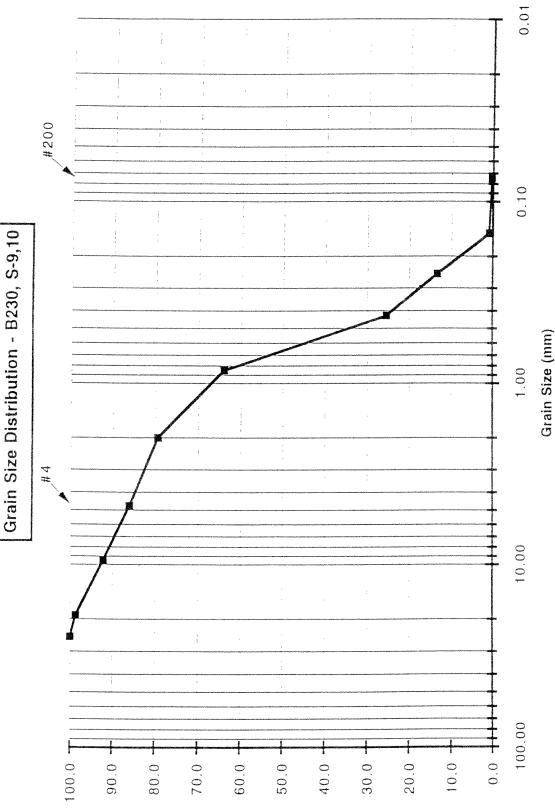
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Mass Dish + Sample	562.9	BOHING: B230	. B230
Mass of Dish	162.9	SAMPLE	SAMPLE: S-9 Top
Mass Sample	400	FIELD DESCRIPTION	FIELD DESCRIPTION: Brown Sand and Gravel

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sięve, g	Retained	by mass	by mass
	25.00	837	812.7	24.3	6.1	93.9
3/4"	19.00	814.8	814.8	0.0	0.0	93.9
3/8"	9.5	857.1	845.1	12.0	3.0	90.9
4	4.750	826.6	816.4	10.2	2.6	88.4
10	2.000	758.7	711.9	46.8	11.7	76.7
20	0.850	685.0	629.1	55.9	14.0	62.7
4.0	0.425	590.7	555.7	35.0	8.8	54.0
60	0.250	580.8	525.9	54.9	13.7	40.2
100	0.150	649.6	512.6	137.0	34.3	6.0
200	0.075	510.0	491.3	18.7	4.7	1.3
PAN		494.8	492.0	2.8	0.7	
Summary and a second	A PARTY AND A REPORT OF A DESCRIPTION OF A					

% GRAVEL	5.6
% SAND	87.1
% SILT & CLAY	0.7





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Percent Passing by Mass

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BORING: B230	SAMPLE: S-9,10	FIELD DESCRIPTION: Brown Sand and Gravel	
BORING	SAMPLE	FIELD DESCRIPTION	
1246.8	162.9	1083.9	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
- 11	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	829.4	814.8	14.6	1.3	98.7
3/8"	9.5	914.9	845.1	69.8	6.4	92.2
4	4.750	883.0	816.4	66.6	6.1	86.1
10	2.000	783.6	711.9	71.7	6.6	79.5
20	0.850	796.5	629.1	167.4	15.4	64.0
40	0.425	973.6	555.7	417.9	38.6	25.5
60	0.250	657.2	525.9	131.3	12.1	13.3
100	0.150	647.1	512.6	134.5	12.4	0.9
200	0.075	497.7	491.3	6.4	0.6	0.3
PAN		493.2	492.0	1.2	0.1	

% GRAVEL % SAND % SILT & CLAY



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BORING: B232	: S-6	FIELD DESCRIPTION: Grey/Black Clayey Silt, Trace Sand	Some Wood Fibers	Mass of Mass Soil % Retained % Passing
BORING	SAMPLE: S-6	FIELD DESCRIPTION		
340.1	163.53	176.57		Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample		

				Loop and the second s		1000
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100 0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	817.8	816.4	1.4	0.8	6 66
10	2.000	712.2	711.9	0.3	0.2	0.00
20	0.850	630.8	629.1	1.7	1.0	98.1
40	0.425	582.4	555.7	26.7	15.1	83.0
60	0.250	543.7	525.9	17.8	10.1	72.0
100	0.150	533.8	512.6	21.2	12.0	60.9
200	0.075	516.3	491.3	25.0	14.2	46.7
PAN		572.6	492.0	80.6	45.6	0.0
			WEINSTRUCTURE ADDRESS OF THE OWNER ADDRE	Water and the second	Annual and a second s	

0.8	52.5	45.6	and the second se
% GRAVEL	% SAND	% SILT & CLAY	

BORING: B232	SAMPI F. S.7 S.8	FIELD DESCRIPTION: Very Fine Brown Silty Sand, Trace Silt	
B	SA	FIELD DESCRI	Mace Siovo Mace 41.000
620.6	163.53	457.07	
Mass Dish + Sample	Mass of Dish	Mass Sample	

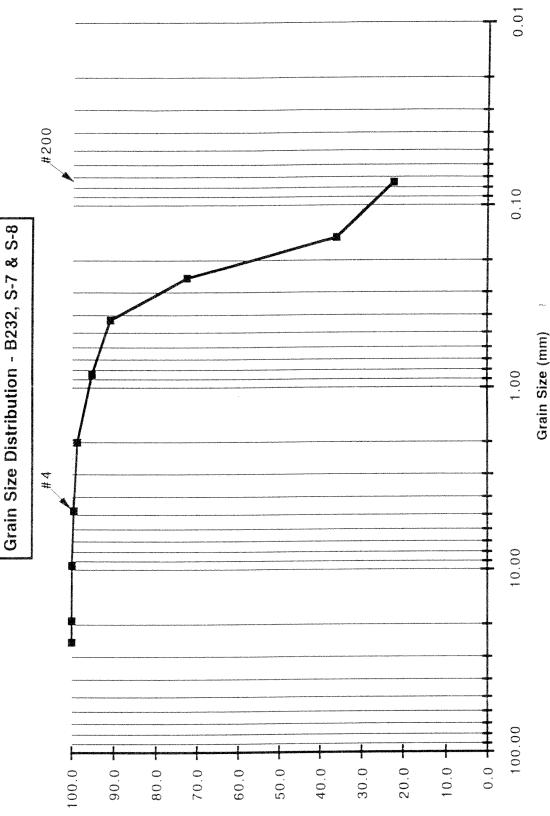
				Summers and a summer and a summer and a summer of the summer of		
r weeks daad ka alayay ka kala ka sanaa a sanaa ka ka waxaa waxaa a sanaa sanaa sanaa sanaa sanaa ka ka ka ka k	a mari ka da ka	Mass Sieve	Mass of	Mass Soil	% Retained	of Darring
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, q	Retained	hv mace	Vil assing
2.	25.00	8127	R107		comin fa	vy 111433
# V / C		1 · · · · · · · · · · · · · · · · · · ·	016.1	0.U	0.0	100.0
0/4	19.00	814.8	814.8	0.0	0 0	100 0
3/8"	9.5	845.1	845.1	00		0.001
4	4.750	818.0	816.4			0.00
10	2.000	715.8	711 0		0.4	99.6
06	0 0 6 0		Nº 1 1 2	0.9	0.9	98.8
	0.000	040.0	629.1	15.9	3.5	95.3
40	0.425	575.7	555.7	20.0	VV	0.00
60	0.250	610.2	525.9	C V B		a0.9
100	0.150	679.3	512 G	10.1.0	4 L	(2.2
200	0.075	557 O	404 0	100.7	30.5	36.0
IVVO		2'100	421.0	02.Y	13.8	22.3
LAN		592.4	492.0	100.4	22.0	0 0
			A PERSONNELLAR DESCRIPTION OF A PARTY OF A P			

% GHAVEL	0.4
% SAND	77.4
% SILT & CLAY	22.0

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Percent Passing by Mass

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Mass Dish + Sample	503.5	RORING. B020	R030
Mass of Dish	163.53	SAMPLE.	
Mass Sample	339.97	FIELD DESCRIPTION. Rrown Sandy Gravel	Brown Sandy Gravel

		1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1	r ' ' (t30. 06		0° " 0	I					
% Passing	by mass	83.2	78.2	63.5	50.5	42.3	33.6	25.4	13.7	8.9	6 5	0.0
% Retained		16.8	5.0	14.7	13.0	8.2	8.7	8.1	11.7	4.8	3.7	4.9
Mass Soil	Retained	57.1	17.1	49.9	44.2	27.9	29.7	27.7	39.9	16.2	12.6	16.7
Mass of	Sieve, g	812.7	814.8	845.1	816.4	711.9	629.1	555.7	525.9	512,6	491.3	492.0
Mass Sieve	plus Soil, g	869.8	831.9	895	860.6	739.8	658.8	583.4	565.8	528.8	503.9	508.7
	Diam. (mm)	25.00	19.00	9.5	4.750	2.000	0.850	0.425	0.250	0.150	0.075	
	Sieve Number	1	3/4 "	3/8"	4	10	20	40	60	100	200	PAN

45.3 32.7

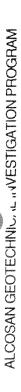
% GRAVEL % SAND % SILT & CLAY

4.9

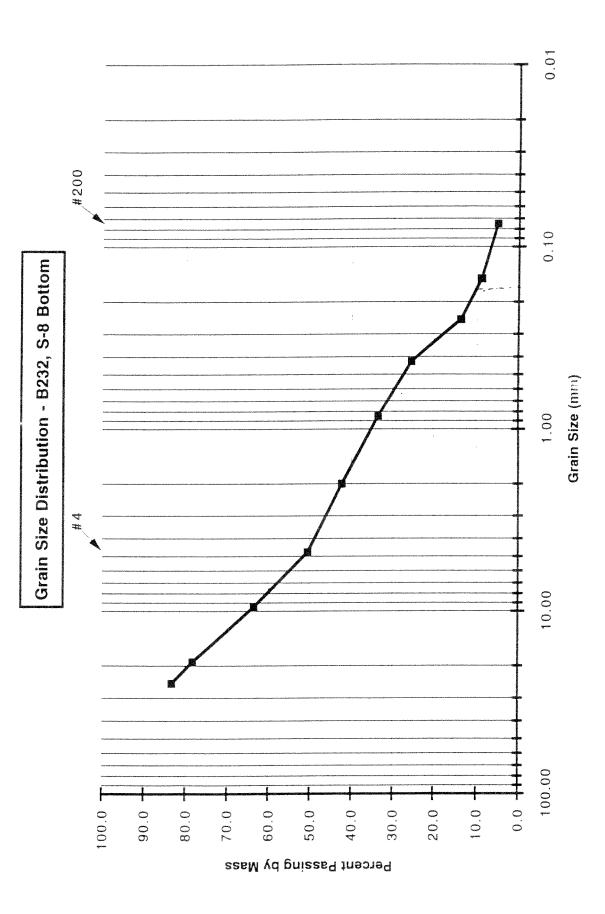
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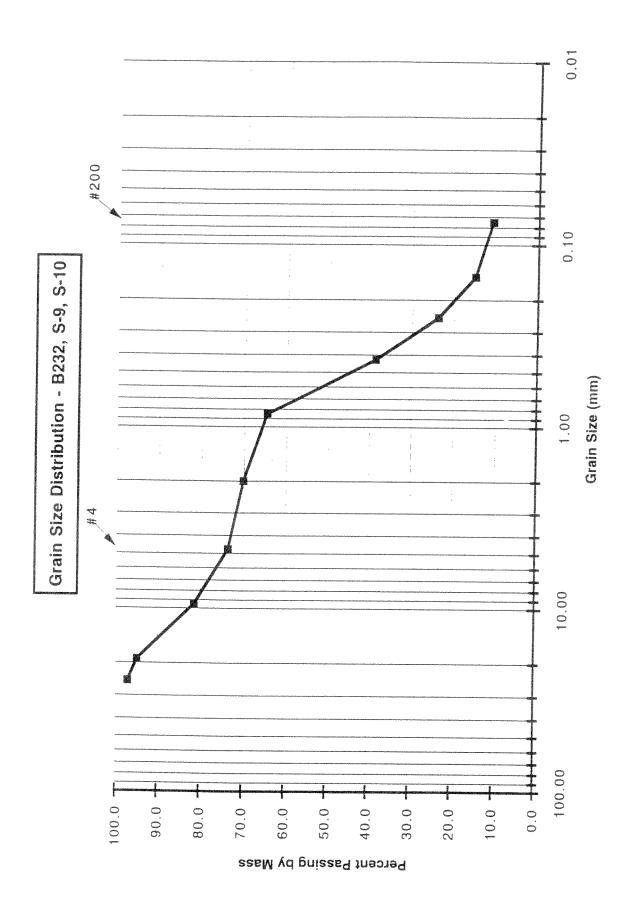


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BORING: B232	SAMPLE: S-9, S-10	FIELD DESCRIPTION: Med. Brown Sand, Some Gravel	
BO		FIELD DESCRIP	
799.2	163.53	635.67	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	831.6	812.7	18.9	3.0	97.0
3/4"	19.00	828.7	814.8	13.9	2.2	94.8
3/8"	9.5	930.5	845.1	85.4	13.4	81.4
4	4.750	865.9	816.4	49.5	7.8	73.6
10	2.000	734.7	711.9	22.8	3.6	70.0
20	0.850	663.9	629.1	34.8	5.5	64.6
40	0.425	721.4	555.7	165.7	26.1	38.5
60	0.250	620.1	525.9	94.2	14.8	23.7
100	0.150	567.9	512.6	55.3	8.7	15.0
200	0.075	516.3	491.3	25.0	3.9	11.0
PAN		561.3	492.0	69.3	10.9	0.0

 iu se	23.4 62.6 10.9	% GRAVEL % SAND % SILT & CLAY
	60 G	

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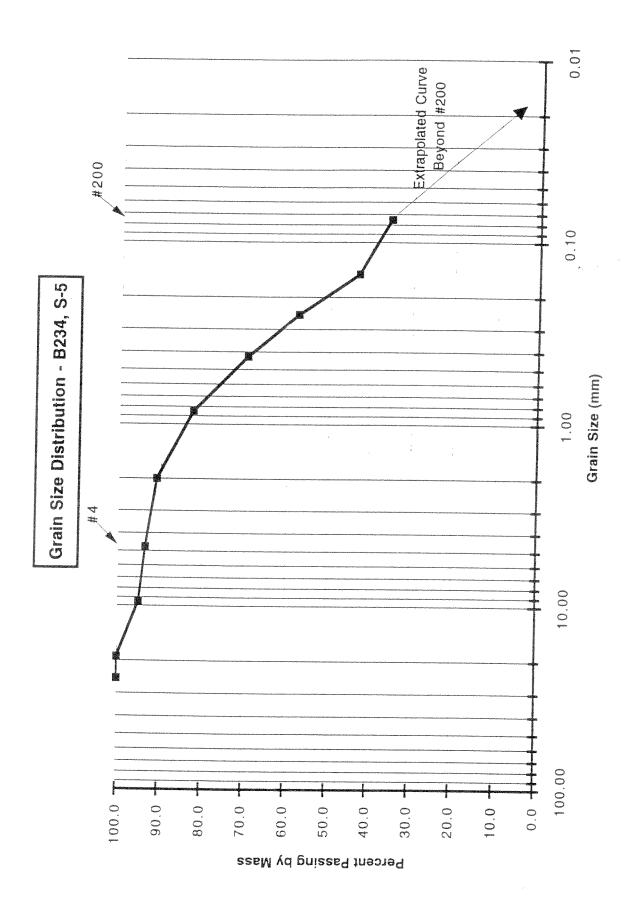
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BORING: B234 SAMPLE: S-5	FIELD DESCRIPTION: Grey/Brown Mottled Silty Clay w/ Gravel	Mass Soil % Retained % Passing	Retained by mass by mass	
	FIELD DESC	Mass of A	Sieve, g	The second diversion of the second
		Mass Sieve	Diam. (mm) plus Soil, g	and a support of the
163.53	190.47		Diam. (mm)	
Mass Dish + Sample Mass of Dish	Mass Sample		Sieve Number	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	854.6	845.1	9.5	5.0	95.0
4	4.750	819.3	816.4	2.9	1.5	93.5
10	2.000	716.8	711.9	4.9	2.6	90.9
20	0.850	645.2	629.1	16.1	8.5	82.5
40	0.425	580.3	555.7	24.6	12.9	69.5
60	0.250	548.7	525.9	22.8	12.0	57.6
100	0.150	540.5	512.6	27.9	14.6	42.9
200	0.075	506.0	491.3	14.7	7.7	35.2
PAN		557.6	492.0	65.6	34.4	0.0

% GRAVEL % SAND % SILT & CLAY

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ayey Fill		% Passing	uy mass	100.0	100.0	100.0	98.5	96.9	95.7	82.1	1.90
BORING: B234 SAMPLE: S-6,S-7 FIELD DESCRIPTION: Grey Sandy Clayey Fill Trace Bricks, Wood	of Dotoined	/o netained			0.0	0.0	c. c	0, +		10.0	0.01 K K K
BORING: B234 SAMPLE: S-6,S-7 SCRIPTION: Grey Sa Trace R	Mase Soil	Retained					0.0			20.00 20 50	166.4
FIELD DE	Mass of	Sieve, q	812.7	814.8	845.1	816.4	711 9	629.1	555.7	525.9	512.6
	Mass Sieve	plus Soil, g	812.7	814.8	845.1	822.2	717.9	633.4	606.5	576.4	679.0
538.2 163.53 374.67		Diam. (mm)	25.00	19.00	9.5	4.750	2.000	0.850	0.425	0.250	0.150
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number	**	3/4"	3/8"	4	10	20	40	60	100

1.5	84.7	13.2	
% GRAVEL	% SAND	% SILT & CLAY	

24.3 13.8 0.0

44.4

166.4

10.5 13.2

39.3 49.5

491,3 512.6

530.6 541.5

200 PAN

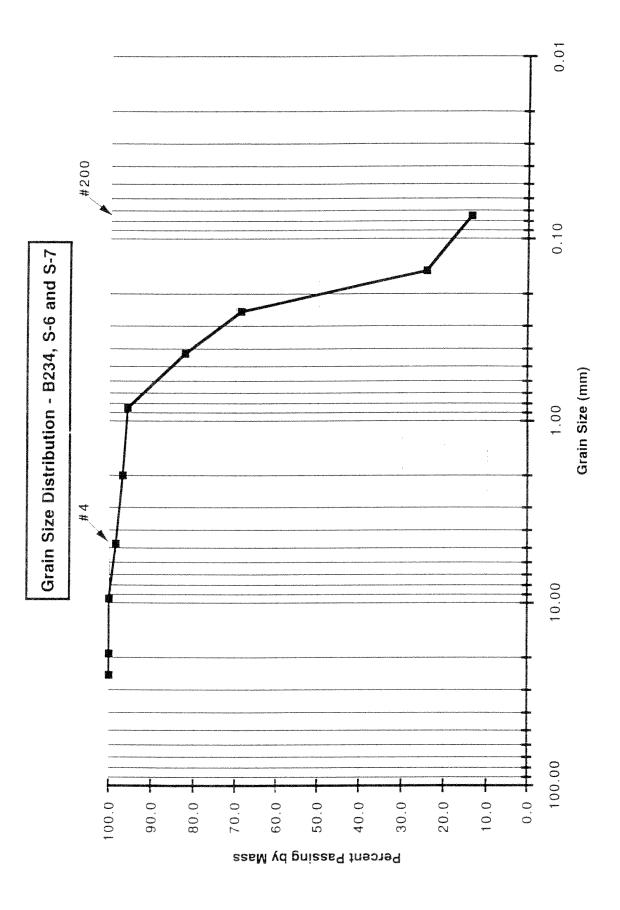
679.0

0.150 0.075 492.0

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BORING: B234 SAMPLE: S-8 FIELD DESCRIPTION: Grey/Black Very Fine Sandy Silt control		Poteinord human in assing
BORING: B234 SAMPLE: S-8 ESCRIPTION: Grey/B	Mace Soil	Botainod
FIELD DI	Mass of	
	Mass Sieve	plus Soil. a
413.7 163.53 250.17		Diam. (mm) plus Soil. a
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number

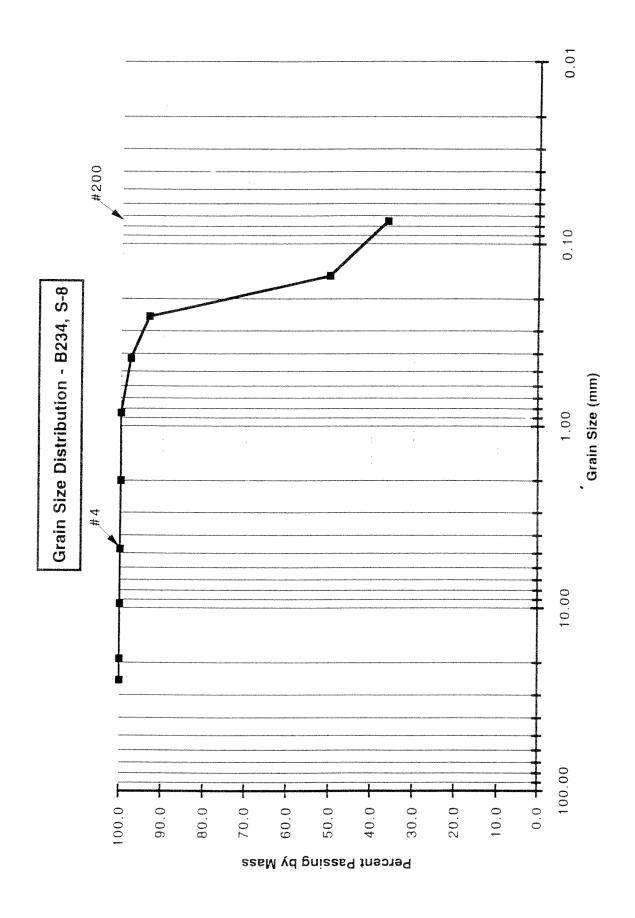
		Mass Sieve	Mass of	Mase Soil	0% Donichod	0/ 0
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, a	Retained	hy mace	/o Passing
8	25.00	812.7	812.7	0 0	0.0	
3/4"	19.00	814.8	814.8			100.0
3/8"	9.5	845.1	845.1			
4	4.750	816.4	816.4			
10	2.000	712.0	711.9	0 1		100.0
20	0.850	629.2	629.1			0.001
40	0.425	561.4	555.7	5.1	<u>, , , , , , , , , , , , , , , , , , , </u>	88.8
60	0.250	536.9	525.9	011	Z.3	97.6
100	0.150	620.3	512.6	107 7	+. +	93.Z
200	0.075	525.7	491.3	34 4	-,0+ -,0+	2.00
PAN		581.3	492.0	89.3	35.7	\$00.0
	THE REAL PROPERTY AND DESCRIPTION OF THE PROPERTY AND DESCRIPA	and the second se	A CONTRACTOR OF A CONTRACTOR O		- 	>.>

0.0	63.6	35.7
% GRAVEL	% SAND	% SILT & CLAY

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Mass Dish + Sample	505.3	BOBNC: DOM	
Mass of Dish	163.53	SAMPLE: S.D	5.0 S.0
Mass Sample	341.77	FIELD DESCRIPTION: Brown Sandy Gravel	Brown Sandy Gravel

		A CONTRACTOR OF A CONTRACTOR O		and a second		
		Mass Sieve	Mass of	Mass Soil	% Retained	% Paccing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hv mass
2	25.00	812.7	812.7	0.0	0 0	100.0
3/4"	19.00	848.3	814.8	33.5		00.00
3/8"	9.5	941.7	845.1	96.6	28.3	51 0
4	4.750	864.8	816.4	48.4	14.2	A7 B
10	2.000	740.6	711.9	28.7	B	N 06
20	0.850	650.6	629.1	21.5	6.3	t. c.c.
40	0.425	593.9	555.7	38.2	0.11	010
60	0.250	550.2	525.9	24.3	7 1	14 0
100	0.150	530.3	512.6	17.7	5.2	0.40
200	0.075	510.0	491.3	18.7	2.2	4 1 4 1
PAN		504.7	492.0	12.7	3.7	0.0



0.01 #200 0.10 Grain Size Distribution - B234, S-9 Grain Size (mm) 1.00 #4 10.00 0.0 100.00 10.01 100.0 30.0 20.0 90.0 60.0 50.0 40.0 80.0 70.0 Percent Passing by Mass

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B234	S-10	FIELD DESCRIPTION: Med. Coarse Brown Sand	
BORING: B234	SAMPLE: S-10	FIELD DESCRIPTION:	
449.1	163.53	285.57	
Mass Dish + Sample	Mass of Dish	Mass Sample	

nber Di	m. (mm) 25.00					
					/ חבוקוואה /	/o rassing
	00.	plus Soil, g	Sieve, g	Retained	by mass	by mass
	<	812.7	812.7	0.0	0.0	100.0
	UU	814.8	814.8	0.0	0.0	100.0
	9.5	850.8	845.1	5.7	2.0	0.89
	4.750	819.9	816.4	3.5	1.2	96.8
	2.000	720.3	711.9	8.4	2.9	93.8
	0.850	667.5	629.1	38.4	13.4	80.4
	0.425	675.8	555.7	120.1	42.1	38.3
60 0.250	250	575.0	525.9	49.1	17.2	211
100 0.1	0.150	532.4	512.6	19.8	6.9	14.2
	0.075	511.4	491.3	20.1	7.0	7.2
PAN		510.9	492.0	18.9	6.6	0.0

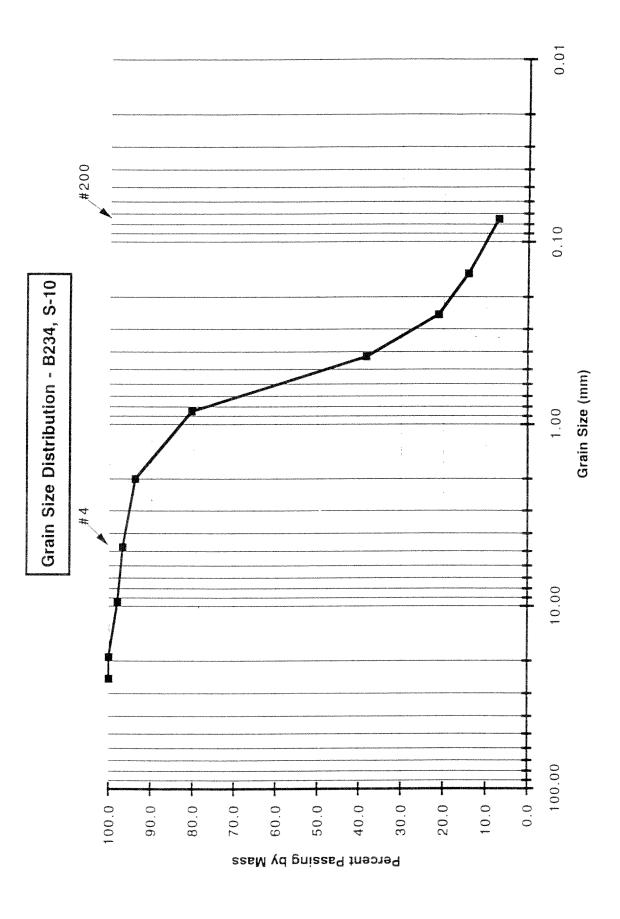
3.2	89.6	6.6
% GRAVEL	SAND	% SILT & CLAY



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	BORING: B234	SAMPLE: S-11	FIELD DESCRIPTION: Med. Coarse Reddish Brown Sand	
			FIELD DESC	
	4/2.9	163.53	309.37	
Maco Diab - Camila	wiass Lilsii + Sampie	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	846.7	845.1	1.6	0.5	99.5
4	4.750	819.0	816.4	2.6	0.8	98.6
10	2.000	712.9	711.9	1.0	0.3	98.3
20	0.850	632.4	629.1	3.3	e e e e e e e e e e e e e e e e e e e	97.3
40	0.425	724.5	555.7	168.8	54.6	42.7
60	0.250	591.4	525.9	65.5	21.2	215
100	0.150	540.0	512.6	27.4	8.9	12.7
200	0.075	510.2	491.3	18.9	6.1	6.6
PAN		510.7	492.0	18.7	6.0	0.0

1.4	92.1	6.0
% GRAVEL	% SAND	% SILT & CLAY

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0.01 #200 0.10 Grain Size Distribution - B234, S-11 Grain Size (mm) 1.00 #4 10.00 100.00 0.0 ŀ 100.0 10.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 Percent Passing by Mass

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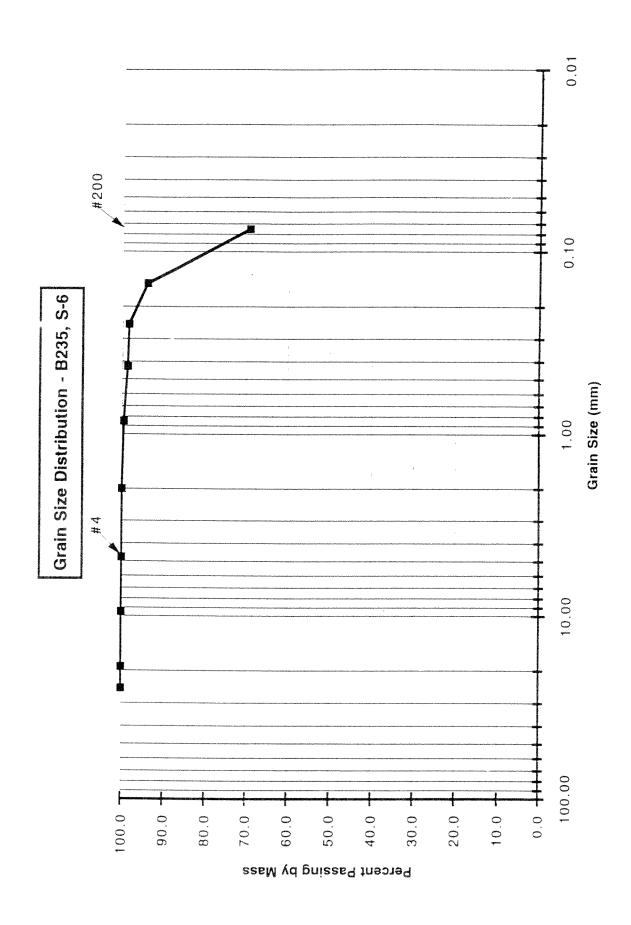
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
41	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.8	629.1	0.7	0.4	99.6
40	0.425	557.1	555.7	1.4	0.9	98.7
60	0.250	526.3	525.9	0.4	0.3	98.4
100	0.150	519.6	512.0	7.0	4.4	94.0
200	0.075	530.6	491.3	39.3	24.7	69.4
PAN		601.4	492.0	109.4	68.7	0.0

% GRAVEL	0.0
% SAND	30.6
6 SILT & CLAY	68.7

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try Fine Silty S		% Passing	1	100.0	100.0	100.0
B235 S-7 Grey/Black Verv Fine Siltv Sand	Trace Coal	Mass Soil % Retained	by mass	0.0	0.0	0.0
BORING: B235 SAMPLE: S-7 FIELD DESCRIPTION: Grey/E		Mass Soil	Retained	0.0	0.0	0.0
FIELD DE		Mass of	Sieve, g	812.7	814.8	845.1
		Mass Sieve	plus Soil, g	812.7	814.8	845.1
309.0 162.9 146.1			Diam. (mm)	25.00	19.00	9.5
Mass Dish + Sample Mass of Dish Mass Sample	havan non ken na kana banka kana ang makana na kana na kana na kana kana kan		Sieve Number	12	3/4"	3/8"

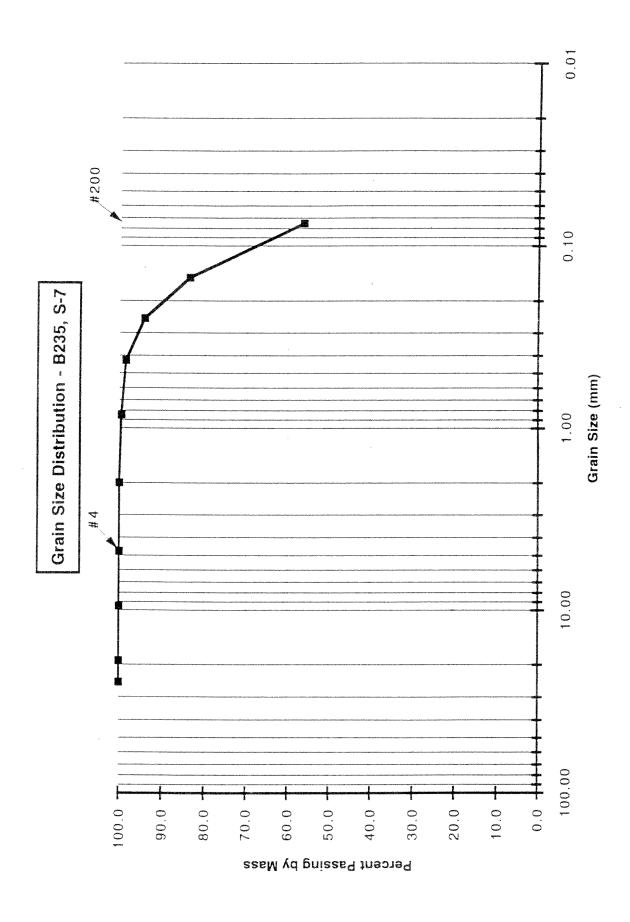
		Mass Sieve	Mass of	Mass Soil	% Retained	% Daccinn
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
2	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.8	629.1	0.7	0.5	99.5
40	0.425	557.1	555.7	4.1	1 0	08 6
60	0.250	532.3	525.9	6.4	4.4	94.2
100	0.150	528.0	512.6	15.4	10.5	83.6
200	0.075	531.1	491.3	39.8	27.2	56.4
PAN		571.0	492.0	79.0	54.1	0.0
			Privation in the second and an experimental interaction of the second second second second second second second)

0.0	43.6	54.1	
% GRAVEL	% SAND	% SILT & CLAY	

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FIELD DESCRIPTION: Brown Sandy Gravel Mass of Mass Soil % Retained % Passing	ESCRIPTION: Brov	Mass Sieve	162.9 624.9	Mass of Dish 162.9 Mass Sample 624.9 Sieve Number Diam (mm) 24.0
: B235	BORING: B235		787.8	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained I	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	V mass
2	25.00	875.6	812.7	62.9	10.1	89.9
3/4"	19.00	831.3	814.8	16.5	2.6	87.3
3/8"	9.5	945.1	845.1	100.0	16.0	713
4	4.750	907.4	816.4	91.0	14.6	56.7
10	2.000	763.4	711.9	51.5	8.2	48.5
20	0.850	680.1	629.1	51.0	8.2	40.3
40	0.425	660.6	555.7	104.9	16.8	23 5
60	0.250	594.1	525.9	68.2	10.9	12.6
100	0.150	571.7	512.6	59.1	9.5	2 ° E
200	0.075	506.1	491.3	14.8	2.4	2.2 0 8 0
PAN		494.7	492.0	2.7	0.4	0.0

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0.01 #200 ļ 0.10 6-S Grain Size Distribution - B235, S-8 & Grain Size (mm) 1.00 # 4 10.00 0.0 100.00 100.0 10.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 Percent Passing by Mass

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Mass Dish + Sample 780.0 BORING: B235 Mass of Dish 162.9 SAMPLE: S-10, S-11 Mass Sample 617.1 FIELD DESCRIPTION: Med. Coarse Brn. Sand, Some Gravel Mass Sample Mass Sieve Mass of Mass Soil % Retained % Passing	Diam (mm) blue Soil a	8m. Sand, Some Gravel % Passing	B235 S-10, S-11 Med. Coarse B % Retained	BORING: SAMPLE: SSCRIPTION: Mass Soil Behained	Ma	Mass Sieve	780.0 162.9 617.1		
***		% Passing	% Retained	Mass Soil	Mass of	Mass Sieve			
617.1		Jrn. Sand, Some Gravel	Med. Coarse B	SCRIPTION:	FIELD DE		617.1	Mass Sample	-
C 4 7 4	Mass Sieve Ma		(C 4 7 4	Maca Cample	
162.9	617.1 Mass Sieve Ma		S-10, S-11	SAMPLE:			162.9	Mass of Dish	
780.0	162.9 617.1 Mass Sieve Ma		B235	BORING:			780.0	Mass Dish + Sample	
	780.0 162.9 617.1 Mass Sieve Ma								

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4 "	19.00	864.3	814.8	49.5	8.0	92.0
3/8"	9.5	900.5	845.1	55.4	0.6	83.0
4	4.750	866.4	816.4	50.0	. 8.1	74.9
10	2.000	745.2	711.9	33.3	5.4	69.5
20	0.850	664.1	629.1	35.0	5.7	63.8
40	0.425	772.3	555.7	216.6	35.1	28.7
60	0.250	599.2	525.9	73.3	11.9	16.9
100	0.150	554.9	512.6	42.3	6.9	10.0
200	0.075	516.3	491.3	25.0	4.1	5.9
PAN		526.3	492.0	34.3	5.6	0.0

% GRAVEL	25.1
% SAND	69.0
6 SILT & CLAY	5.6

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BORING: B237 SAMPLE: S-3 FIELD DESCRIPTION: Olive Silt w/ traces of Cinders & Bricks	Mass of Mass Soil % Retained % Passing
BORING: B237 SAMPLE: S-3 FIELD DESCRIPTION: Olive S	Mass Sieve Mass of Mass Soil
386.4 162.9 223.46	
Mass Dish + Sample Mass of Dish Mass Sample	

				and the second		
		Mass Sieve	Mass of	Mass Soil	% Ratainod	0/ D
Sieve Number	Diam. (mm)	plus Soil, a	Sieve. a	Retained	ha marai	/o rassing
-			G for the second	nominar	UY IIIASS	by mass
	00.02	812.7	812.7	0.0	0.0	100.0
3/4 "	19.00	814.8	814.8	0 0		0.00
3/8"	9.5	845 1	RAE 1		0.0	100.0
4	A 760		1.040	0.0	0.0	100.0
-	00011	2.120	816.4	4.8	~ 	97.0
2	2.000	717.9	711.9	60	- C	
20	0 850	627 0			<i>2.1</i>	2.08
		0.100	023.1	8./	3.9	91.3
4 0	0.425	559.5	555.7	A C	4 4	
60	0.250	534 1	EDE D			89.6
100			020.9	۵.2	3.7	85.9
>>	0.1.0	531.0	512.6	18.4	8 2	777
200	0.075	533.4	401 2	+ 01		1.11
PAN			0.101	46.1	18.8	58.8
		01810	492.0	126.6	56.7	00
						>

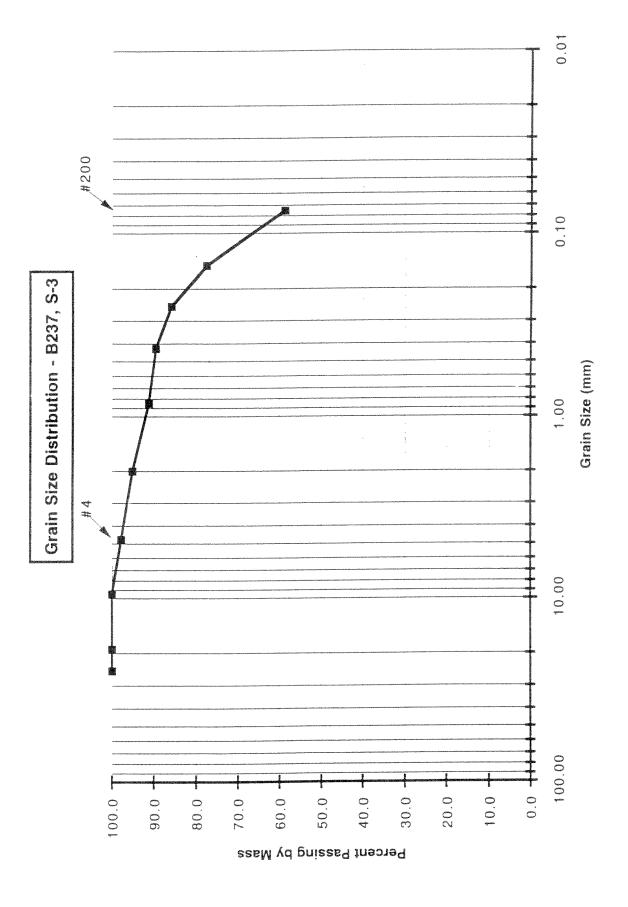
1 6	39.0	56.7	
% GRAVEI	% SAND	% SILT & CLAY	

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		101100			
y Silty Sand	Slag	% Paccing	Furces 10/	100.0	
BORING: B237 SAMPLE: S-7 FIELD DESCRIPTION: Very Fine Grey Silty Sand	Trace Coal & Slag	Mass Soil % Retained % Passing	by mass	0.0	>.>
BORING: B237 SAMPLE: S-7 ESCRIPTION: Very F		Mass Soil	Retained	0.0	
FIELD DR	Barda ka sa sa	Mass of	Sieve, a		The second se
		Mass Sieve	plus Soil, g	812.7	and the second
472.2 162.9 309.3			Diam. (mm)	25.00	
Mass Dish + Sample Mass of Dish Mass Sample			Sieve Number	2	

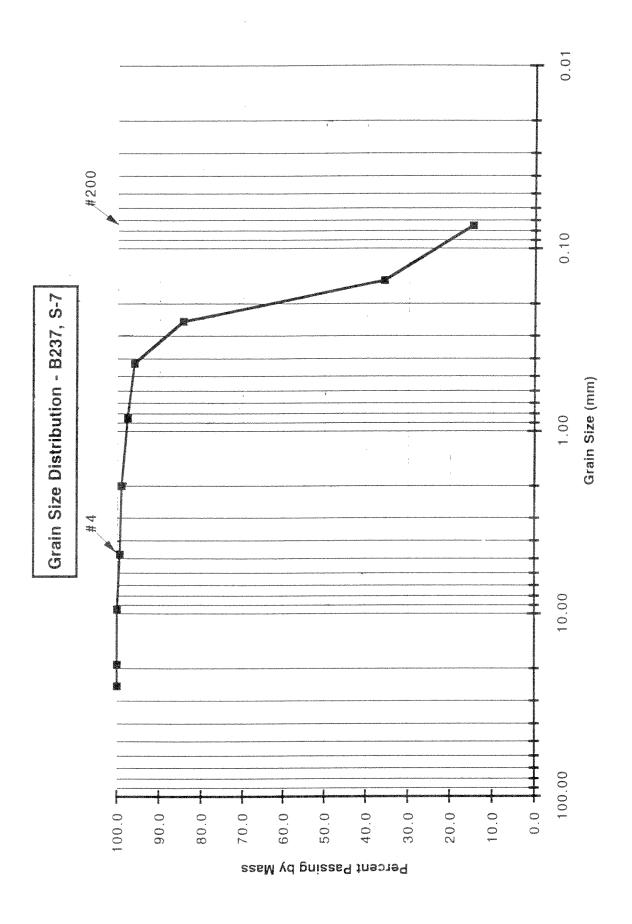
					TIANG CUAL & UIAU	Jay
		Mass Sieve	Mass of	Mass Soil	% Retained	% Daccing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, q	Retained	by mass	hineen 10/
	25.00	812.7	8127	0 0		conu fa
3/4"	10.00	0110			0.0	100.0
= 0 1 0	00.51	014.0	014.0	0.0	0.0	100.0
3/8_	9.5	845.1	845.1	0.0	0.0	100 0
4	4.750	818.4	816.4	2.0	0.6	N 00
10	2.000	712.9	711.9	1.0		4.00
20	0.850	633.5	629.1	V V	· · ·	0.50
UV	0 ADE				+	91.0
	0.420	c.0oc	555.7	4.8	1.6	96.1
60	0.250	562.0	525.9	36.1	11.7	RA A
100	0.150	662.9	512.6	150.3	48.6	35.8
200	0.075	556.0	491.3	64.7	20.0	0.00
PAN		535.0	492.0	43.0	13.9	0.0
		and the second se		Second	<u> </u>	

Contraction and a support of the second state	CONTRACTOR OF THE OWNER AND ADDRESS OF THE OWNER
% GRAVEL	0.6
% SAND	84.5
% SILT & CLAY	13.9

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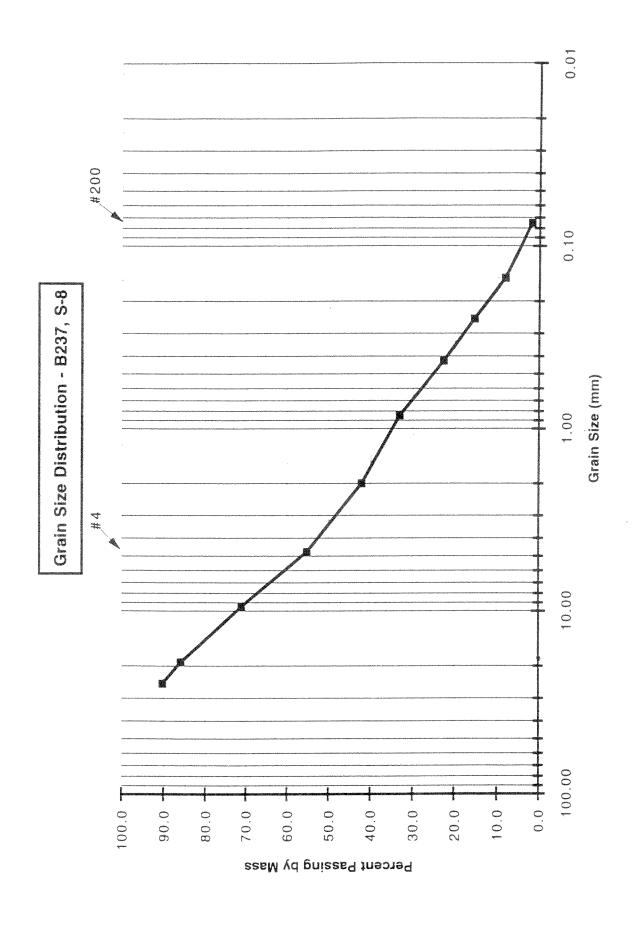
Some Sand	% Passing	hu mooo
BORING: B237 SAMPLE: S-8 FIELD DESCRIPTION: Brown Gravel, Some Sand	Mass Soil % Retained % Passing	Retained by mace
BORING: B237 SAMPLE: S-8 ESCRIPTION: Brown	Mass Soil	Retained
LIELD DI	Mass of	Sieve. a
	Mass Sieve	Diam. (mm) plus Soll. g
503.7 162.9 340.8		Diam. (mm)
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number

		Mass Sieve	Mass of	Mass Soil	% Retained	% Paceinn
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	846	812.7	33.3	9.8	90 2
3/4"	19.00	829.4	814.8	14.6	4.3	85 Q
3/8"	9.5	895.7	845.1	50.6	14.8	711
4	4.750	870.3	816.4	53.9	15.8	55.3
10	2.000	756.7	711.9	44.8	13.1	42.1
20	0.850	659.5	629.1	30.4	6.8	33.2
40	0.425	591.8	555.7	36.1	10.6	22.6
60	0.250	550.6	525.9	24.7	7.2	15.4
100	0.150	536.9	512.6	24.3	7.1	8.2
200	0.075	512.8	491.3	21.5	6.3	0.1
PAN		496.3	492.0	4.3	1.3	0.0
			AND CONTRACTORS OF STREET, SALES AND	A REAL PROPERTY OF THE PARTY OF	¥	

34.9	53.3	1.3	
% GRAVEL	% SAND	% SILT & CLAY	

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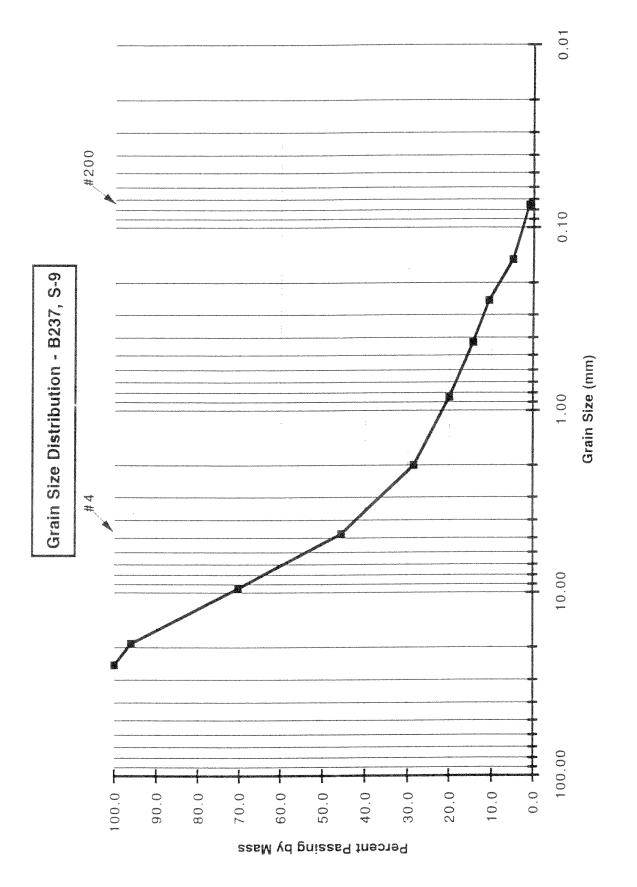
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				Service of the second		
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
11	25.00	812.7	812.7	0.0	0 0	100.0
3/4"	19.00	829.7	814.8	14.9	0.0	0.001
3/8"	9.5	941.7	845.1	96.6	25.8	20.0
4	4.750	908.4	816.4	92.0	24.6	10.C
10	2.000	775.7	711.9	63.8	17.1	0.04
20	0.850	660.9	629.1	31.8	α 	0.02
40	0.425	576.6	555.7	0.10	0.0	× • •
60	0.250	539.6	525.9	13.7	0.0	40.04
100	0.150	533.7	512.6	211	- 4	- 1.0 F 4
200	0.075	506.4	491.3	15.1	0.0	
PAN		493.9	492.0	1.9	0.5	
			A NUMBER OF A DESCRIPTION OF A DESCRIPTI	The second se		0.0

54.4	44.5	0.5	Constant Stored for an and a store store with store and store the store of the store of the
% GRAVEL	% SAND	% SILT & CLAY	

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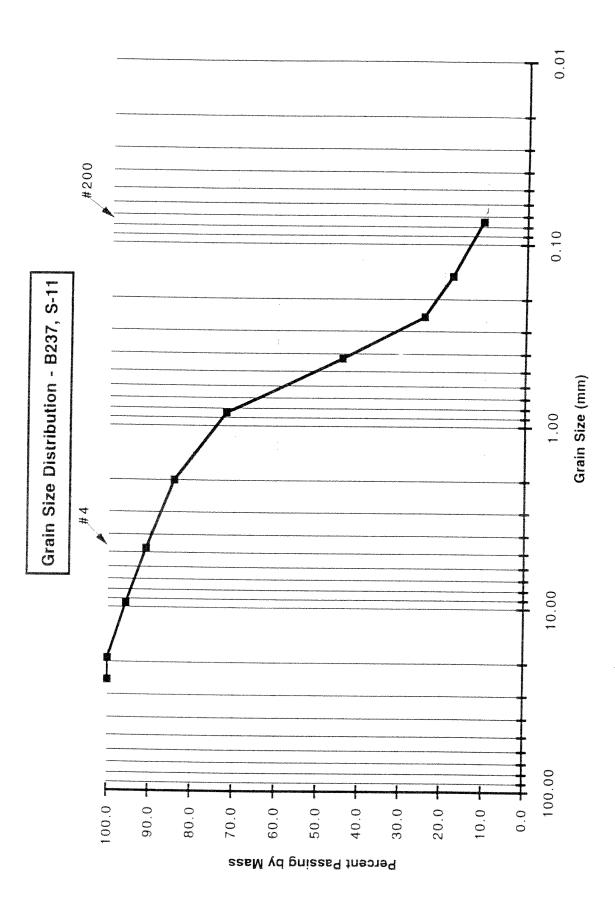
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BORING: B237	SAMPLE: S-11	FIELD DESCRIPTION: Med. Coarse Brown Sand, Some Gravel		e Mass of Mass Soil % Retained % Passing
484.6	162.9	321.7		Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	en treven i so so a reven se versión de torent de de serve signe en particular de treven de serve so so so so s	

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		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soll, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	858.9	845.1	13.8	4.3	95.7
4	4.750	831.8	8\$6.4	15.4	4.8	90.9
10	2.000	733.0	711.9	21.1	6.6	84.4
20	0.850	669.1	629.1	40.0	12.4	71.9
40	0.425	644.5	555.7	88.8	27.6	44.3
60	0.250	589.7	525.9	63.8	19.8	24.5
100	0.150	534.0	512.6	21.4	6.7	17.8
200	0.075	514.0	491.3	22.7	7.1	10.8
PAN		524.6	492.0	32.6	10.1	0.0

9.1	80.1	10.1
% GRAVEL	% SAND	% SILT & CLAY

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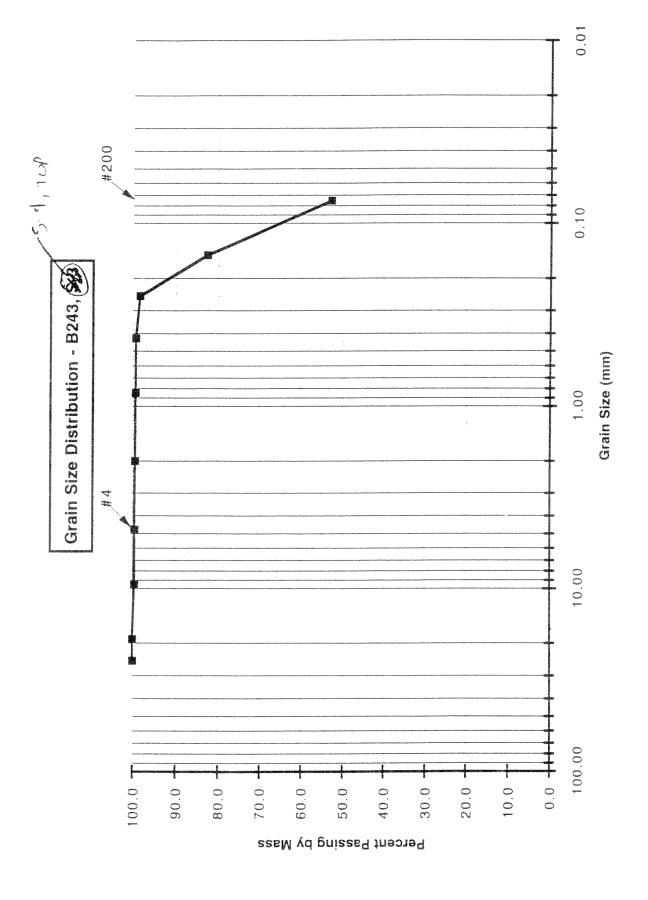
BORING: B243 SAMPLE: S-≪ar / , Tor FIELD DESCRIPTION: Grey/Brown Sandy Clay	Macs of Macs Soil of Datained of S.
BOR SAMI FIELD DESCRIPTI	Stationers
463.2 162.9 300.3	Mass Sieve
Mass Dish + Sample Mass of Dish Mass Sample	

			annin den sie der Arbeiten standen ander steht der Anders ander steht der Anders ander steht der Anders ander s	and a second		
		Mass Sieve	Mass of	Mass Soil	% Retained	% Daceina
Sieve Number	Diam. (mm)	plus Soil, q	Sieve. a	Retained	hy mase	hu maaa
4 11					<i>uy</i> 111433	Dy mass
	50.0A	812.7	812.7	0.0	0.0	100 0
3/4"	19.00	814.8	814.8	0 0	000	0.001
3/8"	9.5	RAF 6	015 1	> L	2,2	100.0
		0.010	040.1	C.	0.5	99.5
4	4./50	816.4	816.4	0.0	00	00 5
0	2.000	712.0	711 0	+ 0		0.0
			0.117	<	0.0	99.5
2 U	0.850	629.3	629.1	0.2	10	V 00
40	0.425	555.7	555.7			aa.4
60	0 250	200			0.0	99.4
	V.F.V	0.020	525.9	2.9	0.1	98.4
100	0.150	560.1	512.6	47.5	15.8	0 0 0
200	0.075	580 A	401.0	* 00	0.01	07.0
		1.000	0.104	04.1	29.7	52.9
FAN		646.6	492.0	154.6	51 R	00
	Construction of the second	CONTRACTOR OF A DESCRIPTION OF A DESCRIP				- > >

0.5	46.6	51.5	
% GRAVEL	% SAND	% SILT & CLAY	

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BORING: B243	SAMPI F. S. A Bottom	FIELD DESCRIPTION: Brown Clayey Fine Sand	
BORI	SAMP	FIELD DESCRIPTI	
378.0	162.9	215.1	
Mass Dish + Sample	Mass of Dish	Mass Sample	

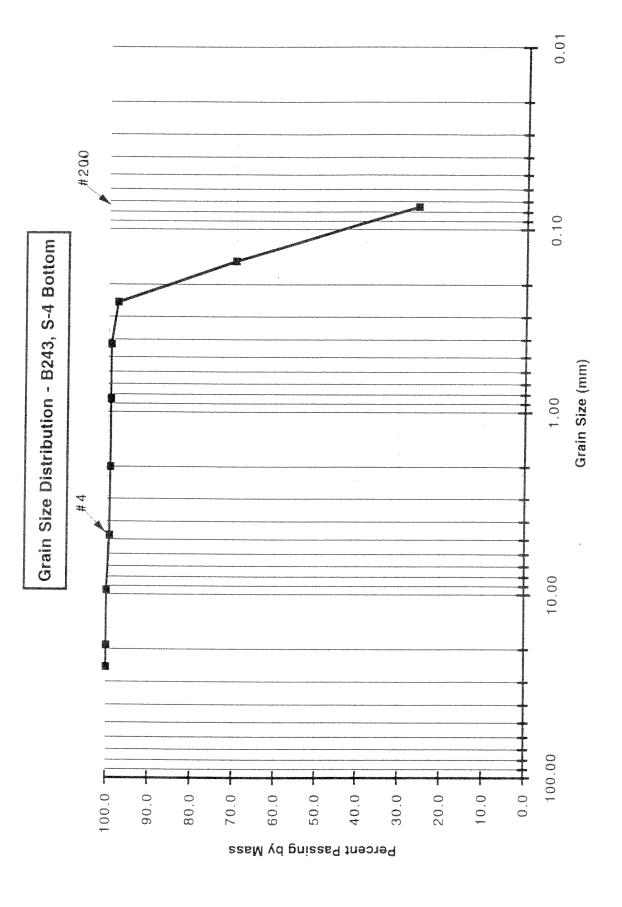
		Mass Sieve	Mass of	Mass Soil	% Ratainod	0/ D.S.S.
Sieve Number	Diam. (mm)	nlue Soll a	Ciouo z		10 1101011 0/	/o rassing
		Puro com	oleve, y	негалео	by mass	by mass
	25.00	812.7	812.7	0.0	00	100.0
3/4"	19.00	814.8	814.8			0.00+
3/8"	9.5	8451	RAF 1		0.0	100.0
V	A 750			0.0	0.0	100.0
+	00/.4	817.8	816.4	1.4	0.7	99.3
10	2.000	712.0	711.9	0 1	00	0.00
20	0 850	R 10 1	+ UUJ		>.>	39.3
		043.1	023.1	0.0	0.0	99,3
40	0.425	555.7	555.7	0 0	0 0	
60	0.250	529.3	525 9	V C	> c > +	<u>88.0</u>
100	0 150	0011		*	0	97.7
	0.1.0	0/2.3	512.6	59.7	27.8	70.0
200	0.075	586.1	491.3	94 B	4.4.1	
PAN		54A R				F.02
		0.440	436.0	Q.2C	24.5	0.0
				Concession of the second s	a source and an	

0.7	73.5	24.5	
% GRAVEL	% SAND	% SILT & CLAY	

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BORING: B243 SAMPLE: S-6 FIELD DESCRIPTION: Fine Grey Clayey Sand	Mass of Mass Soil % Retained % Doccinc	Successor / 1 annual
BORING: B243 SAMPLE: S-6 ESCRIPTION: Fine G	Mass Soil	
FIELD DE		
	Mass Sieve	Pr Diam (11.11) - 11.2 - 11
481.5 162.9 318.6		line (
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number

		Mass Sieve	Mass of	Mass Soil	% Retained	% Daccina
Sieve Number	Diam. (num)	plus Soil, g	Sieve, q	Retained	hy mace	hu maco
-	25.00	8127	R12 7		comu fa	N 111455
" V / C	10.00		0.5.1	v.v	0.0	100.0
0/4	19.00	814.8	814.8	0.0	0.0	100 0
3/8"	9.5	845.1	845.1	0.0	0 0	100.0
4	4.750	817.7	816.4	с. С	P.0	0.001
10	2.000	711 0	711 0		÷.)	88.D
			6.111	0.0	0.0	99.6
20	0.850	629.1	629.1	0.0	0.0	00 F
40	0.425	555.7	555.7	CC		
60	0.250	536 4	525 Q	10.5		88.0 000
100	0 150		0.017	0.2-	0.0	96.3
	001.0	008.9	512.6	96.3	30.2	66.1
200	0.075	588.4	491.3	97.1	30 5	25 0
PAN		601.8	492 N	100 8		00.0
	and the second se			0.001	04.0	0.0

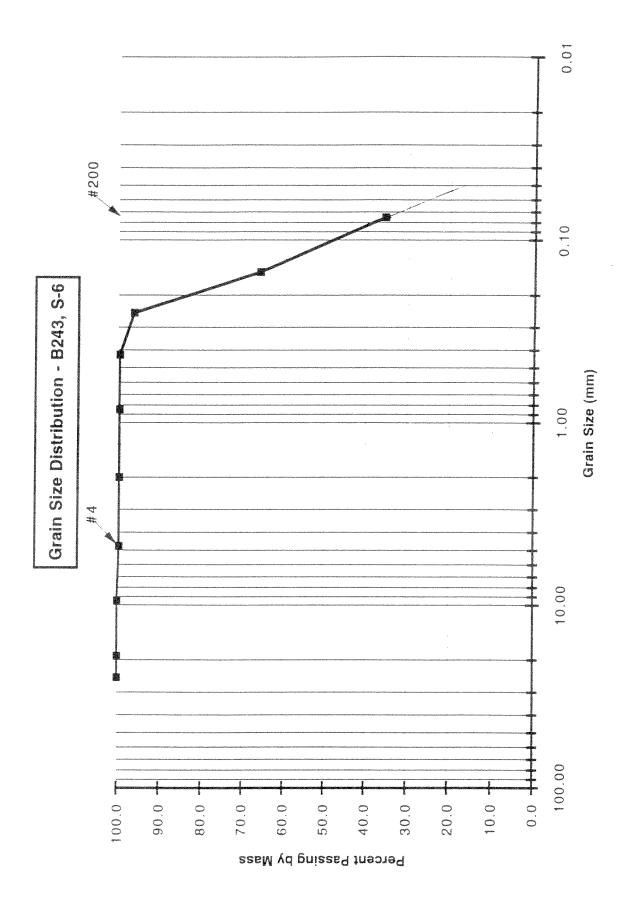
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BORING: B243 SAMPLE: S-7 FIELD DESCRIPTION: Very Fine Grey Silty Sand	· A /o Focieta /o
BORING: B243 SAMPLE: S-7 FIELD DESCRIPTION: Very Fi	Mass Sieve Mass of Mass Soil % Dotting 1 % no.
504.5 162.9 341.6	Mass Sieve
Mass Dish + Sample Mass of Dish Mass Sample	

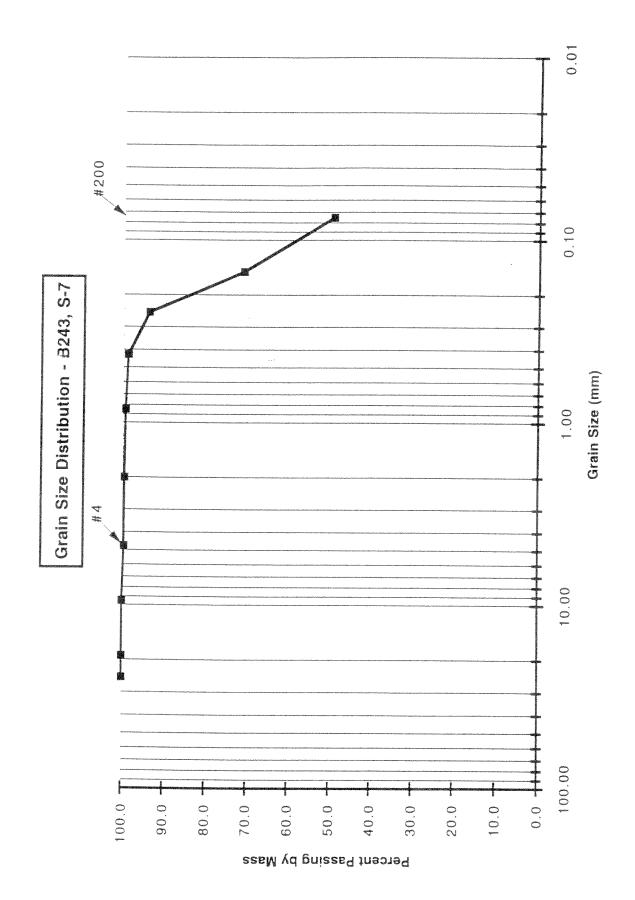
		Mace Sieve	Naco of			
			MIDSS UI	Mass Soll	% Hetained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	812.7	812.7	0.0	ĊC	100.0
3/4"	19.00	814.8	814.8	0 0	0.0	
3/8"	9.5	845.1	845.1	00		0.001
4	4.750	817.6	816.4	1 2	0.0 V	00.00
10	2.000	712.2	711.9	10	+	99.0
00	0 RED	0 000		>		88.0
>1	200.2	078.0	029.1	0.7	0.2	99.4
40	0.425	557.6	555.7	1.9	0 6	08.8
60	0.250	542.8	525.9	16.9	0.0	0.00
100	0.150	590.3	5126	777	L. CC	40.A
200	0.075	565.3	491.3	0.47	01.7	1.1.
PAN		656.9	492.0	164.9	48.3	49.4
					0.01	0.0

the optimization of the state o	0.4	50.2	48.3	New York Control of the Control of the Control of the Control of C
	% GRAVEL	% SAND	% SILT & CLAY	

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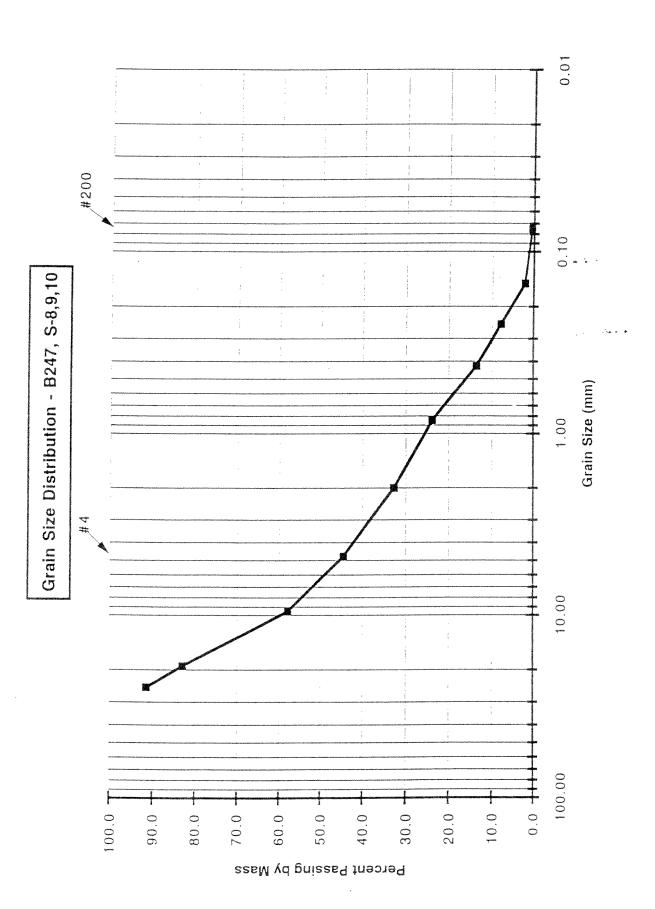




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1083.6	162.9	920.7
Mass Dish + Sample	Mass of Dish	Mass Sample

BORING: B247 SAMPLE: S-8,9,10 FIELD DESCRIPTION: Grey/Brown Sand and Gravel

Dia		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
	(mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	00	892	812.7	79.3	8.6	91.4
	00	893.4	814.8	78.6	8.5	82.9
	5	1074.9	845.1	229.8	25.0	57.9
**	50	939.4	816.4	123.0	13.4	44.5
10 2.000	00	820.6	711.9	108.7	11.8	32.7
20 0.850	50	710.3	629.1	81.2	8.8	23.9
40 0.425	25	651.1	555.7	95.4	10.4	13.5
60 0.250	50	578.3	525,9	52.4	5.7	6.7
100 0.150	50	565.3	512.6	52.7	5.7	2.1
200 0.075	75	505.9	491.3	14.6	1.6	0.5
PAN		494.8	492.0	2.8	0.3	ner veren of each state on the same and an extension of the second state of the

46.9	44.0	VY 0.3
% GRAVEL	% SAND	% SILT & CLAY

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0.01 #200 0.10 Grain Size Distribution - B252, S-4,5 Grain Size (mm) 1.00 44 10.00 100.00 0°0 100.0 7 ł 90.0 80.0 30.0 20.0 10.0 60.09 50.0 40.0 70.0

Percent Passing by Mass

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STIGATION PROGRAM

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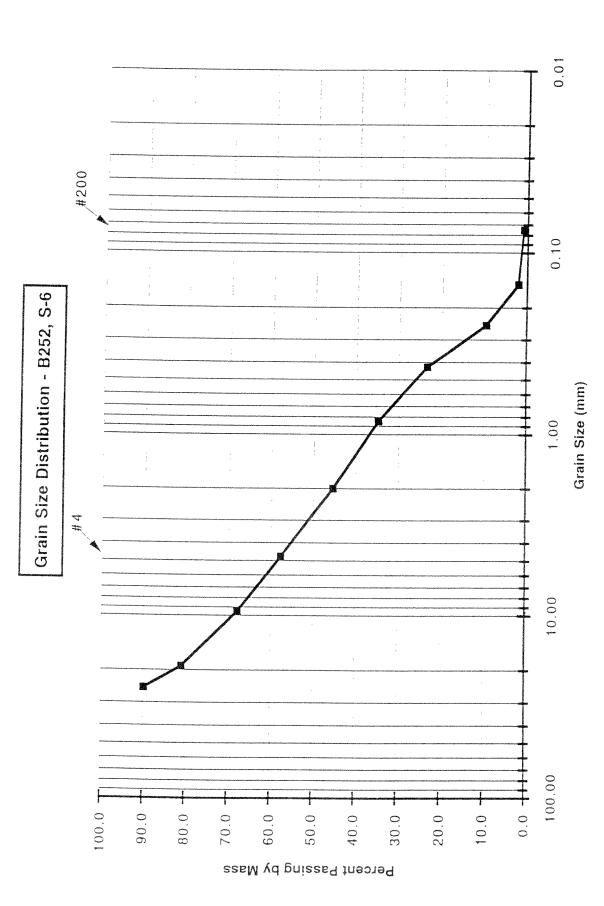
TIGATION PROGRAM ALCOSAN GEOTECHNICAL

BORING: B252 SAMPLE: S-4,5 FIELD DESCRIPTION: Damp Brown Silty Clay	ned % Passing	<u> </u>	100.0	100.0	100.0	98.1	82.8	0 65.8	58.6	52.1	3 26.2	9 12.4	2.6	
B252 S-4,5 Damp Br	% Retained	by mass	0.0	0.0	0.0	1.9	15.4	16.9	7.3	6.5	25.8	13.9	9.7	1.9
BORING: B252 SAMPLE: S-4,5 SCRIPTION: Damp	Mass Soil	Retained	0.0	0.0	0.0	6.3	52.3	57.6	24.7	22.1	87.8	47.2	33.1	6.6
FIELD DR	Mass of	Sieve, g	812.7	814.8	845.1	816.4	711.9	629.1	555.7	525.9	513.5	512.6	491.3	492.0
	Mass Sieve	plus Soil, g	812.7	814.8	845.1	822.7	764.2	686.7	580.4	548.0	601.3	559.8	524.4	498.6
502.9 162.9 340		Diam. (mm)	25.00	19.00	9.5	4.750	2.000	0.850	0.425	0.250	0.180	0.150	0.075	
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number		3/4"	3/8"	ţ	10	20	40	60	80	100	200	PAN

6.	95.5	<u>۲</u> 1.9
% GRAVEL	% SAND	% SILT & CLAY

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B252	S-6	FIELD DESCRIPTION: Grey Gravel w/ Clay	Mass of Mass Soil % Retained % Passing
BORING: B252	SAMPLE: S-6	SCRIPTION:	Mass Soil
		FIELD DI	Mass of
			Mace Siova
307 4	162.9	234.5	
	Mass UISH + Jampie	Mass Sample	

			Lagenda Von Sconnen holden standen konstanden verste von von Sterne von Sterne von Sterne sterne sterne sterne st		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
		Mass Sieve	Mass of	Mass Soll	% Hetaineu	Vo rassily
	· · · · ·	atus Coll o	Sieve a	Retained	by mass	by mass
Sieve Number	Uam. (mm)	B inco cond				
	25.00	836.6	812.7	23.9	10.2	89.8
		0.050	R1A R	21.1	0.6	80.8
3/4"	19.00	0.00.0	>····		0.04	C 7 0
"0/0	9.5	875.7	845.1	30.6	13.0	07.0
0/0	A 760	R40.0	816.4	23.6	10.1	57.7
4	4.130		711 0	28.6	12.2	45.5
10	2.000	140.0	N 1 1 1	· · · · · · · · · · · · · · · · · · ·	and C I	0 4 0
	0 850	654.2	629.1	25.1	10./	34.0
20	0.00.0		EEE 7	26.9	11.5	23.3
40	0.425	0.296	1.000			
	0 260	557 9	525.9	32.0	13.6	9./
60	0.230			477	ч Л	21
00+	0.150	530.3	012.0	11.1	1 · · ·	
		0.00	A01 3	2.6		0.
200	970.0	440.0	001		~ ~ ~	na na mana ka ba na mana ka na ka na mana na mana mana
DANI		492.2	492.0	0.2	0.1	
PAN		and a state of the second s				

32.1	56.7	0.1
% GRAVEL	% SAND	% SILT & CLAY

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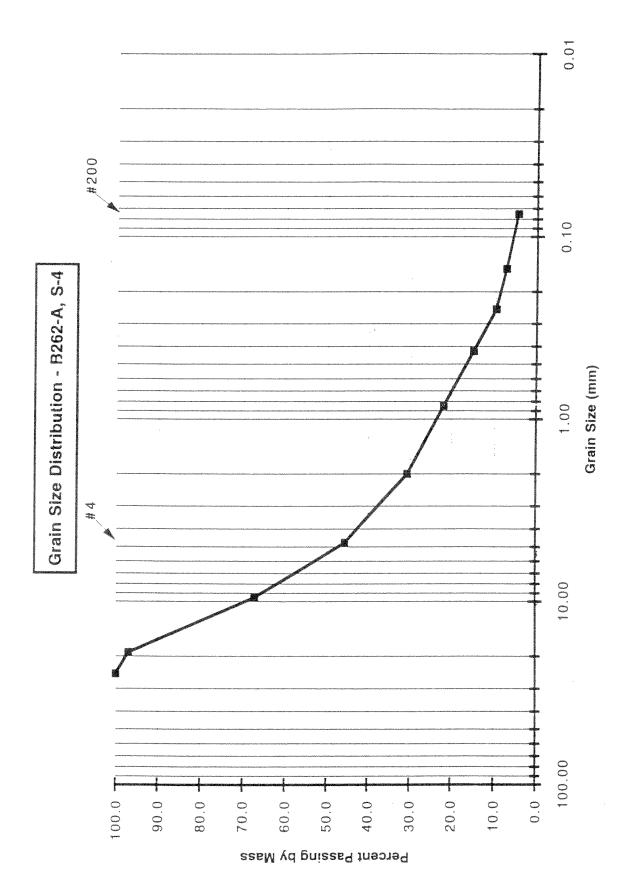
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390.3	162.9	227.4
Mass Dish + Sample	Mass of Dish	Mass Sample

BORING: B262-A SAMPLE: S-4 FIELD DESCRIPTION: Dk. Brown Sandy Gravel, Trace Clay

		Mass Sieve	Mass of	Mace Soil	0/ D.45	• • • • •
Sieve Number	Diam. (mm)	plus Soil, q	Sieve. a	Retained	/ netained	% Passing
	25.00	8127	8107		sebii yu	oy mass
		1.310	012.1	0.0	0.0	100.0
+-0	19.00	821.8	814.8	7.0		06 Q
3/8"	9.5	912.6	845.1	67.5	2 0 0	
4	4.750	RFF F	01C A	~~~~	23.1	2.10
10			010.4	49.1	21.6	45.6
2	2.000	/46.1	711.9	34.2	15.0	30 6
20	0.850	649.0	629.1	10.0		0.00
40	0 405			0.01	0.0	21.9
	0.44.0	9.1.10	555.7	15.7	6.9	15.0
60	0.250	537.7	525.9	1 1 R	202	
100	0.150	518.0	510 E	2.1	2.0	А. X
000	140 0		U16.U	t.C	2.4	7.4
007	G/N'N	497.4	491.3	6.1	2.7	4.7
PAN		500.0	492.0	8.0	3 5	
		and the second s		>	2.2	0.0

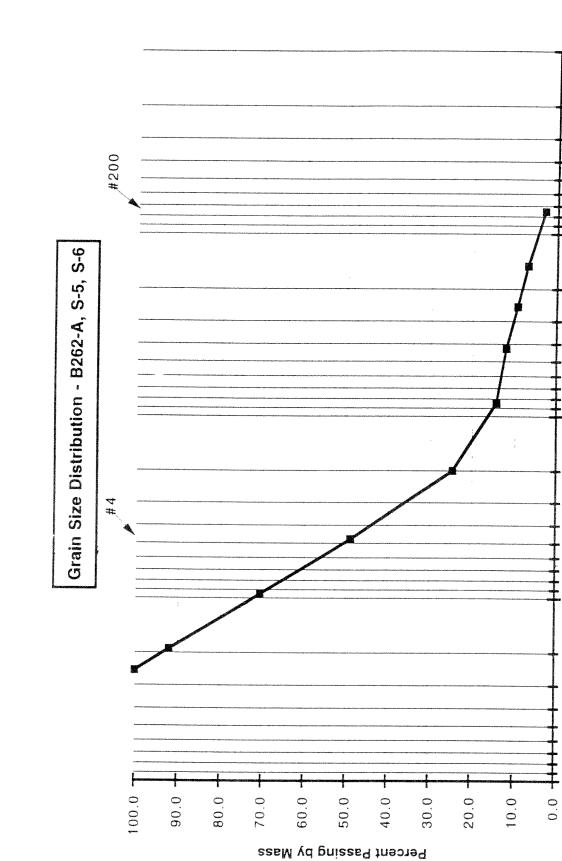
54.4	40.9	3.5	* Construction of the second data and t
% GRAVEL	% SAND	% SILT & CLAY	



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Grain Size (mm)

1.00

10.00

100.00

0.01

0.10

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BORING: B262-A	SAMPLE: S-5,S-6	FIELD DESCRIPTION: Brown Clayey Gravel	
463.7	162.9	300.8	
Mass Dish + Sample	Mass of Dish	Mass Sample	

ber	Diam. (mm) 25.00	plus Soil a				511000 1 0/
	25.00		Sieve, g	Retained	by mass	by mass
	0000	812.7	812.7	0.0	0.0	100.0
	13.00	839.1	814.8	24.3	8.1	91.9
	9.5	909.6	845.1	64.5	21.4	70.5
	4.750	881.2	816.4	64.8	21.5	48.9
	2.000	785.0	711.9	73.1	24.3	24.6
-	0.850	660.3	629.1	31.2	10.4	14.3
	0.425	562.4	555.7	6.7	2.2	12.0
60 0	0.250	533.6	525.9	7.7	2.6	2.0
*****	0.150	519.7	512.6	7.1	2.4	7.1
200 0	0.075	503.3	491.3	12.0	4.0	
PAN		498.9	492.0	6.9	2.3	0.0

% GRAVEL	51.1
% SAND	45.8
SILT & CLAY	2.3



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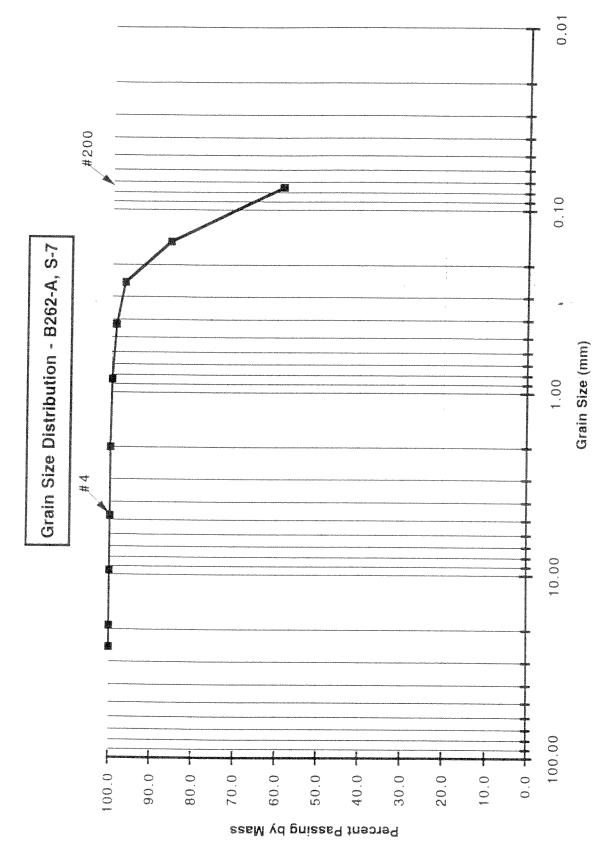
BORING: B262-A	SAMPLE: S-7	FIELD DESCRIPTION: Very Fine Silty Sand	
339.6	162.9	176.65 FIELI	
Mass Dish + Sample	Mass of Dish	Mass Sample	n minimenten au Sporte bergen under UK-1990 eine erste beste kent erste beste bekenten sonten andere sonten so

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.5	629.1	0.4	0.2	99.8
40	0.425	557.3	555.7	1.6	0.9	98.9
60	0.250	529.6	525.9	3.7	2.1	96.8
100	0.150	532.0	512.6	19.4	11.0	85.8
200	0.075	538.9	491.3	47.6	26.9	58.8
PAN		592.2	492.0	100.2	56.7	0.0

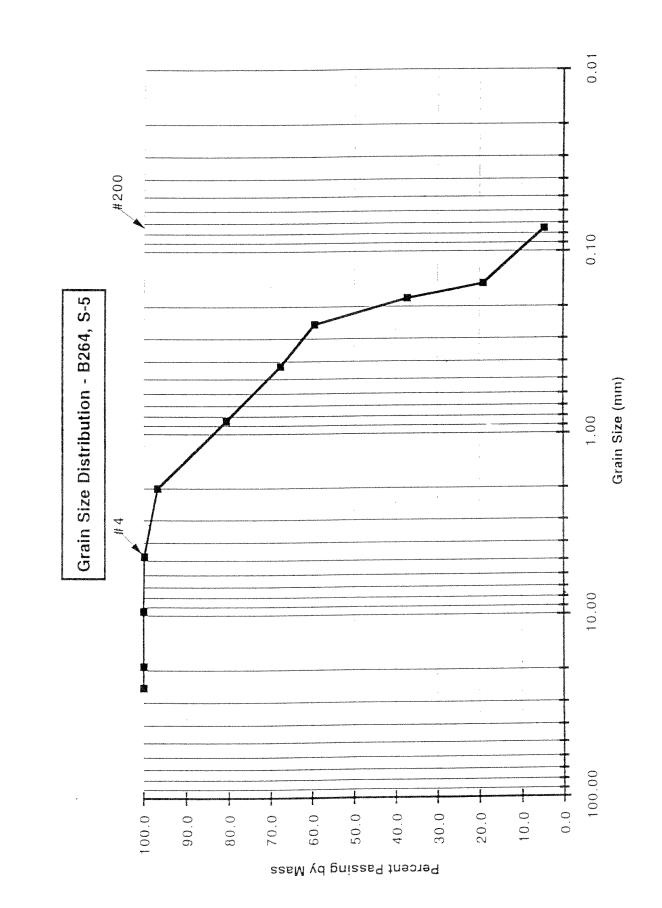
0.0	41.2	56.7	
% GRAVEL	% SAND	% SILT & CLAY	

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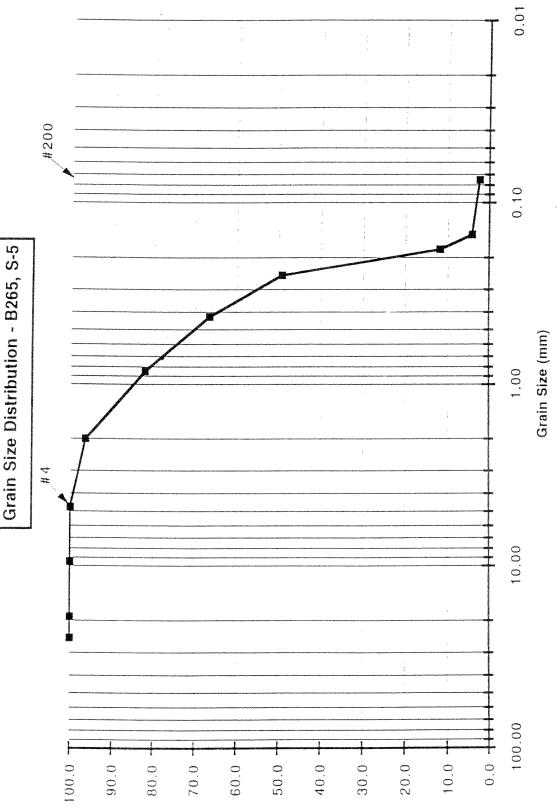
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	-	STATISTICS.	Manual Paraticity		-	-
y Silty Clay	% Passing	by mass	100.0	100.0	100.0	99.9
BORING: B264 SAMPLE: S-5 FIELD DESCRIPTION: Very Soft Grey Silty Clay	Mass Soil % Retained % Passing	by mass	0.0	0.0	0.0	0.1
BORING: B264 SAMPLE: S-5 SCRIPTION: Very (Mass Soil	Retained	0.0	0.0	0.0	0.2
FIELD DE	Mass of	Sieve, g	812.7	814.8	845.1	816.4
	Mass Sieve	plus Soil, g	812.7	814.8	845.1	816.6
323.1 162.9 160.2		Diam. (mm)	25.00	19,00	9.5	4 750
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number	(1)	3/4"	3/8"	V

		Mass Sieve	Mass of	Mass Soil	Mass Soil % Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19,00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
	4.750	816.6	816.4	0.2	0.1	99.9
	2.000	716.9	711.9	5.0	3.1	96.8
20	0.850	654.9	629.1	25.8	16.1	80.6
A 0	0.425	576.7	555.7	21.0	13.1	67.5
60	0.250	538.9	525.9	13.0	8.1	59.4
80	0.180	549.1	513.5	35.6	22.2	37.2
100	0.150	541.7	512.6	29.1	18.2	19.0
200	0.075	514.3	491.3	23.0	14.4	4.7
PAN		504.8	492.0	12.8	8.0	

0.1	95.2	8.0
% GRAVEL	% SAND	% SILT & CLAY





Percent Passing by Mass

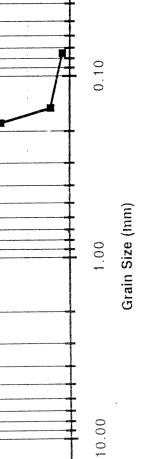
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328.88 328.88 BORING: B265 162.9 165.98 SAMPLE: S-5 165.98 FIELD DESCRIPTION: Very Soft Grey Si 165.00 Mass Sieve Mass Soil % Retained % Diam. (mm) plus Soil, g Sieve, g Retained % by mass by 25.00 812.7 812.7 0.0										
328.88 162.9 165.98 Mass Sieve Ma Diam. (mm) Mass Sieve Ma 25.00 812.7 81 19.00 812.7 81 19.00 814.8 81 4.750 816.4 81			ey Silly Clay	1	1	100.0	100.0	100.0	100.0	00 6
328.88 162.9 165.98 Mass Sieve Ma Diam. (mm) Mass Sieve Ma 25.00 812.7 81 19.00 812.7 81 19.00 814.8 81 4.750 816.4 81	B265	S-5	Very Soft Gre	% Retained	by mass	0.0	0.0	0.0	0.0	3
328.88 162.9 165.98 Mass Sieve Ma Diam. (mm) Mass Sieve Ma 25.00 812.7 81 19.00 812.7 81 19.00 814.8 81 4.750 816.4 81	BORING:	SAMPLE:	ESCRIPTION:	Mass Soil	Retained	0.0	0.0	0.0	0.0	a u
328.88 162.9 165.93 165.93 Diam. (mm) 25.00 19.00 9.5 4.750			FIELD DE	Mass of	Sieve, g	812.7	814.8	845.1	816.4	711 0
3 Diam. 1 25.0 19.0 9.5				Mass Sieve	plus Soil, g	812.7	814.8	845.1	816.4	7177
Dish + Sample Mass of Dish Mass Sample eve Number 1" 3/4" 3/8"	328.88	162.9	165.98		Diam. (mm)	25.00	19.00	9.5	4.750	
Mass	Mass Dish + Sample	Mass of Dish	Mass Sample		Sieve Number	72 4	3/4"	3/8"	÷	

Sieve Number	Ulam. (mm)	pius soil, g	sleve, g	Hetained	by mass	by mass
**	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
Ŷ	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	717.7	711.9	5.8	3.5	96.5
20	0.850	653.2	629.1	24.1	14.5	82.0
40	0.425	581.5	555.7	25.8	15.5	66.4
60	0.250	554.4	525.9	28.5	17.2	49.3
80	0.180	575.6	513.5	62.1	37.4	11.9
100	0.150	525.2	512.6	12.6	7.6	4.3
200	0.075	494.3	491.3	3.0	.8	2.5
PAN .		493.9	492.0	1.9		
Server and other and the instruction of the advectory of the						

0.0	97.5	-
% GRAVEL	% SAND	% SILT & CLAY

0.10 1.00 10.00



100.00

++ 0.0

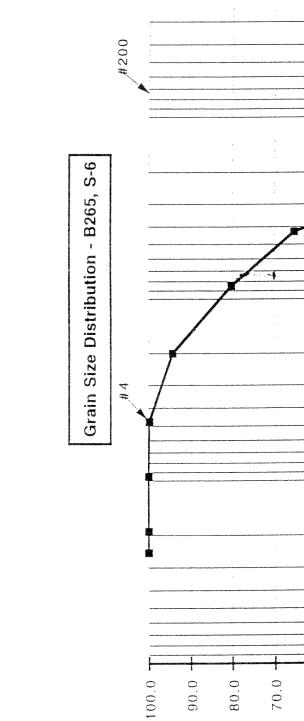
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20.0

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Percent Passing by Mass

50.0

60.0

70.0

80.0

40.0

30.0

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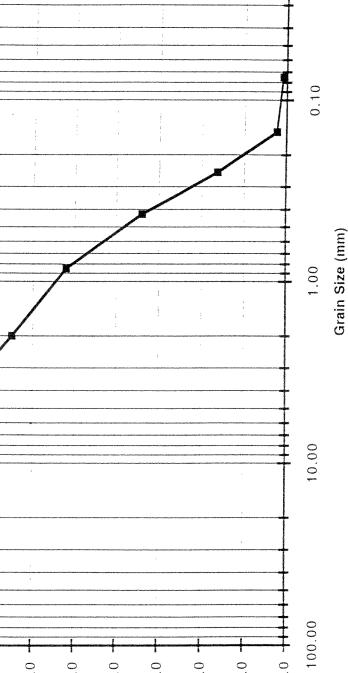
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BORING: B265 SAMPLE: S-7 FIELD DESCRIPTION: Grey/Brown Sand and Gravel 665.9 162.9 503 Mass Dish + Sample Mass of Dish Mass Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	839.7	812.7	27.0	5.4	94.6
3/4"	19.00	859	814.8	44.2	8.8	85.8
3/8"	9.5	930.9	845.1	85.8	17.1	68.8
4	4.750	877.6	816.4	61.2	12.2	56.6
10	2.000	751.3	711.9	39.4	7.8	48.8
20	0.850	664.4	629.1	35.3	7.0	41.8
40	0.425	627.2	555.7	71.5	14.2	27.6
60	0.250	587.4	525.9	61.5	12.2	15.3
100	0.150	575.1	512.6	62.5	12.4	2.9
200	0.075	500.9	491.3	9.6	1.9	1.0
PAN		494.2	492.0	2.2	0.4	n en en man en
Conception of the second	a new management and a substantial and a substant substant and a substantial and a substantial grad	vé a cavé se mésoné vé mánde vé	ANTER CONTRACTOR AND A CONTRACT	Conception of the second s	Paratety and a second	permanent optimise of disard 2000 And and an optimise and an optimise of the second optimise optim

38.0	55.6	0.4
% GRAVEL	% SAND	% SILT & CLAY

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Grain Size Distribution - B265, S-8,9

#4

100.0

90.0

80.0

70.0

60.09

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Percent Passing by Mass

50.0 40.0 30.0

0.0

20.0

10.0

0.01

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: B265	: S-8,9	FIELD DESCRIPTION: Grey/Brown Sand and Gravel
BORING: B265	SAMPLE: S-8,9	FIELD DESCRIPTION
650.6	162.9	487.7
Mass Dish + Sample	Mass of Dish	Mass Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	898.2	845.1	53.1	10.9	89.1
4	4.750	865.5	816.4	49.1	10.1	79.0
10	2.000	780.5	711.9	68.6	14.1	65.0
20	0.850	692.2	629.1	63.1	12.9	52.0
40	0.425	644.1	555.7	88.4	18.1	33.9
60	0.250	611.6	525.9	85.7	17.6	16.3
100	0.150	580.8	512.6	68.2	14.0	2.4
200	0.075	498.5	491.3	7.2	1.5	0.9
PAN	· · · · · · · · · · · · · · · · · · ·	493.8	492.0	1.8	0.4	

21.0
% GRAVEL

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ror	07.0	620	8127	875.9	25.00	=
by mass	by mass	Retained	Sieve, g	plus Soil, g	Diam. (mm) plus Soil, g	Sieve Number
% Passing	Mass Soil % Retained % Passing	Mass Soil	Mass of	Mass Sieve		
Some Sandstone Fragments	Some Sandste					
w/ Sand	FIELD DESCRIPTION: Brown Gravel w/ Sand	SCRIPTION:	FIELD DE		231.92	Mass Sample
	S-6	SAMPLE: S-6			162.9	Mass of Dish
	B266	BORING: B266			394.8	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained % Passing	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	875.9	812.7	63.2	27.3	797
3/4"	19.00	823.7	814.8	8.9	3.8	68.9
3/8"	9.5	888.4	845.1	43.3	18.7	50.2
4	4.750	850.5	816.4	34.1	14.7	35.5
10	2.000	737.9	711.9	26.0	11.2	24.3
20	0.850	643.2	629.1	14.1	6.1	18.2
40	0.425	569.2	555.7	13.5	8 5	12.4
60	0.250	535.8	525.9	6.6	6.4	8.0
100	0.150	522.7	512.6	10.1	4.4	u a a
200	0.075	496.8	491.3	5.5	2.4	1 4
PAN		493.1	492.0	+ .	0.5	0.0
		The part of the second s	A DESCRIPTION OF A DESC	Contraction of the second se		2.2

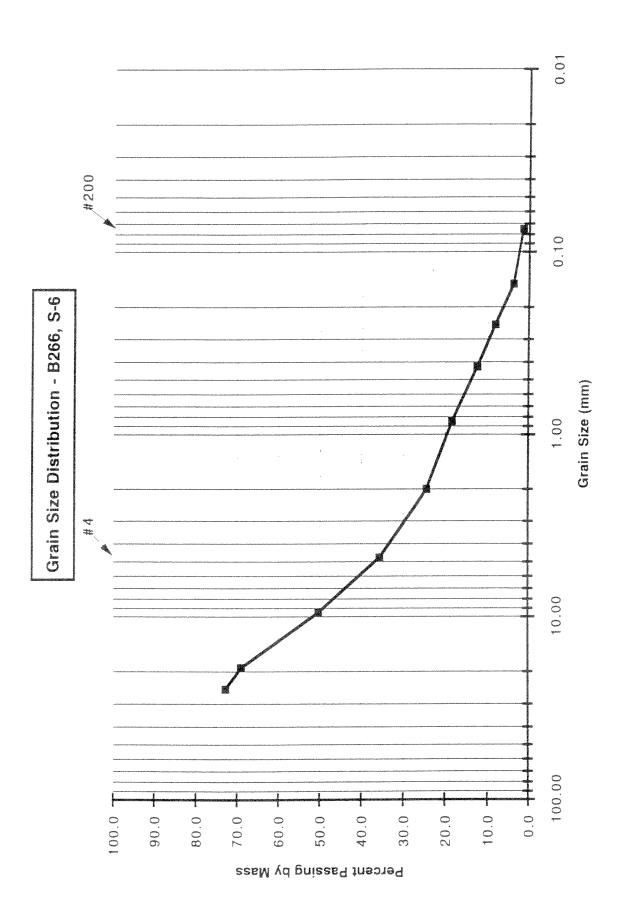
27.3	37.2	34.1	0.5	
% Coerces	% GRAVEL	% SAND	% SILT & CLAY	

ALCOSAN EPM

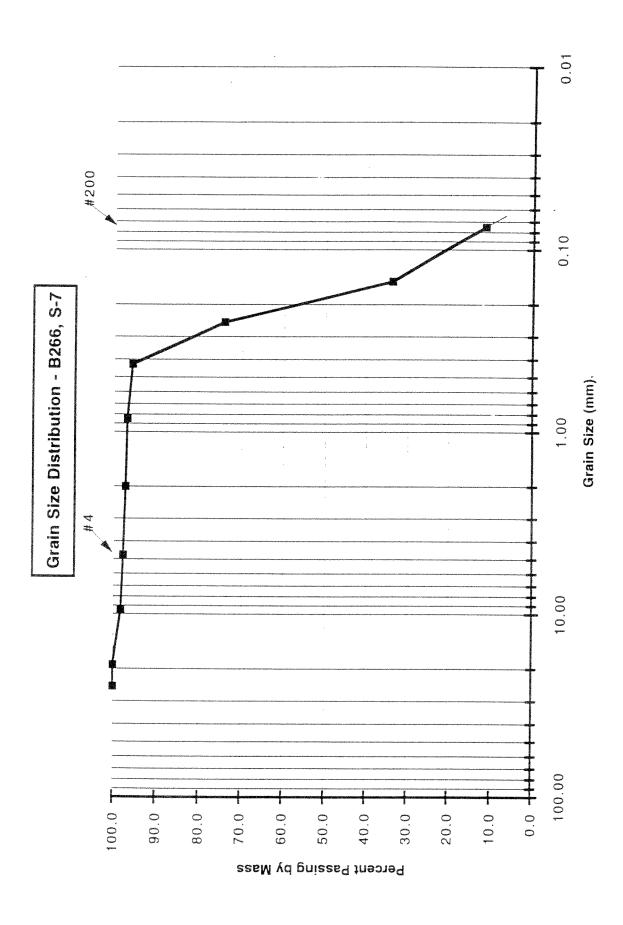
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BORING: B266	S-7	FIELD DESCRIPTION: Very Fine Brown Sand	Mass Sieve Mass of Mass Call of Dates 1 of Dates
BORING	SAMPLE: S-7	D DESCRIPTION	According to the second s
		Шн	A Macon
516.5	162.9	353.6	Mass Si
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0 0	100.0
3/4"	19.00	814.8	814.8	0.0		100.0
3/8"	9.5	851.5	845.1	6.4	1 8	0.001
4	4.750	818.1	816.4	1.7	50	07.7
10	2.000	713.5	711.9	1.6		07.3
20	0.850	630.4	629.1		P O	0.00
40	0.425	559.8	555.7	4 1	101	90.3 0F 7
60	0.250	602.4	525.9	76.5	21.6	74.4
100	0.150	654.7	512.6	142.1	40.2	33.0
200	0.075	570.2	491.3	78.9	22.2	11.6
PAN		530.5	492.0	38.5	10.9	0.0

2.3	86.1		8
% GRAVEL	% SAND	% SILT & CLAY	SP-S



			nts	Ге	7
		Gravel	tone Fragme	% Passing	
B266	S-8.S-9	FIELD DESCRIPTION: Brown Sandy Gravel	Some Sandstone Fragments	Mass of Mass Soil % Retained % Passing	hy mace
BORING: B266	SAMPLE: S-8.S-9	ESCRIPTION:		Mass Soil	Retained
		FIELD DI		Mass of	Diam. (mm) plus Soil. a Sieve. a Retained hy mace hy moon
				Mass Sieve	plus Soil. a
612.3	162.9	449.4			Diam. (mm)
Mass Dish + Sample	Mass of Dish	Mass Sample			Sieve Number

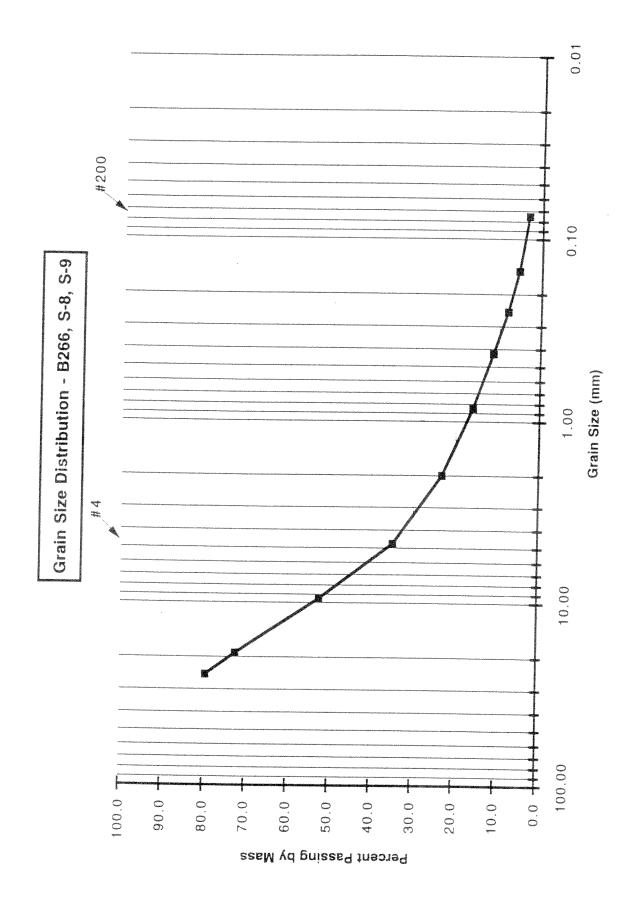
		Mass Sieve	Mass of	Mass Soil	% Retained	% Retained % Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	905	812.7	92.3	20.5	79.5
3/4 "	19.00	847	814.8	32.2	7.2	72.3
3/8"	9.5	934.4	845.1	89.3	19.9	52.4
4	4.750	895.4	816.4	79.0	17.6	34.8
10	2.000	764.4	711.9	52.5	11.7	03.9
20	0.850	661.6	629.1	32.5	7 2	15.0
40	0.425	576.4	555.7	20.7	4.6	
60	0.250	540.9	525.9	15.0	E E	<u>.</u>
100	0.150	523.8	512.6	11.2	2.0	0.0 R
200	0.075	500.9	491.3	9.6	21	0.0 V C
PAN		502.7	492.0	10.7	2.4	0.0
			Contraction and the second	and the second	A REAL PROPERTY AND A REAL	>

44.6	31.5	2.4	
% GRAVEL	% SAND	% SILT & CLAY	

ALCOSAN EPM

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Sand				
y/Black Silty §	% Passing	by mass	100.0	
BORING: B267 SAMPLE: S-5, Bottom FIELD DESCRIPTION: Very Fine Grey/Black Silty Sand	Mass Soil % Retained % Passing	by mass	0.0	
BORING: B267 SAMPLE: S-5, E SCRIPTION: Very F	Mass Soil	Retained	0.0	Commentation of the second sec
FIELD DE	Mass of	Sieve, g	812.7	
	Mass Sieve	plus Soil, g	812.7	
312.4 162.9 149.5		Diam. (mm)	25.00	
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number		

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
16 4	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.1	629.1	0.0	0.0	100.0
40	0.425	555.7	555.7	0.0	0.0	100.0
60	0.250	530.0	525.9	4.1	2.7	97.3
100	0.150	543.6	512.6	31.0	20.7	76.5
200	0.075	547.7	491.3	56.4	37.7	38.8
PAN		547.6	492.0	55.6	37.2	0.0

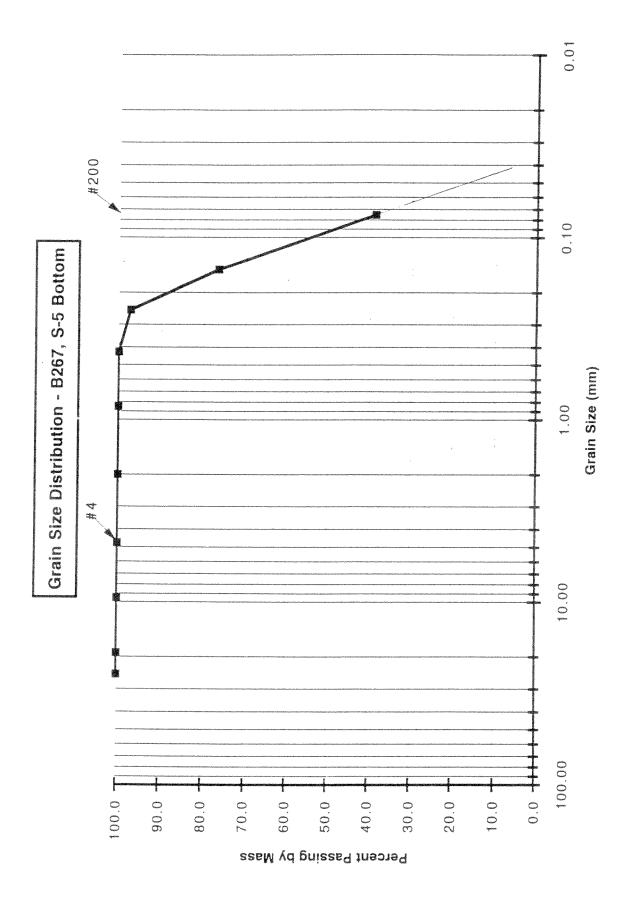
61.2	37.2	Sm
% SAND	% SILT & CLAY	

0.0

% GRAVEL

ALCOSAN EPM

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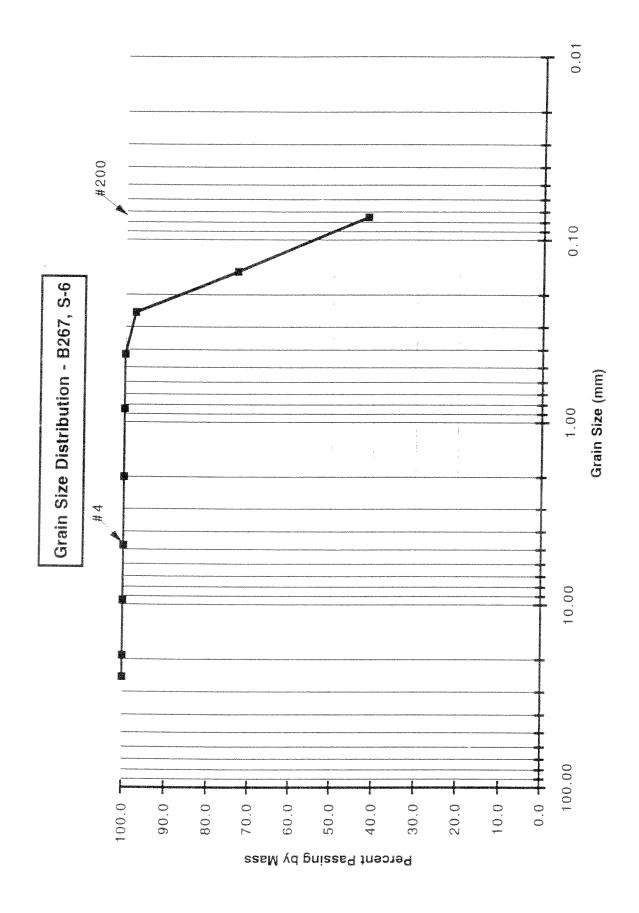
ple	Slove Nimher Diam (mm) nhis Coil a Ciana a Dataina L
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		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.1	629.1	0.0	0.0	100.0
40	0.425	555.7	555.7	0.0	0.0	100.0
60	0.250	532.1	525.9	6.2	2.4	97.6
100	0.150	574.2	512.6	61.6	24.3	73.3
200	0.075	571.3	491.3	80.0	31.5	41.7
PAN		594.3	492.0	102.3	40.3	0.0

0.0	58.3	Y 40.3	
% GRAVEL	% SAND	% SILT & CLAY	

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BORING: B267	SAMPLE: S-8 S-0 S-10	FIELD DESCRIPTION: Brown Gravel, Some Sand	
1038.9	162.9	876	
Mass Dish + Sample	Mass of Dish	Mass Sample	

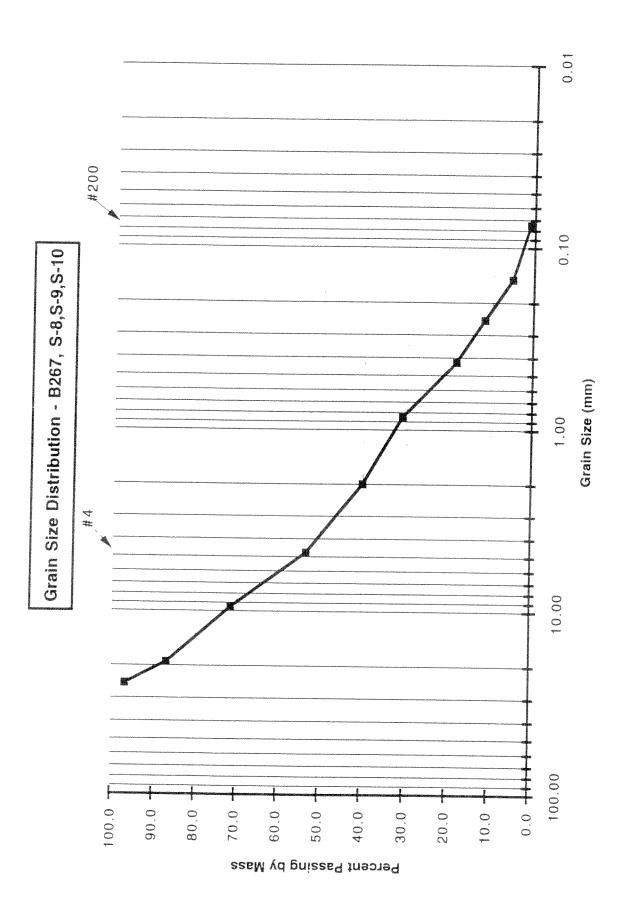
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	841.3	812.7	28.6	3.3	96.7
3/4"	19.00	902	814.8	87.2	10.0	RF A
3/8"	9.5	979.9	845.1	134.8	15.4	71 4
4	4.750	974.3	816.4	157.9	18.0	53 4
10	2.000	828.9	711.9	117.0	13.4	40.0
20	0.850	708.5	629.1	79.4		0.04
40	0.425	665.9	555.7	110.2	12.6	18.4
60	0.250	583.6	525.9	57.7	6.6	τ.0- 1 τ α
100	0.150	569.2	512.6	56.6	2 9 2 9	0. E L
200	0.075	528.7	491.3	37.4	4.3	1 1
PAN		501.2	492.0	9.2	·	0.0
		The second s		Second and a second sec		>.>

43.4	52.3		
% GRAVEL	% SAND	% SILT & CLAY	

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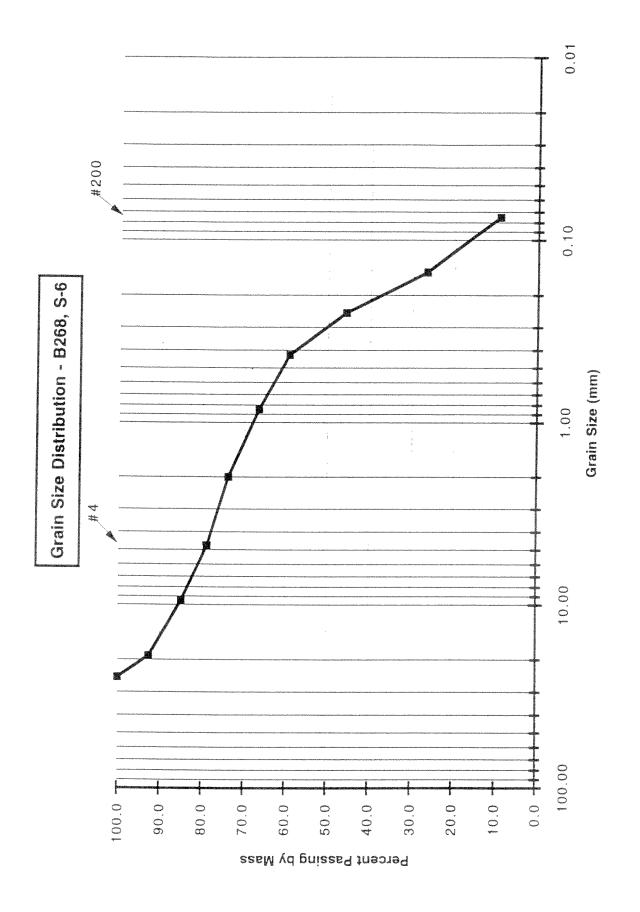
ALCON EPM

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BORING: B268	SAMPLE: S-6	FIELD DESCRIPTION: Med. Brown Sand & Gravel		Mass of Mass Soil 1% Datained 1% Datained
		쁘		Mass
395.0	162.9	232.1	онология и и и и и и и и и и и и и и и и и и	Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample		

		Mass Sieve	Mass of	Mass Soil	% Retained	% Daeeing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	Puncen 10/
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	832.1	814.8	17.3	7.5	92.5
3/8"	9.5	862.8	845.1	17.7	7.6	84.9
4	4.750	830.6	816.4	14.2	6.1	78.8
10	2.000	723.5	711.9	11.6	5.0	73.8
20	0.850	646.0	629.1	16.9	7.3	66.5
40	0.425	572.6	555.7	16.9	7.3	59.2
60	0.250	557.4	525.9	31.5	13.6	45.7
100	0.150	556.9	512.6	44.3	19.1	26.6
200	0.075	531.3	491.3	40.0	17.2	8.6
PAN		511.0	492.0	19.0	8.2	0.0
				and a second	Contraction of the second s	

21.2	69.5	8.2	Sm
% GRAVEL	% SAND	% SILT & CLAY	- P -



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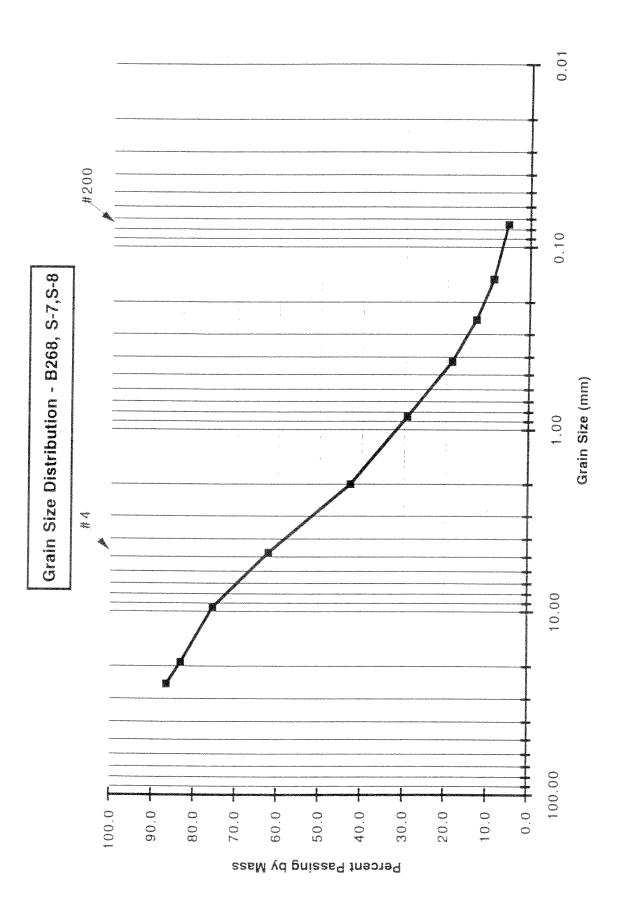
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B268	S-7,S-8	FIELD DESCRIPTION: Brown Sand & Gravel	
BORING: B268	SAMPLE: S-7,S-8	FIELD DESCRIPTION:	
542.1	162.9	379.2	Non Clored
Mass Dish + Sample	Mass of Dish	Mass Sample	

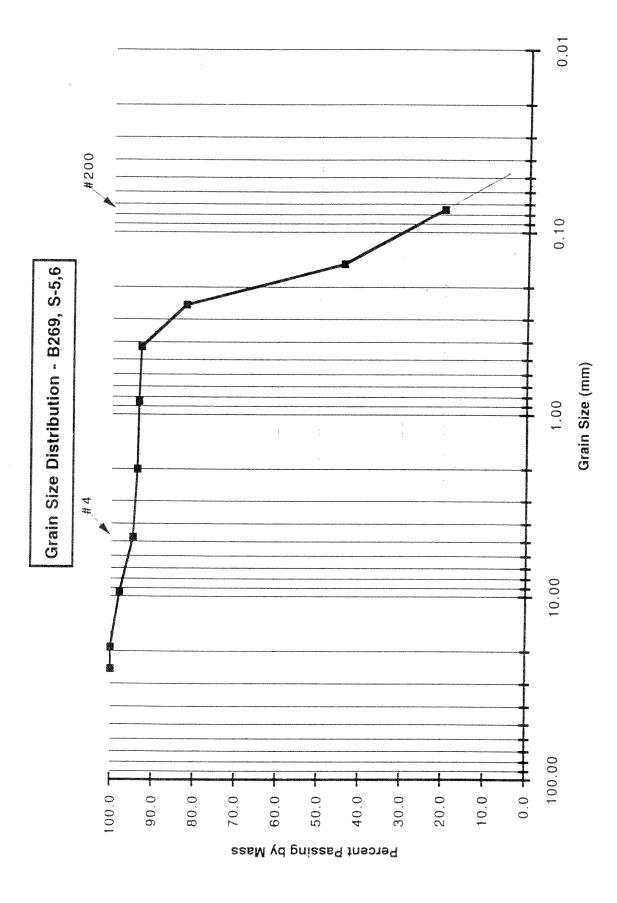
		Mase Sieve	AAce of	ALAC Coli	0/ D.A.	
		11033 21CAC	IN SSBIN	INIGSS 2011	76 Helained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
**	25.00	864	812.7	51.3	13.5	86.5
3/4"	19.00	827.6	814.8	12.8	3.4	83.1
3/8"	9.5	874.2	845.1	29.1	7.7	75.4
4	4.750	866.6	816.4	50.2	13.2	62.2
10	2.000	786.1	711.9	74.2	19.6	42.6
20	0.850	679.5	629.1	50.4	13.3	5.62
40	0.425	596.5	555.7	40.8	10.8	18.6
60	0.250	547.2	525.9	21.3	5.6	12.0
100	0.150	527.9	512.6	15.3	4.0	6.8
200	0.075	504.2	491.3	12.9	3.4	5.5
PAN		510.3	492.0	18.3	4.8	0.0

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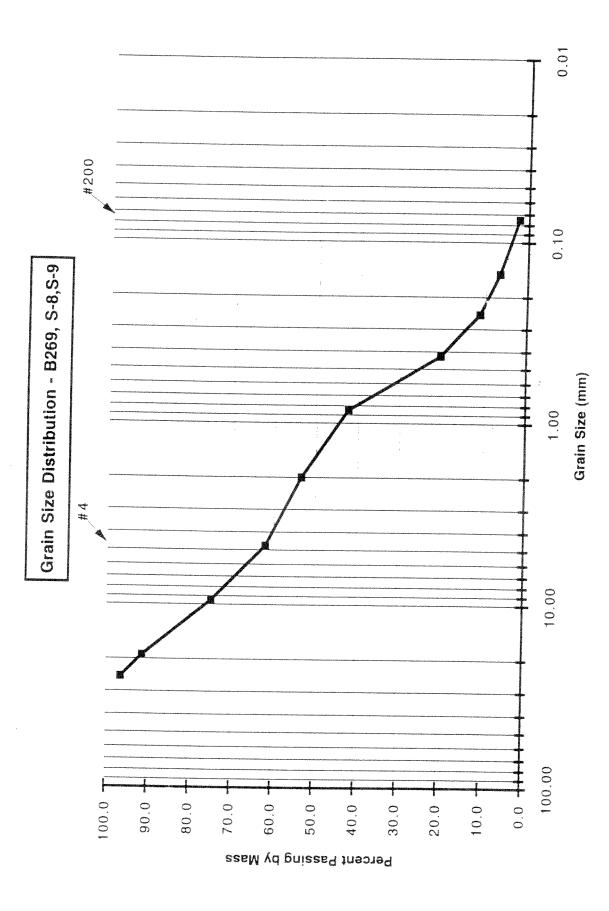
BORING: B269	SAMPLE: S-5,6	FIELD DESCRIPTION: Grey/Black Silty Sand	
560.0	162.9	397.1 FIELD DE	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	853.4	845.1	8.3	2.1	97.9
4	4.750	828.8	816.4	12.4	3.1	94.8
10	2.000	715.6	711.9	3.7	0.9	93.9
20	0.850	630.3	629.1	1.2	0.3	93.6
40	0.425	557.7	555.7	2.0	0.5	93.0
60	0.250	568.4	525.9	42.5	10.7	82.3
100	0.150	664.2	512.6	151.6	38.2	44.2
200	0.075	587.1	491.3	95.8	24.1	20.0
PAN		568.0	492.0	76.0	19.1	0.0

5.2	74.7	AY 19.1	
% GRAVEL	% SAND	% SILT & CL	

SP-SM





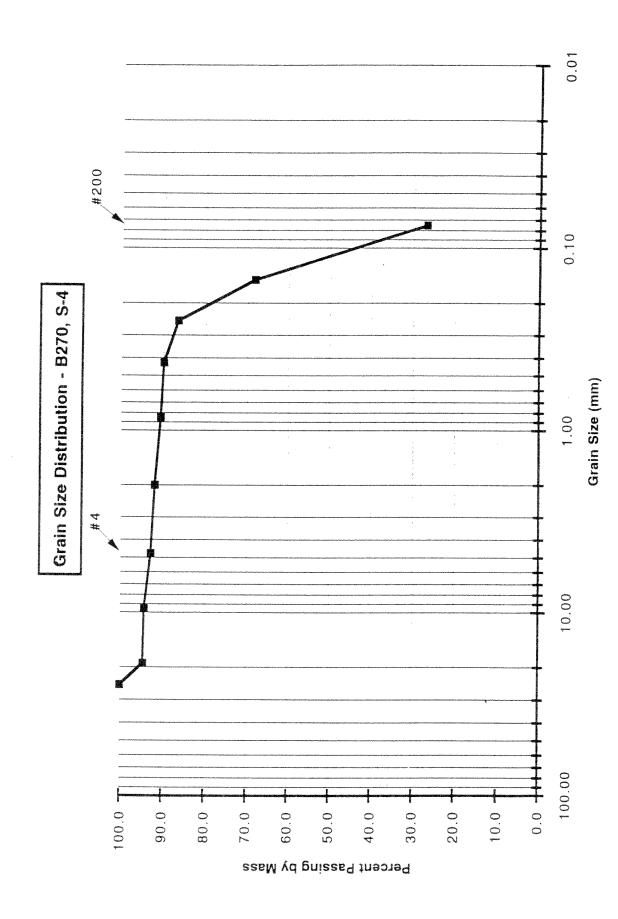
BORING: B269 SAMPLE: S-8,S-9 FIELD DESCRIPTION: Brown Croudl Sources	Mass of Mase Soil % Dominand % D.
FIELD DES	
781.2 162.9 618.3	Mass Sieve
Mass Dish + Sample Mass of Dish Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Daccing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hu mace
	25.00	835.1	812.7	22 4	3 6	
3/4"	19.00	846.3	814.8	215) r	40.4
3/8"	9.5	946.6	845.1	101		0N N
4	4.750	896.2	816.4	79.8	+ 0 01	60.0
10	2.000	764.5	711.9	52.6	р. ч ч	02.0
20	0.850	697.5	629.1	68.4	5 5 7	0.00
40	0.425	692.6	555.7	136.0	1.1-	42.4
60	0.250	581.7	525.9	55.8	0 0	20.2
100	0.150	540.0	512.6	27.4	0.0	2.11
200	0.075	518.9	491.3	27.6	4.7	0.0
PAN		504.9	492.0	12.9	2.1	0.0
	Nonservice of the second	NACESNIC INCOMPANY STREET AND ADDRESS AND ADDRESS ADDR	A REAL PROPERTY AND A REAL PROPERTY A REAL PROPERTY AND A REAL PRO			

% GRAVEL	34.4
% SAND	59.6
% SILT & CLAY	2.1

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BORING: B270	: S-4	FIELD DESCRIPTION: Grey/Blk/Olive Clayey Silty V. Fine Sand	Traces of Slag
BORING	SAMPLE: S-4	FIELD DESCRIPTION	Traces of Slag
417.8	162.9	254.9	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
antico de también de la constance de la constan 14 de la constance de la constan	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19,00	829	814.8	14.2	5.6	04 4
3/8"	9.5	845.7	845.1	0.6	0.2	6 70
4	4.750	820.2	816.4	3.8		2.70
10	2.000	714.1	711.9	2.2	6.0	01 R
20	0.850	632.5	629.1	3.4	1 3	0.1.0 0.0 F
40	0.425	557.3	555.7	1.6	0.6	0.00
60	0.250	534.6	525.9	8.7	2 V C	86 5
100	0.150	559.0	512.6	46.4	18.2	68.3
200	0.075	597.0	491.3	105.7	41.5	26.8
PAN		557.4	492.0	65.4	25.7	0.0
Conception of the second s		Provide and the second s				

7.3	65.9	25.7	
% GRAVEL	% SAND	% SILT & CLAY	

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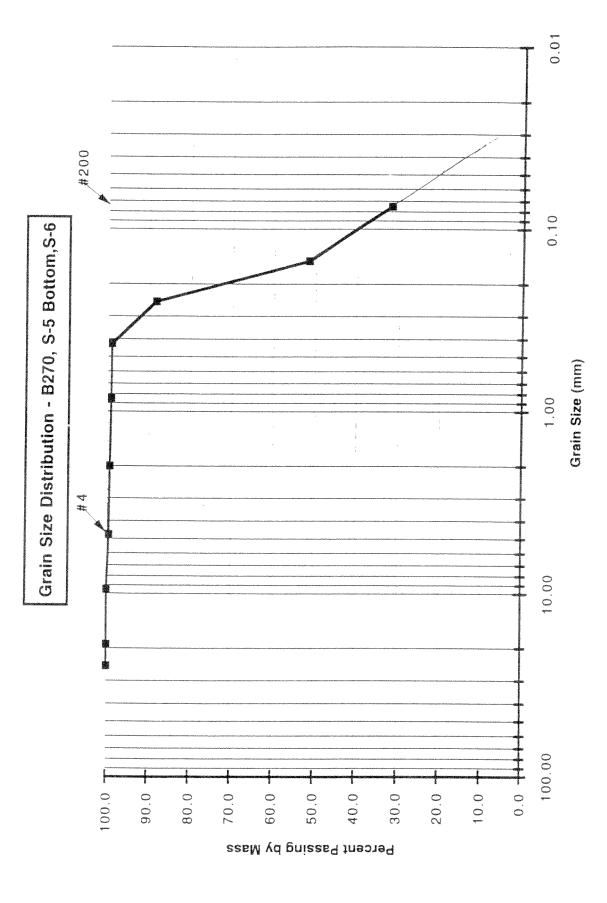
BORING: B270	SAMPLE: S-5 Bottom, S-6	FIELD DESCRIPTION: Grey/Brown Fine Sand		Mace Sious Mase of Mace Coil of Datained of Decement
		FIEL		AAAAA SA
460.8	162.9	297.9		Maco Cious
Mass Dish + Sample	Mass of Dish	Mass Sample	ราคระสารกรณ์ <mark>มี</mark> รากกรรรษฐระบรรณะกรณะกรณะกรณะกรณะกรณะกรณะกรณะกรณะกรณะ	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	
-	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	817.7	816.4	1.3	0.4	99.6
10	2.000	712.5	711.9	0.6	0.2	99.4
20	0.850	629.7	629.1	0.6	0.2	99.2
40	0.425	555.9	555.7	0.2	0.1	99.1
60	0.250	558.0	525.9	32.1	10.8	88.3
100	0.150	622.1	512.6	109.5	36.è	51.6
200	0.075	549.9	491.3	58.6	19.7	31.9
PAN		538.3	492.0	46.3	15.5	0.0

0.4	67.7	15.5	
% GRAVEL	% SAND	% SILT & CLAY	

SP-Sm

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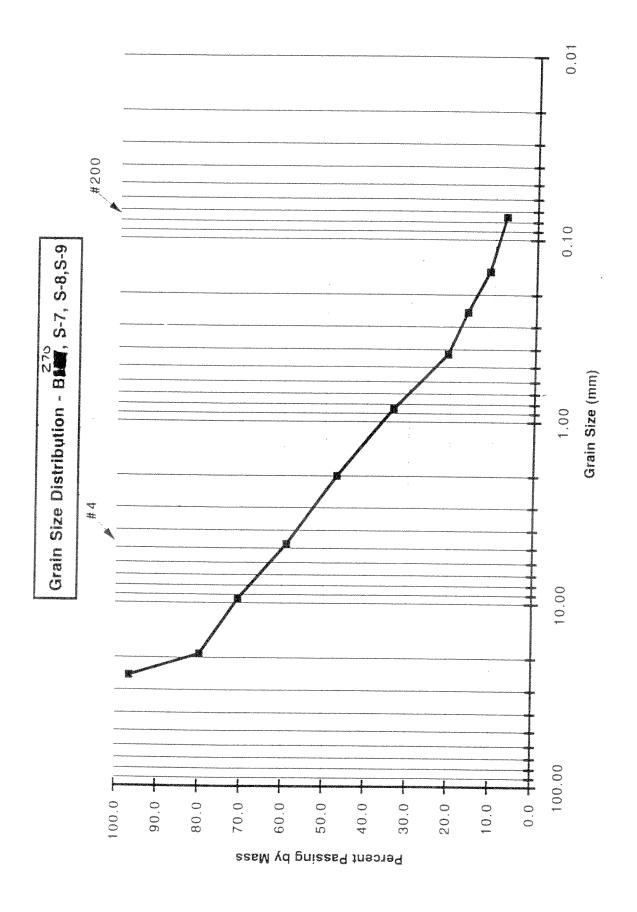
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BORING: B270	SAMPLE: S-7,8,9	FIELD DESCRIPTION: Brown Gravel, Some Sand		Mass of Mass Soil % Retained % Passing
		FIELD D	Margarian (
				Mass Sieve
1131.0	162.9	968.1		
Mass Dish + Sample	Mass of Dish	Mass Sample		

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	846.1	812.7	33.4	3.5	96.5
3/4"	19,00	977.8	814.8	163.0	16.8	7.67
3/8"	9.5	933.7	845.1	88.6	9.2	70.6
4	4.750	927.1	816.4	110.7	11.4	59.1
10	2.000	828.3	711.9	116.4	12.0	47.1
20	0.850	759.0	629.1	129.9	13.4	33.7
40	0.425	681.3	555.7	125.6	13.0	20.7
60	0.250	570.9	525.9	45.0	4.6	16.1
100	0.150	560.6	512.6	48.0	5.0	
200	0.075	526.9	491.3	35.6	3.7	7.4
PAN		501.8	492.0	9.8	1.0	0.0

37.4	51.7	1.0	
% GRAVEL	% SAND	% SILT & CLAY	

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ALCON EPM

0.01 #200 Ŧ 0.10 **Grain Size Distribution** Grain Size (mm) 1.00 # 4 10.00 B272 5-4 0.0 100.00 t 10.0 100.0 50.0 40.0 20.0 60.0 30.0 90.06 80.0 70.0 Percent Passing by Mass

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BORING: B272	SAMPLE: S-4	FIELD DESCRIPTION: Fine/Med. Brown Sand & Gravel	Mass of Mass Soil % Retained % Passing
BOR	SAMI	DESCRIPT	Mass
		FEL	Mass of
			Mass Sieve
425.8	162.9	262.9	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	825.6	814.8	10.8	4,1	95.9
3/8"	9.5	878	845.1	32.9	12.5	83.4
4	4.750	899.9	816.4	83.5	31.8	51.6
10	2.000	778.3	711.9	66.4	25.3	26.4
20	0.850	659.4	629.1	30.3	11.5	14.8
40	0.425	571.9	555.7	16.2	6.2	8.7
60	0.250	534.6	525.9	8.7	3.3	5.4
100	0.150	517.7	512.6	5.1	1.9	3.4
200	0.075	494.7	491.3	3.4	c.t	2.1
PAN		495.7	492.0	3.7	1.4	0.0

% GHAVEL	48.4
% SAND	49.5
% SILT & CLAY	4.1

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ALCAN EPM

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B272	S-8	FIELD DESCRIPTION: Grey Sandy Gravel	Mass of Mass Soil % Retained % Passing	
BORING: B272	SAMPLE: S-8	SCRIPTION:	Mass Soil	
		FIELD DE	Mass of	
			Mass Sieve	
499.7	162.9	336.8		
Mass Dish + Sample	Mass of Dish	Mass Sample		

ning ta a bana da a bana da a bana da b		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
11	25.00	872.6	812.7	59.9	17.8	82.2
3/4"	19.00	846.4	814.8	31.6	9.4	72.8
3/8"	9.5	880.1	845.1	35.0	10.4	62.4
4	4.750	873.6	816.4	57.2	17.0	45.5
10	2.000	757.7	711.9	45.8	13.6	31.9
20	0.850	654.7	629.1	25.6	7.6	24.3
40	0.425	582.7	555.7	27.0	8.0	16.2
60	0.250	543.6	525.9	17.7	5.3	11.0
100	0.150	527.0	512.6	14.4	4.3	6.7
200	0.075	503.4	491.3	12.1	3.6	3.1
PAN		500.2	492.0	8.2	2.4	0.0

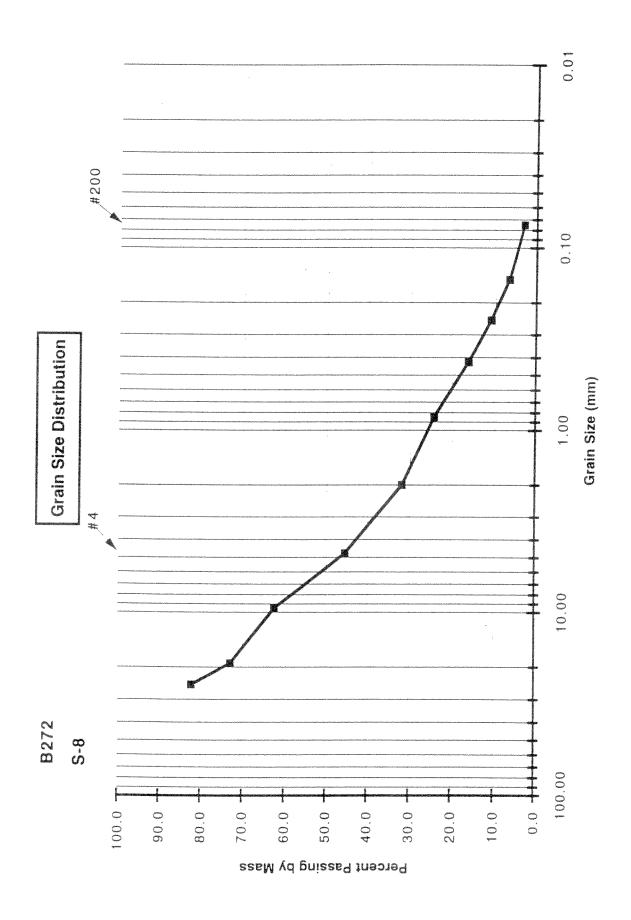
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36.8 42.3

<mark>% ርංድ</mark>ራድ % GRAVEL % SAND % SILT & CLAY

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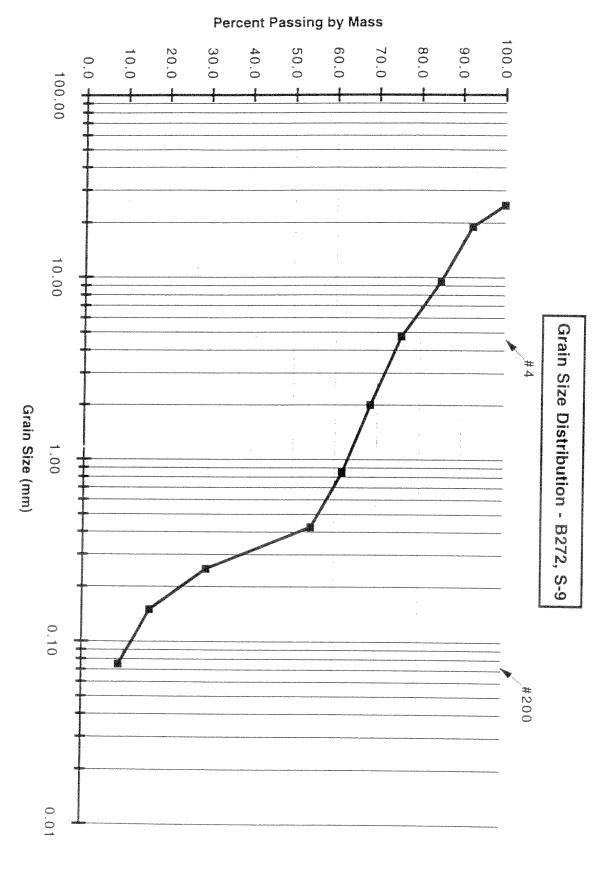
% Passing	Mass of Mass Soil % Retained % Passing	Mass Soil		Mass Sieve		
FIELD DESCRIPTION: Fine/Medium Sand w/ Gravel	Fine/Medium	ESCRIPTION:	FIELD DI		328.6	Mass Sample
	S-9	SAMPLE: S-9			162.9	Mass of Dish
	B272	BORING: B272			491.5	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
15	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	839.6	814.8	24.8	7.5	92.5
3/8"	9.5	869.7	845.1	24.6	7.5	85.0
4	4.750	847.5	816.4	31.1	9.5	75.5
10	2.000	735.2	711.9	23.3	7.1	68.4
20	0.850	650.6	629.1	21.5	6.5	61.9
40	0.425	579.7	555.7	24.0	7.3	54.6
60	0.250	607.8	525.9	81.9	24.9	20.6
100	0.150	556.7	512.6	44.1	13.4	16.2
200	0.075	515.4	491.3	24.1	7.3	8°9
PAN		519.1	492.0	27.1	8.2	0.0

% GRAVEL	24.5
% SAND	66.6
% SILT & CLAY	8.2

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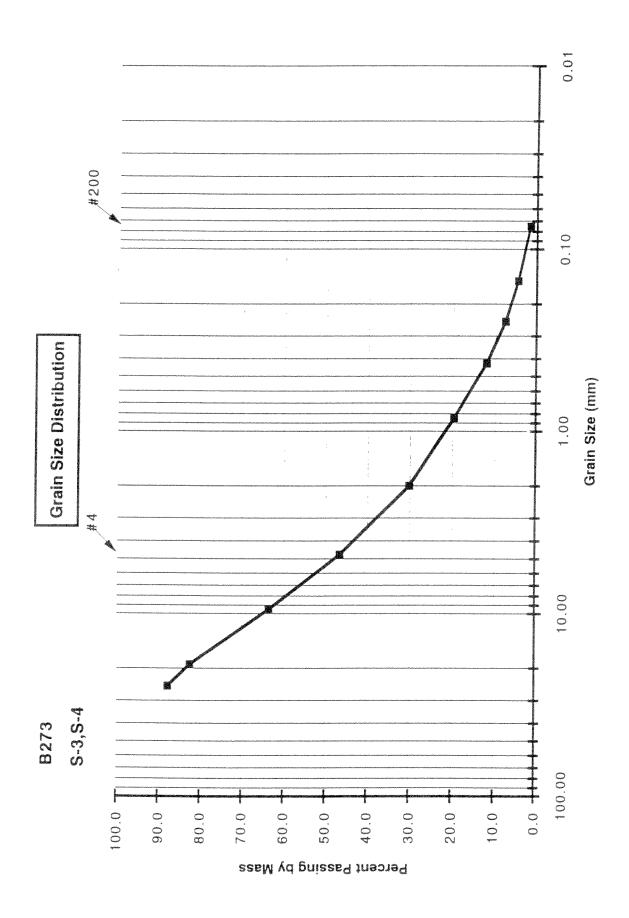
by mass	Retained by mass by mass	Retained	Sieve, g	Diam. (mm) plus Soil, g	Diam. (mm)	Sieve Number
% Passing	Mass Soil % Retained % Passing	Mass Soil	Mass of	Mass Sieve		
FIELD DESCRIPTION: Brown Sand & Gravel, Slag & Cinders	Brown Sand & G	SCRIPTION:	FIELD DE		529.2	Mass Sample
	S-3,S-4	SAMPLE: S-3,S-4			162.9	Mass of Dish
	B273	BORING: B273			692.1	Mass Dish + Sample

na na mana na mana na mana na mana na mana na mana mana mana mana na mana na mana na mana na mana na mana na ma		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	878	812.7	65.3	12.3	87.7
3/4"	19.00	842.6	814.8	27.8	5.3	82.4
3/8"	9.5	944.7	845.1	9.66	18.8	63.6
4	4.750	906.5	816.4	90.1	17.0	46.6
10	2.000	799.2	711.9	87.3	16.5	30.1
20	0.850	684.6	629.1	55.5	10.5	19.6
40	0.425	595.7	555.7	40.0	7.6	12.0
60	0.250	548.9	525.9	23.0	4.3	7.7
100	0.150	528.9	512.6	16.3	3.1	4.6
200	0.075	507.1	491.3	15.8	3.0	1.6
PAN		498.4	492.0	6.4	1.2	0.0

% Corrects % GRAVEL % SILT & CLAY







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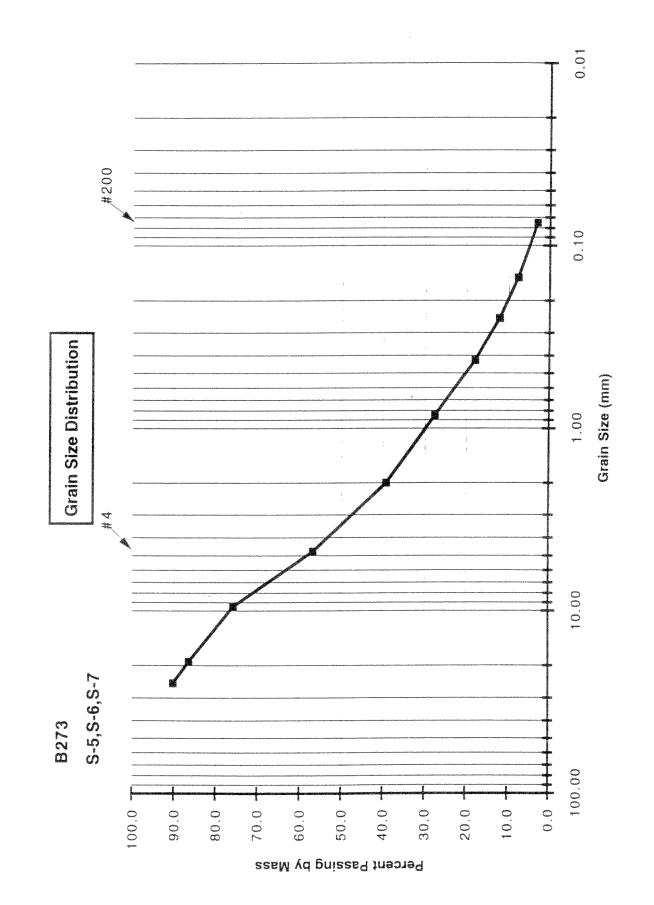
		AACCO C		n de la companya de l	
Gravel & Sand	FIELD DESCRIPTION: Gravel & Sand	FIELD	_	916.9	Mass Sample
SAMPLE: S-5,S-6,S-7	SAMPLE:			162.9	Mass of Dish
B273	BORING: B273			1079.8	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
1	25.00	903.2	812.7	90.5	9.9	90.1
3/4"	19.00	848.8	814.8	34.0	3.7	86.4
3/8"	9.5	943.1	845.1	98.0	10.7	75.7
4	4.750	989.4	816.4	173.0	18.9	56.9
10	2.000	874.0	711.9	162.1	17.7	39.2
20	0.850	735.4	629.1	106.3	11.6	27.6
40	0.425	645.0	555.7	89.3	9.7	17.9
60	0.250	578.6	525.9	52.7	5.7	12.1
100	0.150	552.9	512.6	40.3	4.4	7.7
200	0.075	533.4	491.3	42.1	4.6	3.1
PAN		517.8	492.0	25.8	2.8	0.0

s 9,4	33.3	53.7	LAY 2.8	
70 COBBLES	% GRAVEL	% SAND	% SILT & CLAY)

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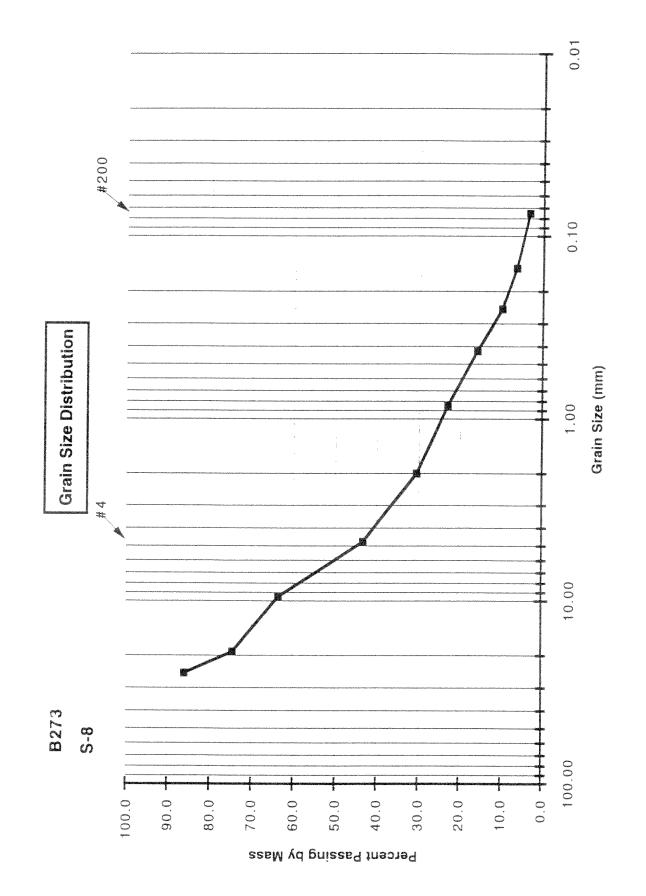
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Mass of Mass Soil % Retained % Passing	Mass Sieve		
FIELD [343.1	Mass Sample
		162.9	Mass of Dish
		506.0	Mass Dish + Sample
based 3	BORING: B273 SAMPLE: S-8 FIELD DESCRIPTION: Brown Gravel, Some Sand Mass of Mass Soil % Retained % Passing	Mass Sieve	506.0 162.9 343.1 FIELD Mass Sieve Mass of

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	861.1	812.7	48.4	14.1	85.9
3/4"	19.00	853.8	814.8	39.0	11.4	74.5
3/8"	9.5	882.7	845.1	37.6	11.0	63.6
4	4.750	885.9	816.4	69.5	20.3	43.3
10	2.000	756.0	711.9	44.1	12.9	30.5
20	0.850	654.7	629.1	25.6	7.5	23.0
40	0.425	580.3	555.7	24.6	7.2	15.8
60	0.250	545.7	525.9	19.8	5.8	10.1
100	0.150	524.3	512.6	11.7	3.4	6.6
200	0.075	502.0	491.3	10.7	3.1	3.5
PAN		501.6	492.0	9.6	2.8	0.0

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BORING: B273	SAMPLE: S-9	FIELD DESCRIPTION: V. Fine Grey/Brown Silty Sand		Mass of Mass Soil % Retained % Passing
BORIN	SAMPL	SCRIPTIO		Mass So
		FIELD DE		Mass of
	~			Mass Sieve
443.1	162.9	280.2	an alla manana an a	
Mass Dish + Sample	Mass of Dish	Mass Sample		

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	855.1	845.1	10.0	3.6	96.4
4	4.750	820.3	816.4	3.9	1.4	95.0
10	2.000	723.3	711.9	11.4	4.1	91.0
20	0.850	630.9	629.1	1.8	0.6	90.3
40	0.425	556.3	555.7	0.6	0.2	90.1
60	0.250	531.7	525.9	5.8	2.1	88.0
100	0.150	537.3	512.6	24.7	8.8	79.2
200	0.075	567.8	491.3	76.5	27.3	51.9
PAN		634.5	492.0	142.5	50.9	0.0

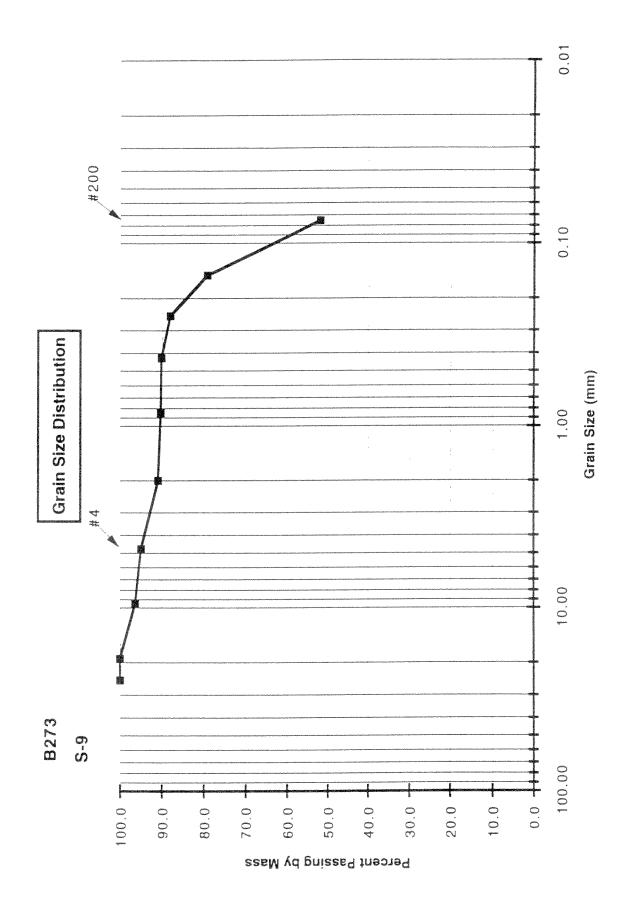
- 5.0	43.1	CLAY 50.9	
% GRAVEL	% SAND	% SILT &	



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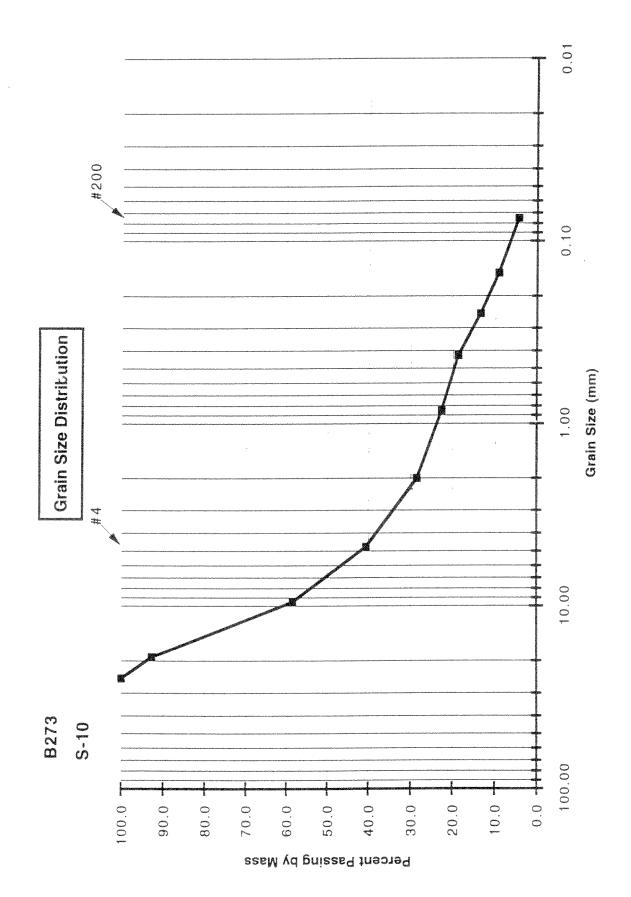
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BORING: B273	: S-10	FIELD DESCRIPTION: Grey/Brown Gravel, Some Sand	Mass of Mass Soil % Retained % Passing
BORING	SAMPLE: S-10	ESCRIPTION	Mass Soil
		FIELD DI	84244.047
393.5	162.9	230.6	Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Paceing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	Vincen 10/
=	25.00	812.7	812.7	0.0	00	100.0
3/4"	19.00	831.5	814.8	16.7	6.2	0.00 8
3/8"	9.5	924.1	845.1	79.0	34.3	022.0 78 7
4	4.750	857.7	816.4	41.3	17.9	40.6
10	2.000	739.7	711.9	27.8	10.1	0.04 0.8 F
20	0.850	642.9	629.1	13 A	e o	200
40	0.425	564.7	555.7	2.0		22.0
60	0.250	538.0	525.9	12.0	р. с. С. ц.	10.0
100	0.150	522.4	512.6	86	0. V	4.0
200	0.075	502.1	491.3	10.8	3.1	3.C
PAN		499.9	492.0	7.9	4 F	
WATCH DESCRIPTION OF THE RESIDENCE AND	And the second)	" "	2.0

59.4	36.1	3.4	,
% GRAVEL	% SAND	% SILT & CLAY	Colm.



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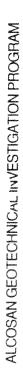
BORING: B274 SAMPLE: S-3,4 FIELD DESCRIPTION: Brown Sand, Gravel	Mass Slave Mass of Mass Cill of State
730.7 162.9 567.8	Mace Sieve
Mass Dish + Sample Mass of Dish Mass Sample	

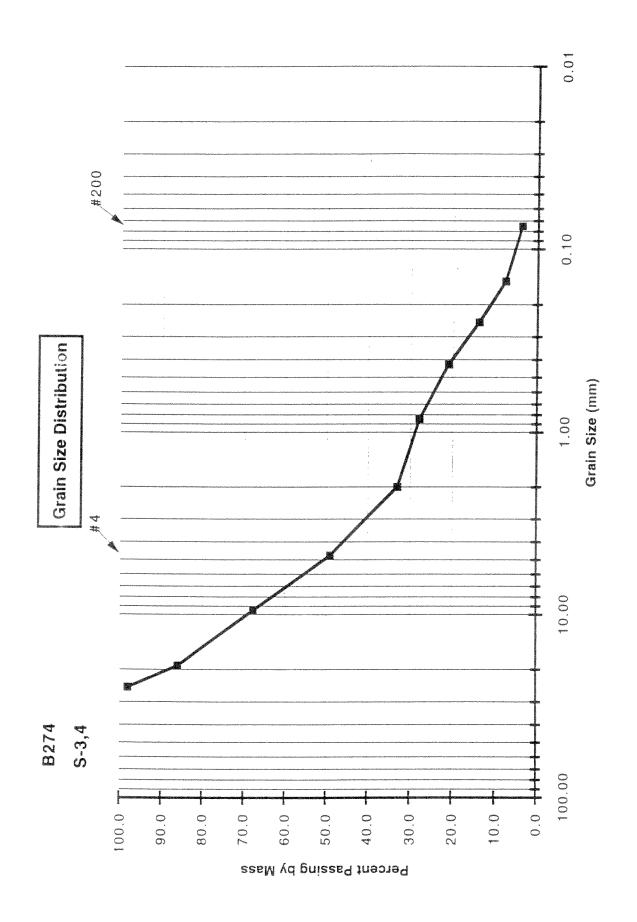
		Mace Cioux				
Cious Number		avais sieve	INISSS OI	Mass Soll	% Retained	% Passing
Jadminn avaic	Ulam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hv mace
	25.00	823.6	812.7	10 Q	0	
3/4"	19.00	883.1	81A 8		P. 1	90.1
3/8"	0 2	0.000	0.1.0	00.3	12.0	86.1
	>	343.4	040.1	104.1	18.3	67.7
4	4./50	922.4	816.4	106.0	18.7	0.01
10	2.000	803.1	711.9	01.0	10.1	49.0
20	0.850	65R O	1 000	3.00	10.1	33.0
			023.1	20.9	5.1 2	27.9
40	0.425	594.9	555.7	39.2	6 0	010
60	0.250	566.2	525 q	E UV) r	21.0
100	0 150	5A6 6			1.1	13.9
000		0.040	0.210	34.0	6.0	7.9
002	0.075	513.5	491.3	22.2	0 0	- V
PAN		512.6	492.0	20 G		+.C
				50.0	0.0	0.0
						Contractions for a first descent state of the second state of the

90 COBBLES	6'/
% GRAVEL	49.0
% SAND	45.1
% SILT & CLAY	3.6

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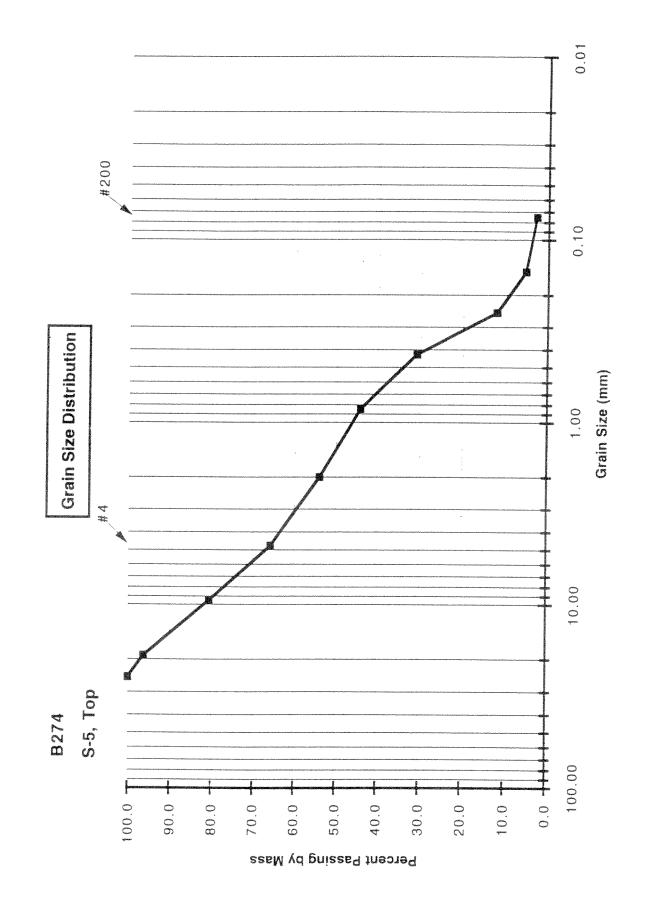
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BORING: R974	SAMPLE: S-5 TOD	FIELD DESCRIPTION: Fine/Med. Brown Sand, Some Gravel	
505.9	162.9	343	Maco Circo
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mana Ciana	A Construction of the cons			
		avaic scame	Mass of	Mass Soll	% Retained	% Passing
SIEVE NUMBER	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	00	100.0
3/4"	19.00	827.6	814.8	12.8	2 ' C	0.00
3/8"	9.5	899.1	845.1	54.0	15.7	90.3 00 F
4	4.750	866.9	816.4	50.5	10.1	0.00
10	2.000	752.3	711.9	40.4	11 8	64.0
20	0.850	663.0	629.1	33.0		0.40
40	0.425	601.5	555 7	45.0 45.8	0.0 * C *	44.1
60	0.250	589.6	525.0	0.04 7 6.0	40.04	30.8
100	0.150	535.9	5126	03.2	0.0	12.2
200	0.075	500.1	491.3	2.5.2 2.2.2	0.0	0.4 0
PAN		499.5	492.0	7.5	0.0	200
						0.0

34.2	62.9	2.2	
% GRAVEL	% SAND	% SILT & CLAY	D



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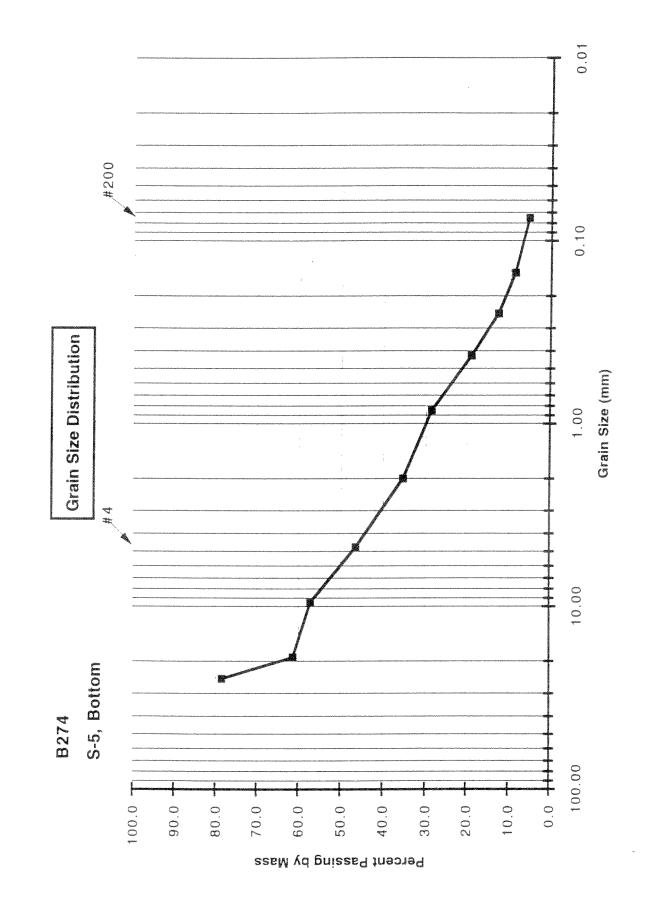
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BORING: B274	SAMPLE: S-5, Bottom	FIELD DESCRIPTION: Gravel, Sand	Mass Slave Mass of Mars Soil of Barrier J of B
BORI	SAMP	FIELD DESCRIPTION	Mace of More C
445.6	162.9	282.7	Macs Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

n man see the second		Mass Sieve	Maee of	Mace Coll	0/ Dotoined	
Cinin Alimeta			10 000		% helained	% Passing
Sieve Number	Ulam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	873.6	812.7	60.9	21.5	78.5
3/4"	19.00	863.3	814.8	48.5	17.2	613
3/8"	9.5	856.9	845.1	11.8	4 2	57 1
4	4.750	846.7	816.4	30.3	10.7	46.4
10	2.000	743.4	711.9	31.5	111	5 2 2 2
20	0.850	647.9	629.1	18.8	6.7	00.00 0 R R
40	0.425	583.1	555.7	27.4	~ 0	10.0
60	0.250	543.6	525.9	17.7	6.3	10.3
100	0.150	523.7	512.6	-	0.0	8 7
200	0.075	500.5	491.3	9.2	9.9 9.9	5.5
PAN		504.8	492.0	12.8	4.5	0.0
		THE REAL PROPERTY AND A DESCRIPTION OF THE	TRADUCTOR DE CONTRACTOR DE LA CONTRACTOR	Contractory of the second se		> • •

90 COBBLES	21.5
% GRAVEL	32.0
% SAND	40.9
% SILT & CLAY	4.5

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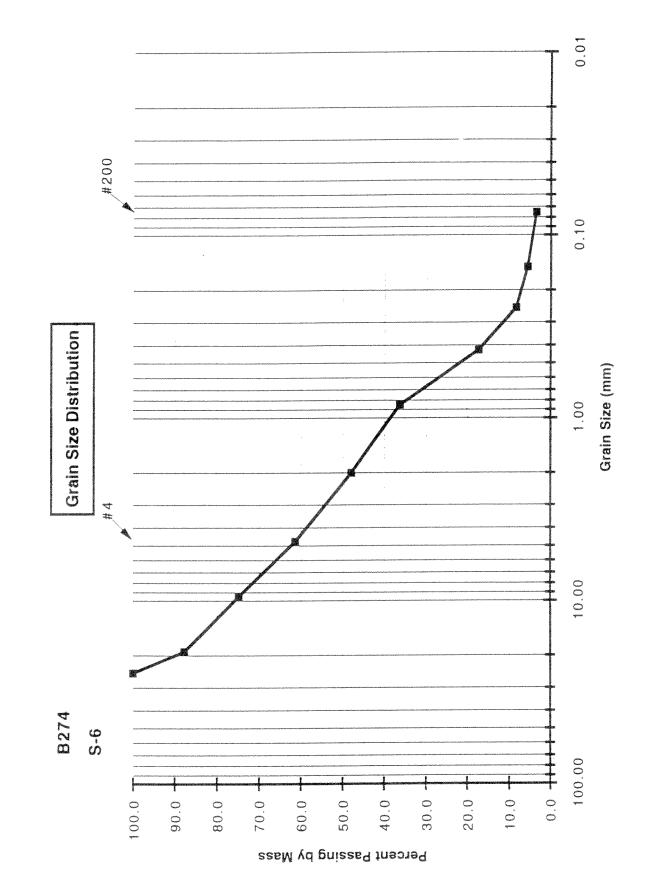
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B274	S-6	FIELD DESCRIPTION: Grey/Brown Sandy Gravel	
BORING: B274	SAMPLE: S-6	FIELD DESCRIPTION:	
474.9	162.9	312	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mace of	Maes Soil	Descine 10	
				IIIaoo com	/o netained	% Passing
Sieve Number	Ulam, (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	812.7	812.7	0.0	0 0	1000
3/4"	19.00	853.4	814.8	38.6	12.4	87.6
3/8"	9.5	885.2	845.1	40.1	12.0	0.10
4	4.750	858.3	816.4	41.9	13.4	6 1 2 8 1 2
10	2.000	753.9	711.9	42.0	13.5	01.0
20	0.850	665.0	629.1	35.9	2.0.1 L	V. 14
40	0.425	615.0	555.7	503	0.01	10.4
60	0.250	553.5	525.9	27.6	0.0 a	0 5
100	0.150	521.3	512.6	8.7	ο.ο α	0.0 4
200	0.075	498.0	491.3	6.7	0	0./ 9.6
PAN		500.6	492.0	8.6	2.8	
		and the property of the particular states and a state of the particular states of the particular states and the	A STATE OF THE REAL PROPERTY AND A DESCRIPTION OF THE PROPERTY AND A DESCRIPTION OF THE REAL PRO	Sources and a second se)

38.7	57.8	2.8	
% GRAVEL	% SAND	% SILT & CLAY	SP

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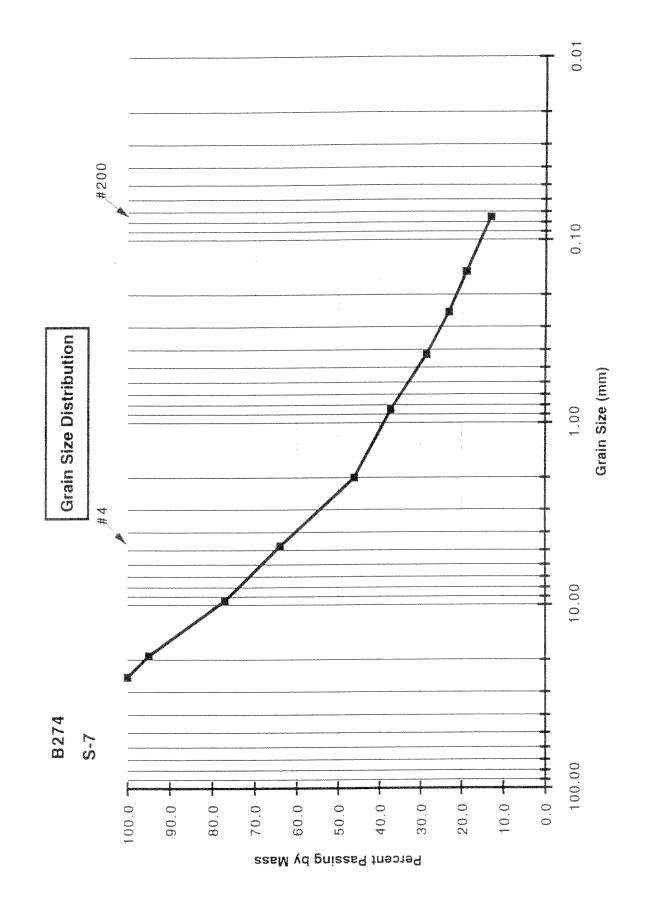
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B274 S-7	HELD UESCHIPTION: Med. Grey Sand w/Gravel, Trace Clay	Mass of Mass Soil % Retained % Passing	Sieve a Ratainad hy mace his and
BORING: B274 SAMPLE: S-7	SCHIPTION	Mass Soil	Retained
	HELD UI	Mass of	£
		Mass Sieve	plus Soil. a
484.0 162.9	A LUT MANOR COLOR OF A LABOR OF A		Diam. (mm) plus Soil. g
Mass Dish + Sample Mass of Dish Mass Samolo			Sieve Number

		Mass Sieve	Mass of	Mase Soil	% Batained	0/ Door
Sieve Number	Diam. (mm)	plus Soil. a	Sieve a	Retained	hy mane	/o rassing
and the second			6 ()			uy mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	831	814.8	16.2	2.0	05.00
3/8"	9.5	902.8	R45 1	57.7		0.06
4	4 750	858 3	016.4		0.01	n. / ,
		2.222	010.4	41.9	13.0	63.9
01	2.000	769.3	711.9	57.4	17.9	46 1
20	0.850	657.4	629.1	28.3	a a	
07					0.0	21.10
>+	0.44.0	0.580	555.7	27.9	8.7	28.6
60	0.250	543.7	525.9	17.8	لم م	030
100	0.150	526.0	5126	13 4		20.04
200	0.075	510.0	401.2		2'4	10.0
I V V I			101.0	10./	5.8	13.0
LAN		531.1	492.0	39.1	12.2	0.0
				A NAME AND ADDRESS OF A DESCRIPTION OF A		

36.1	50.9	12.2	
% GRAVEL	% SAND	% SILT & CLAY	

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B274	S-8	Gravel, Trace Sand
BORING: B274	SAMPLE: S-8	FIELD DESCRIPTION: Gravel, Trace Sand
504.8	162.9	341.9
Mass Dish + Sample	Mass of Dish	Mass Sample

n de la companya de l Esta de la companya d		Mace Slove	Akana of			
			INIASS OI	Mass Soll	% Hetained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
#	25.00	867.3	812.7	54.6	16.0	84.0
3/4 "	19.00	843.2	814.8	28.4	8 3	75.7
3/8"	9.5	910	845.1	64.9	19.0	56.7
4	4.750	875.6	816.4	59.2	17.3	30.4
10	2.000	745.9	711.9	34.0	6.6	20 5
20	0.850	648.6	629.1	19.5	5.7	22 B
40	0.425	600.6	555.7	44.9	13 1	10.0
60	0.250	546.6	525.9	20.7		0.01
100	0.150	518.8	512.6	6.2		C. 4 C. 4
200	0.075	494.5	491.3	3.2	6.0	ο α
PAN		495.8	492.0	3.8		0.0
				And and a second s)

/6.0	44.6	37.6	Υ 1.1	
10 COBBLES	% GRAVEL	% SAND	% SILT & CLAY	

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0.01 #200 0.10 Grain Size Distribution Grain Size (mm) 1.00 #4 10.00 B274 S-8 100.00 0.0 ┽ 10.0 20.0 100.0 50.0 40.0 30.0 90.0 80.0 60.0 70.0 Percent Passing by Mass

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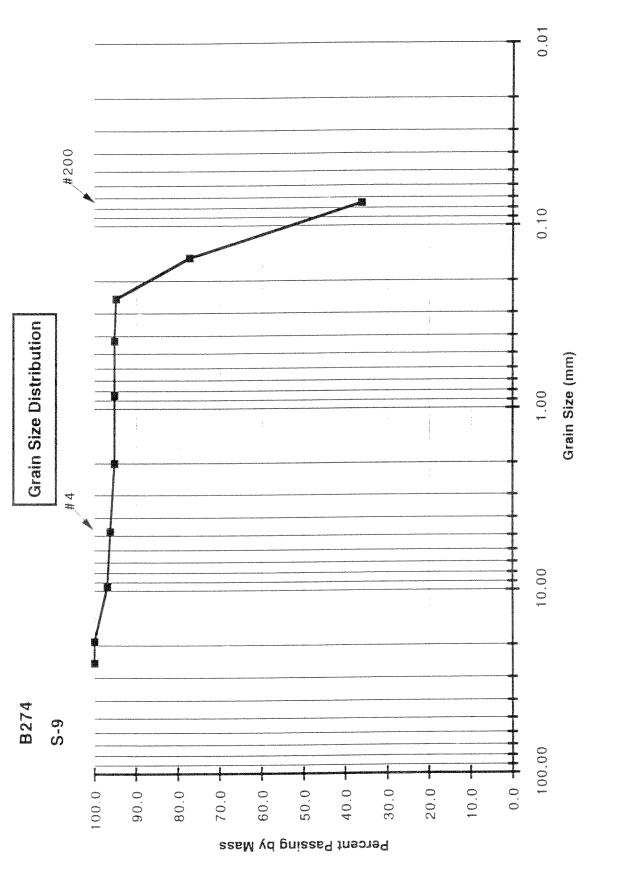
BORING: B274		FIELD DESCRIPTION: V. Fine Grey/Brown Sand, Trace Silt	
BORING	SAMPLE: S-0	FIELD DESCRIPTION	Mass Sieve Mass of Mano Soil of Date: 1 20 -
473.2	162.9	310.3	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mase Sieve	AAnce of	11.000		
Ciouo Number			Ma33 UI	INIASS JUI	% Hetained	% Passing
Jadiinni avaic	viam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25.00	812.7	812.7	0 0		
3/4"	19.00	81A 9	0470		0.0	100.0
a 07 0		0.14.0	014.0	0.0	0.0	100.0
3/8	9.5	854.9	845.1	8.6	0 6	06 0
4	4.750	818.4	816.4	0 6	3.0	0.00
10	2.000	715 1	744.0		0.0	30.2
			111.3	3.6	0.1	95.2
۷ ک	0.850	629.1	629.1	0.0	0 0	05 2
40	0.425	555.7	555 7	0		20.00
60	0 260			>.>	0.0	95.2
>>.	0.2.0	2.120	525.9	÷ م	0.4	94.7
100	0.150	567.2	512.6	54.6	17.6	0 4 4
200	0.075	618.5	4913	107.0		2.11
NVD			>	2.121	41.0	30.2
		0.1.00	492.0	109.0	35.1	0.0
				The second s	A DESCRIPTION OF A DESC	

3.8	60.0	AY 35.1	
% GRAVEL	% SAND	% SILT & CLAY	

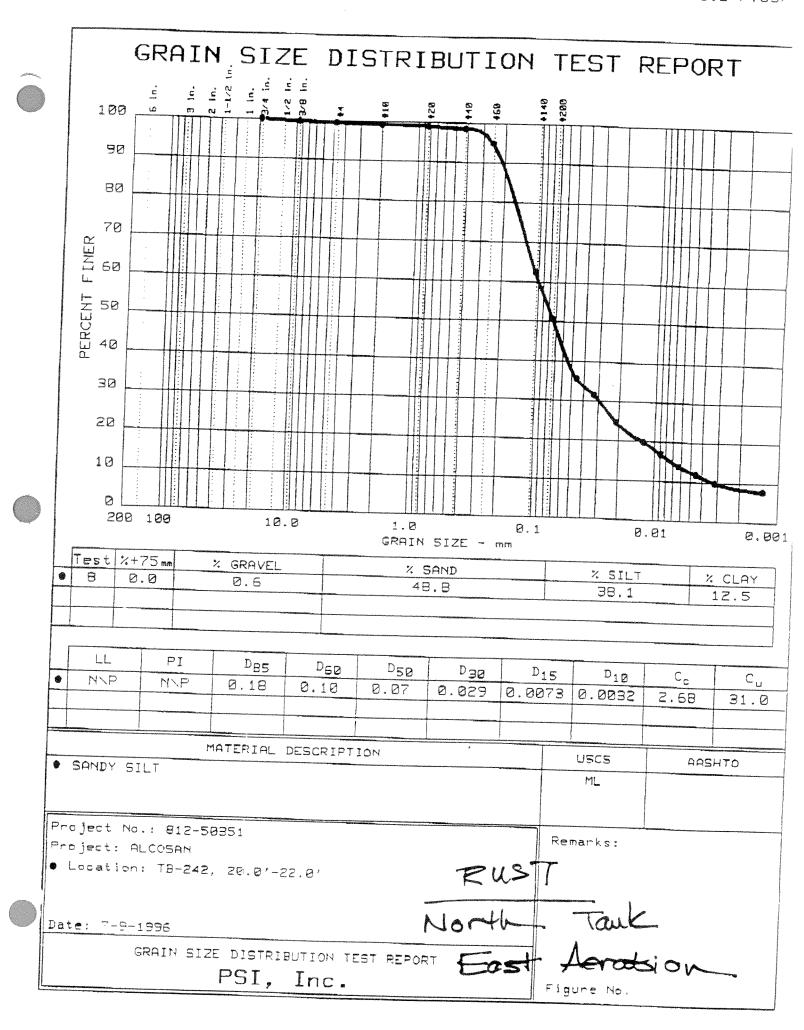
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BORING: B274	SAMPLE: S-10	FIELD DESCRIPTION: Grey/Brown Gravel	Mass of Mass Soil % Retained % Passing
BORI	SAMP	DESCRIPTI	Mass S
		FIELD	Mass of
462.5	162.9	299.6	Masa Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

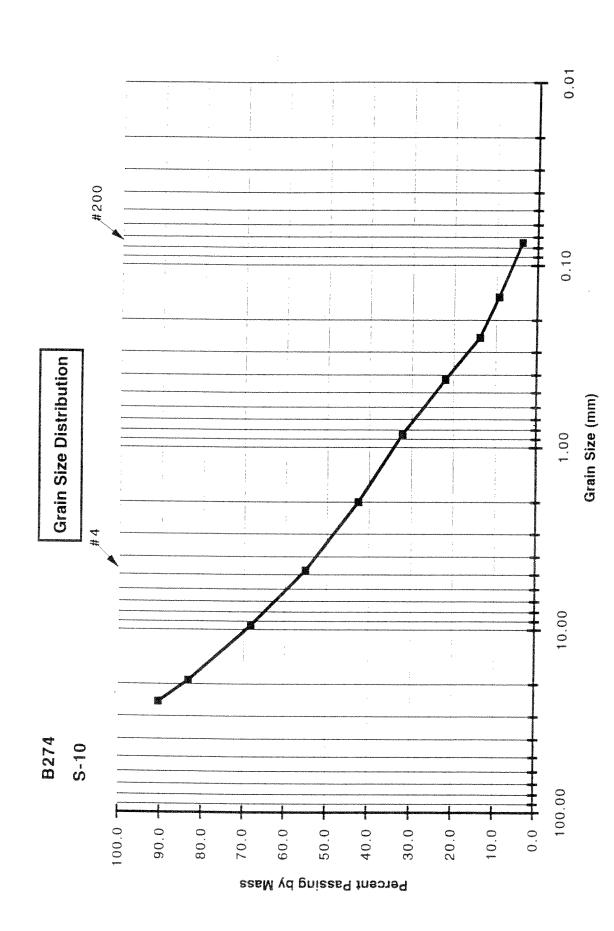
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
11	25.00	841.5	812.7	28.8	9.6	90.4
3/4"	19.00	836.1	814.8	21.3	7.1	83.3
3/8"	9.5	890.4	845.1	45.3	15.1	68.2
4	4.750	855.5	816.4	39.1	13.1	55.1
10	2.000	749.5	711.9	37.6	12.6	42.6
20	0.850	660.4	629.1	31.3	10.4	32.1
40	0.425	586.3	555.7	30.6	10.2	21.9
60	0.250	550.3	525.9	24.4	8.1	13.8
100	0.150	526.1	512.6	13.5	4.5	9.2
200	0.075	507.7	491.3	16.4	ວ.ວ	3.8
PAN		500.9	492.0	8.9	3.0	0.0

% Cobbles	9.6
% GRAVEL	35.3
% SAND	51.3
% SILT & CLAY	3.0

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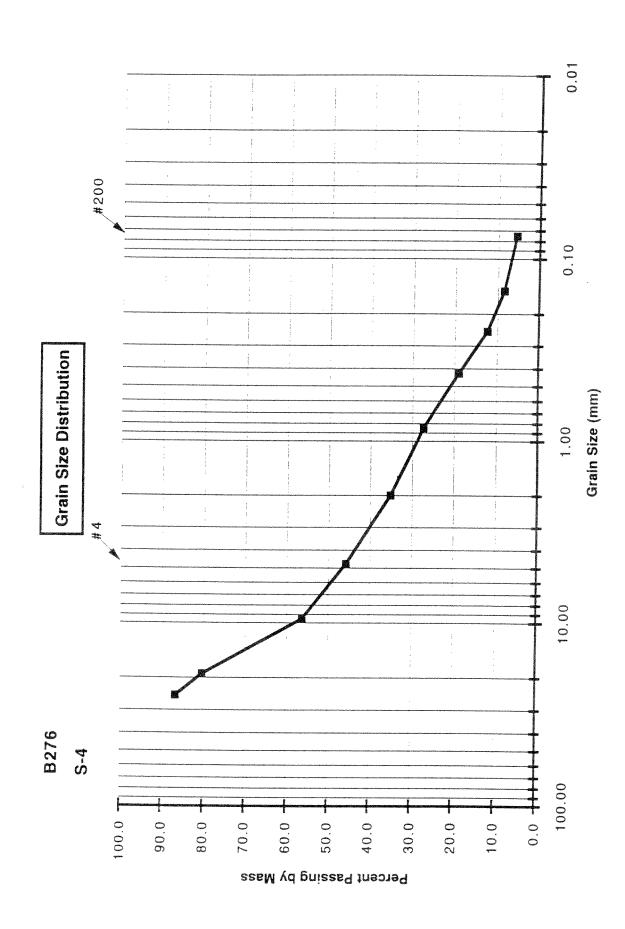
BORING: B276	SAMPLE: S-4	FIELD DESCRIPTION: Gravel	
404.0	162.9	241.1	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
72 1940	25.00	845	812.7	32.3	13.4	86.6
3/4"	19.00	830.2	814.8	15.4	6.4	80.2
3/8"	9.S	902.8	845.1	57.7	23.9	56.3
4	4.750	841.7	816.4	25.3	10.5	45.8
10	2.000	737.6	711.9	25.7	10.7	35.1
20	0.850	648.1	629.1	19.0	7.9	27.3
40	0.425	575.9	555.7	20.2	8.4	18.9
60	0.250	541.8	525.9	15.9	6.6	12.3
100	0.150	521.9	512.6	9.3	3.9	8.4
200	0.075	498.1	491.3	6.8	2.8	5.6
PAN		503.2	492.0	11.2	4.6	0.0

/3.4	40.8	40.2	4.6	
% Cobbles	% GRAVEL	% SAND	% SILT & CLAY	

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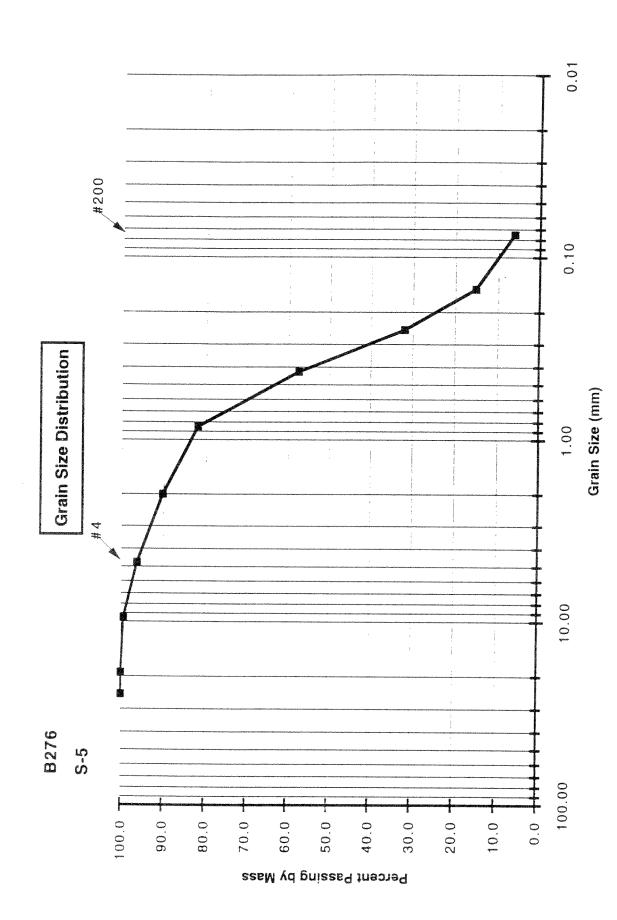


Mass Dish + Sample	439.5	ш	BORING: B276	276
Mass of Dish	162.9	S	SAMPLE: S-5	ŕ
Mass Sample	276.6	FIELD DESCH	RIPTION: F	FIELD DESCRIPTION: Fine/Med. Black Sand
			ę	
	Mass Sieve	Mass of Me	ass Soil 1º	Mass of Mass Soil % Retained % Descind

		Mass Sleve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
8	25.00	812.7	812.7	0.0	0.0	100 0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	846.8	845.1	1.7	0.6	00 4
4	4.750	825.0	816.4	8.6	3.1	96.3
10	2.000	728.9	711.9	17.0	0.1	90.1
20	0.850	652.0	629.1	22.9	8.3	810
40	0.425	623.1	555.7	67.4	24 4	57 5
60	0.250	596.8	525.9	70.9	25.6	010
100	0.150	558.9	512.6	46.3	16.7	15.1
200	0.075	515.9	491.3	24.6	8.9	6.2
PAN		506.4	492.0	14.4	5.2	0.0

% GRAVEL	3.7
% SAND	90.1
SILT & CLAY	5.2

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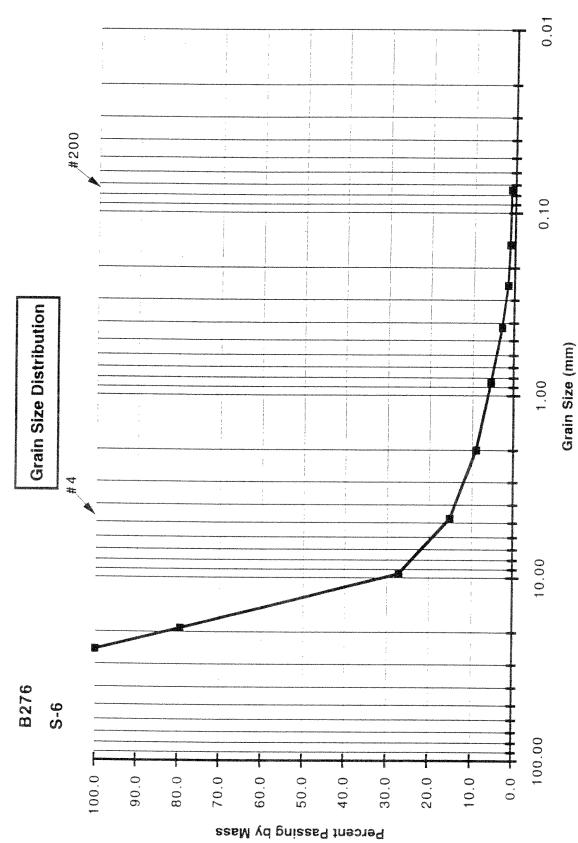
BORING: B276	SAMPLE: S-6	FIELD DESCRIPTION: Large Gravel	
BOR	SAM	FIELD DESCRIPT	
449.9	162.9	287	Maco C
Mass Dish + Sample	Mass of Dish	Mass Sample	

n na		Mass Sieve	Aaco of	Maco Coll	0/ 0.45	
			N acom	11102 SOUL	/o neiaineu /	% rassing
Sieve Number	Uiam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
2	25.00	812.7	812.7	0.0	0,0	100.0
3/4"	19.00	873.7	814.8	58.9	20.5	79.5
3/8"	9.5	995.4	845.1	150.3	52.4	27.1
4	4.750	850.9	816.4	34.5	12.0	15.1
10	2.000	729.3	711.9	17.4	6.1	0.6
20	0.850	639.0	629.1	9.6	3.4	99
40	0.425	563.2	555.7	7.5	2.6	0.6
60	0.250	529.8	525.9	3.9	1.4	1.6
100	0.150	513.7	512.6		0.4	0
200	0.075	491.8	491.3	0.5	0.2	10
PAN		492.9	492.0	0.9	0.3	0.0

% GRAVEL	84.9
% SAND	14.0
SILT & CLAY	0.3

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B276	S-7	FIELD DESCRIPTION: Brown Gravel, Some Sand	Mass of Mase Soil % Detained % Deceined
BORING: B276	SAMPLE: S-7	FIELD DESCRIPTION:	ss of Mace Soil
			Mass Sieve Ma:
527.3	162.9	364.4	
Mass Dish + Sample	Mass of Dish	Mass Sample	

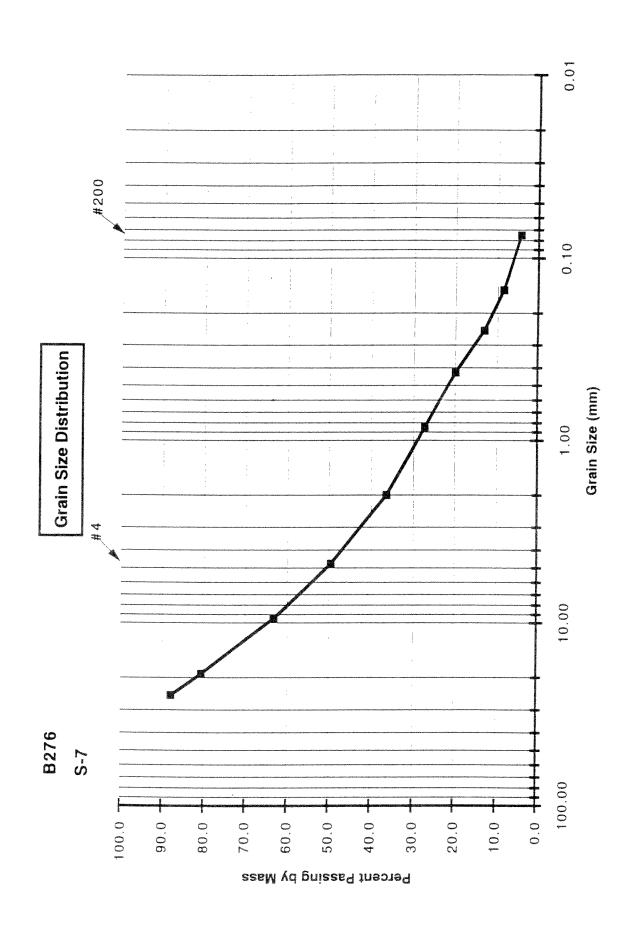
					A STATUS CONTRACTOR DESIGNATION OF A STATUS CONTRACTOR OF A ST	Prevention and the sector of the
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	857	812.7	44.3	12.2	87.8
3/4"	19.00	841.3	814.8	26.5	7.3	80.6
3/8"	9.5	908.4	845.1	63.3	17.4	63.2
4	4.750	866.1	816.4	49.7	13.6	49.6
10	2.000	760.1	711.9	48.2	13.2	36.3
20	0.850	662.0	629.1	32.9	9.0	27.3
40	0.425	582.9	555.7	27.2	7.5	19.8
60	0.250	550.8	525,9	24.9	6.8	13.0
100	0.150	529.1	512.6	16.5	4.5	8.5
200	0.075	506.4	491.3	15.1	4.1	4.3
PAN		505.4	492.0	13.4	3.7	0.0

	70 COBAVEL % GRAVEL % SAND % SULT 8 CLAV
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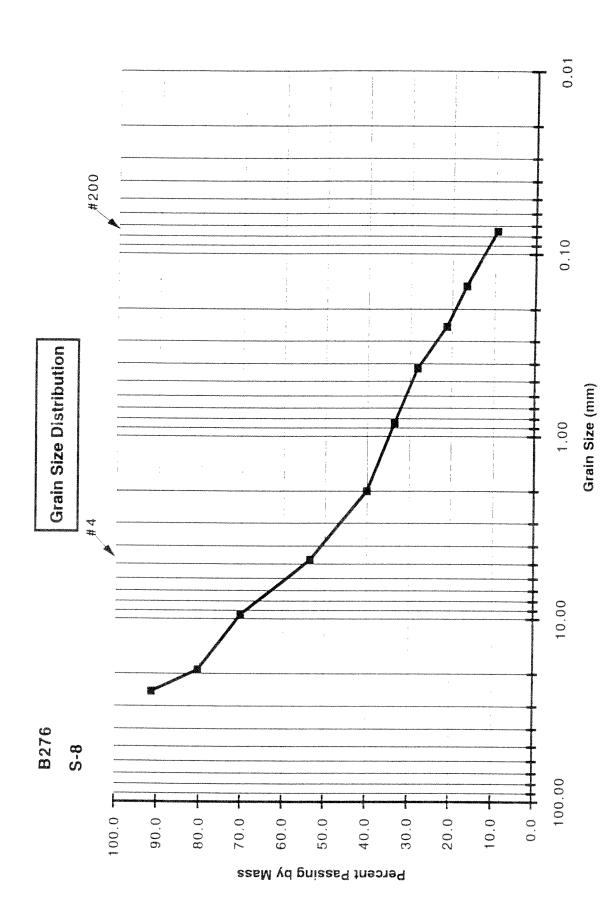


		Mono Ciovo	
FIELD DESCHIPTION: Brown/ Ian Sand and Gravel	FIELD DESCHIPTION:	1.112	
			Maco Comme
S-8	SAMPLE: S-8	162.9	Mass of Dish
B276	BORING: B276	380.0	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained		
	25.00	831.7	812.7	19.0	8.8	91.2
3/4"	19.00	838.4	814.8	23.6	10.9	80.4
3/8"	9.5	867.3	845.1	22.2	10.2	70.2
4	4.750	852.4	816.4	36.0	16.6	53.6
10	2.000	741.3	711.9	29.4	13.5	40.0
20	0.850	643.3	629.1	14.2	6.5	33.5
40	0.425	567.4	555.7	11.7	5.4	28.1
60	0.250	540.9	525.9	15.0	6.9	21.2
100	0.150	522.9	512.6	10.3	4.7	16.4
200	0.075	506.5	491.3	15.2	7.0	9.4
PAN		510.1	492.0	18.1	8.3	0.0
					0.0	Contraction of the local division of the loc

<i>හ</i> ග	37.7	44.1	8.3	-SM
% CoBBLES	% GRAVEL	% SAND	% SILT & CLAY	25

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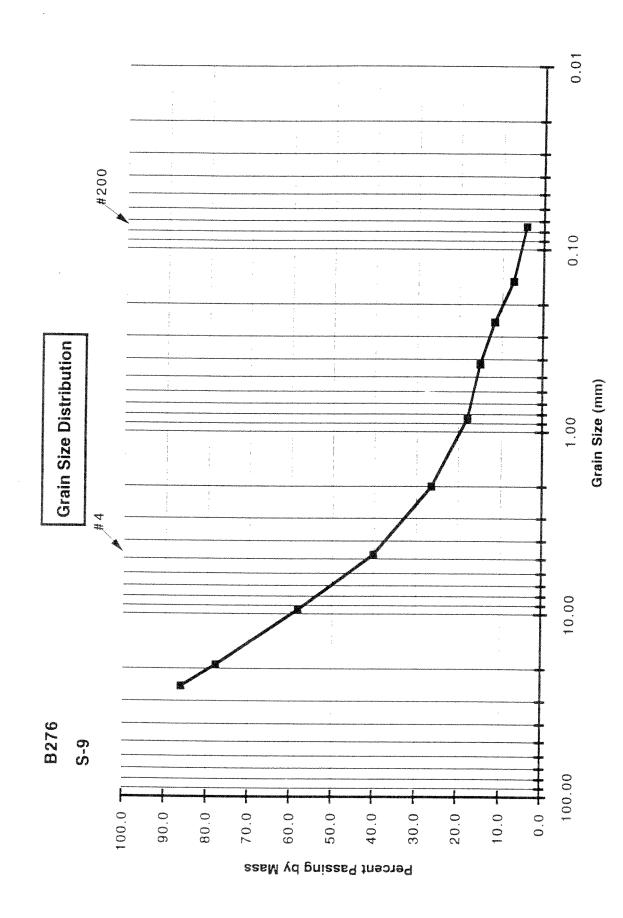
BORING: B276	SAMPLE: S-9	FIELD DESCRIPTION: Grey/Brown Sandstone and Gravel	
BORI	SAMP	FIELD DESCRIPTION	Mana Siana Hanna La Na
378.3	162.9	215.4	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25.00	842.7	812.7	30.0	13.9	86.1
3/4"	19.00	832.7	814.8	17.9	8.3	77.8
3/8"	9.5	887.1	845.1	42.0	19.5	58.3
4	4.750	855.6	816.4	39.2	18.2	40.1
10	2.000	741.3	711.9	29.4	13.6	26.4
20	0.850	647.7	629.1	18.6	8.6	17.8
40	0.425	561.8	555.7	6.1	2.8	14.9
60	0.250	533.0	525.9	7.1	3.3	11.7
100	0.150	522.1	512.6	9.5	4.4	7.2
200	0.075	497.7	491.3	6.4	3.0	4.3
PAN		498.9	492.0	6.9	3.2	0.0
				Production and an an		

13.9	46.0	35.8	3.2	NAMES OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTIONO
% Cobbres	% GRAVEL	% SAND	% SILT & CLAY	

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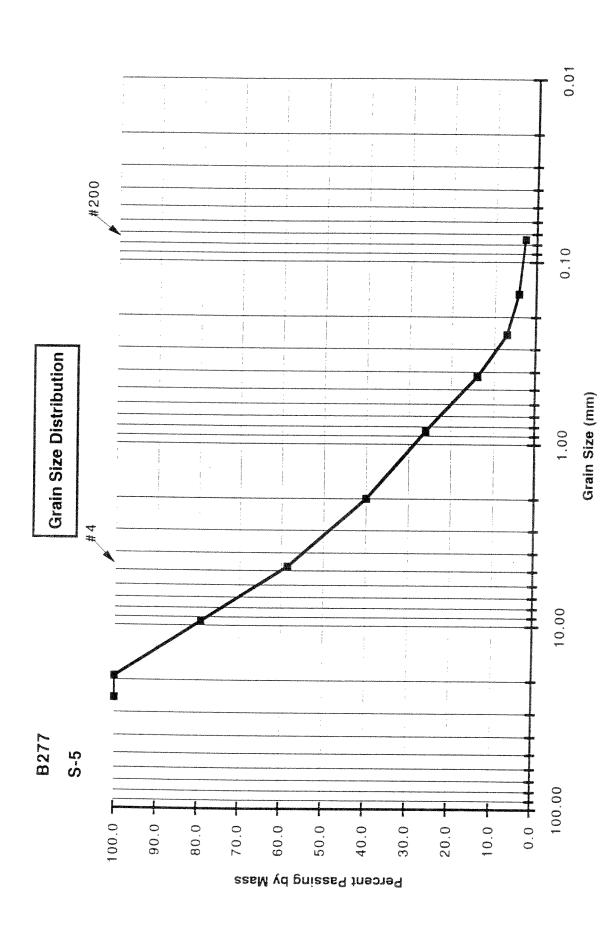
BORING: B277	SAMPLE: S-5	FIELD DESCRIPTION: Grey Sandy Gravel, Traces of Wood	Mass of Mass Soil % Retained % Passing	
			Mass Sieve Mass	with
322.9	162.9	160	Mas	Diam Amerika - 1
Mass UISN + Sample	Mass of Dish	Mass Sample		Cious Mumber

		Mass Sieve	Mass of	Mass Soil	% Retained	% Paceinn
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	812.7	812.7	0.0	0.0	100 0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5 0	878.2	845.1	33.1	20.7	79.3
4	4.750	849.7	816.4	33.3	20.8	58.5
10	2.000	741.6	711.9	29.7	18.6	30.0
20	0.850	651.5	629.1	22.4	14.0	25.0
40	0.425	575.1	555.7	19.4	12.1	13.8
60	0.250	536.8	525.9	10.9		7 0
100	0.150	517.0	512.6	4.4	2.7	4.2
200	0.075	493.6	491.3	2.3	1.4	2.8
PAN		494.0	492.0	2.0	.1.3	0.0

41.5	55.7	1.3	
% GRAVEL	% SAND	% SILT & CLAY	

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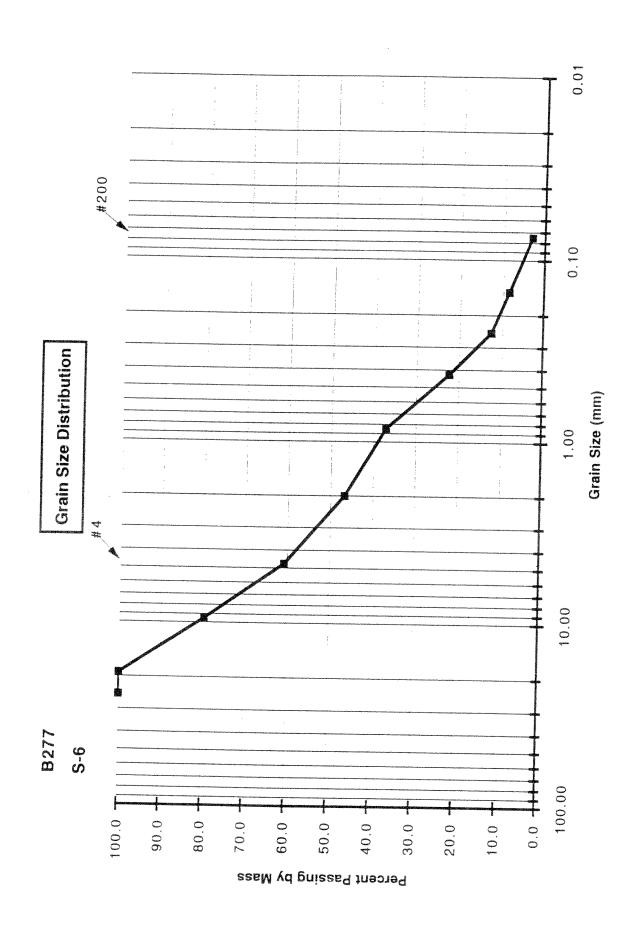
ALCOSAN GEOTECHNIC, VESTIGATION PROGRAM

	377.3	BORING: B277	B277
Mass of Dish	162.9	SAMPLE: S-6	S-6
Mass Sample	214.4	FIELD DESCRIPTION: Gravel, Sand	Gravel, Sand

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
15 T	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8 "	9.5	888.9	845.1	43.8	20.4	79.6
4	4.750	856.8	816.4	40.4	18.8	60.7
10	2.000	742.0	711.9	30.1	14.0	46.7
20	0.850	649.8	629.1	20.7	9.7	37.0
40	0.425	587.6	555.7	31.9	14.9	22.2
60	0.250	546.5	525.9	20.6	9.6	12.5
100	0.150	521.3	512.6	8.7	4.1	8.5
200	0.075	502.9	491.3	11.6	5.4	3.1
PAN		496.2	492.0	4.2	2.0	0.0

	VEL 39.3	57.6	& CLAY 2.0	SP
CONTRACTOR OF A DESCRIPTION OF A DESCRIP	% GRAVEL	% SAND	% SILT & CLA	107

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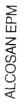
B277	S-7	FIELD DESCRIPTION: Grey/Black Gravel, Trace Clay	Mass of Mass Soil % Batainad % Danaina
BORING: B277	SAMPLE: S-7	D DESCRIPTION:	f Mace Soil
		FE	
326.7	162.9	163.8	Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

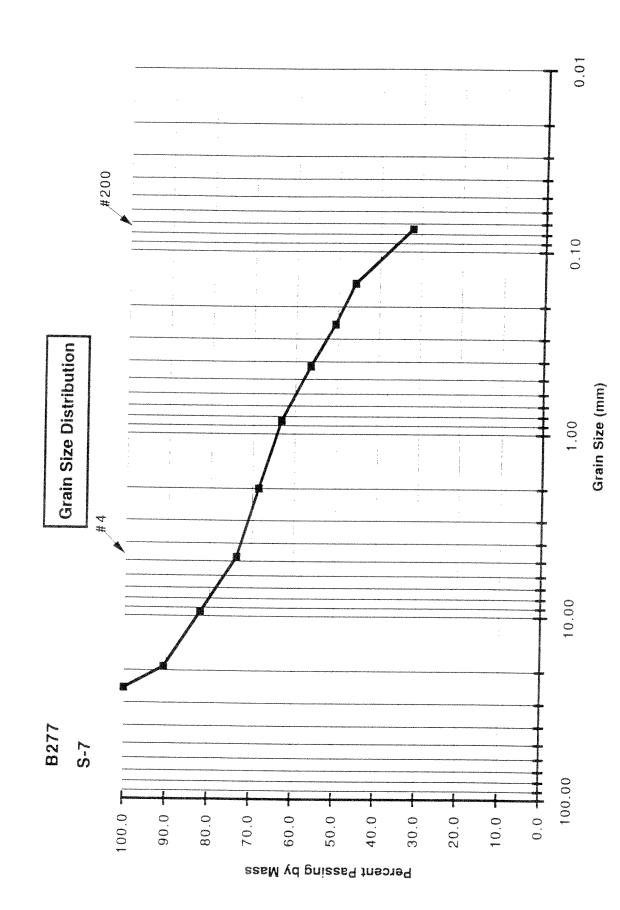
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
11	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	830.3	814.8	15.5	9.5	90.5
3/8"	9.5	859	845.1	13.9	8.5	82.1
4	4.750	830.3	816.4	13.9	8.5	73.6
10	2.000	720.4	711.9	8.5	5.2	68.4
20	0.850	637.6	629.1	8.5	5.2	63.2
40	0.425	566.8	555.7		6.8	56.4
60	0.250	535.4	525.9	9.5	5.8	50.6
100	0.150	520.4	512.6	7.8	4.8	45.8
200	0.075	513.8	491.3	22.5	13.7	32.1
PAN		541.9	492.0	49.9	30.5	0.0

26.4	41.5	۲ 30.5	ne na na ma
% GRAVEL	% SAND	% SILT & CLAN	

SW







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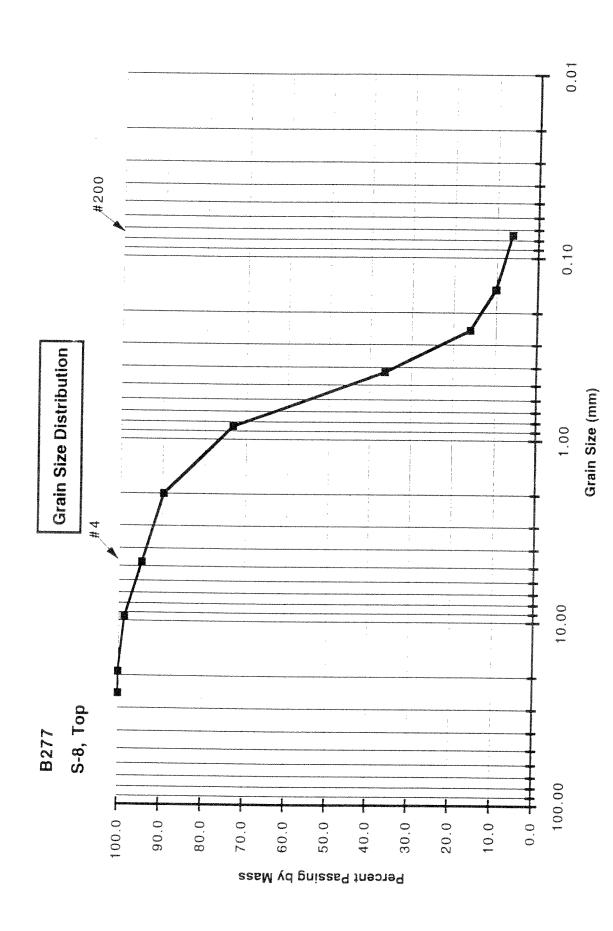
BORING: B277	SAMPLE: S-8, Top	FIELD DESCRIPTION: Fine/Med. Brown Sand	
	S	FIELD DESCF	
453.3	162.9	290.4	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
4-	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	G.G	849.1	845.1	4.0	1.4	98.6
4	4.750	828.1	816.4	11.7	4.0	94.6
10	2.000	726.3	711.9	14.4	5.0	89.6
20	0.850	677.0	629.1	47.9	16.5	73.1
40	0.425	662.9	555.7	107.2	36.9	36.2
60	0.250	584.8	525.9	58,9	20.3	15.9
100	0.150	529.7	512.6	17.1	5.9	10.1
200	0.075	501.9	491.3	10.6	3.7	6.4
PAN		507.9	492.0	15.9	5.5	0.0

5.4	88.2	AY 5.5	
% GRAVEL	% SAND	% SILT & CLAY	

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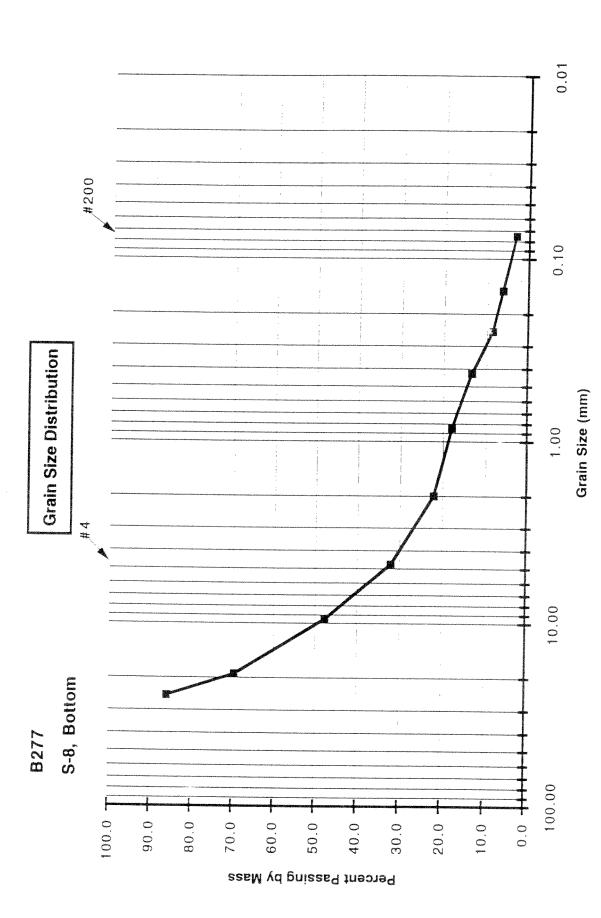
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	B277	SAMPLE: S-8. Bottom	Gravel, Trace Sand	Strang Grand Control of the Control of State
*	BORING: B277	SAMPLE:	FIELD DESCRIPTION: Gravel, Trace Sand	
	452.4	162.9	289.5	
	Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
SC.	25.00	853.6	812.7	40.9	14.1	85.9
3/4"	19.00	862.3	814.8	47.5	16.4	69.5
3/8"	9.5	908.2	845.1	63.1	21.8	477
4	4.750	861.6	816.4	45.2	15.6	32.1
10	2.000	740.9	711.9	29.0	10.0	22.0
20	0.850	641.1	629.1	12.0	4.1	17.9
40	0.425	568.8	555.7	13.1	4.5	13.4
60	0.250	539.7	525.9	13.8	4.8	8.6
100	0.150	519.2	512.6	6.6	2.3	6.3
200	0.075	500.4	491.3	9,1	3.1	3.2
PAN		498.9	492.0	6.9	2.4	0.0
			And a second	Contraction of the second s	and the second	

% GRAVEL 53.8 8 % SAND 28.9 28.9 % SILT & CLAY 2.4	23	% COBBLES	4.1
28.	28.	% GRAVEL	53.8
		% SAND	6 4
	nanove og a zakonanova og konstanten konstanten i kan letter og var konstanten til som det som det som det som	% SILT & CLAY	2.4

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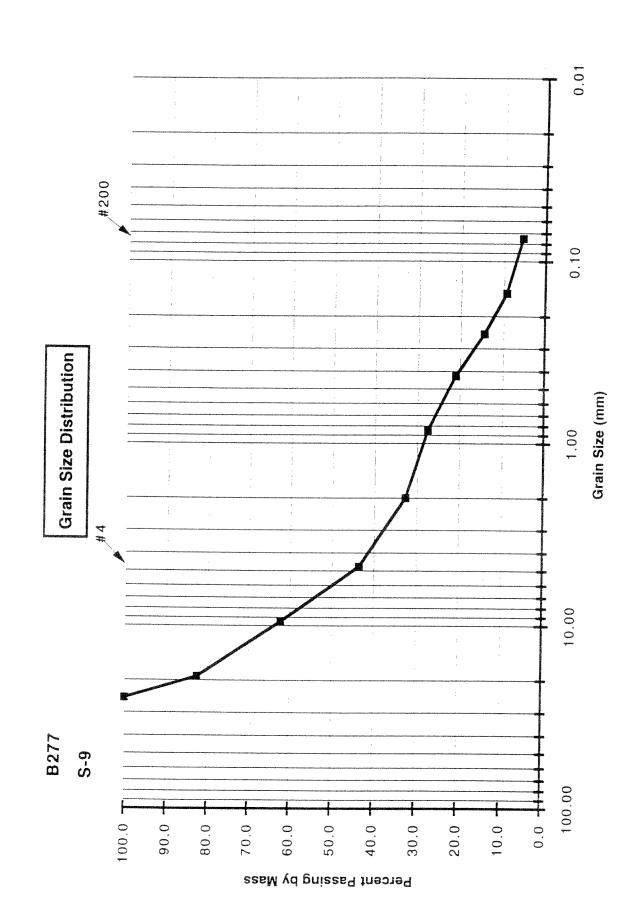
BORING: B277	SAMPLE: S-9	FIT: D DESCRIPTION: Gravel w/ Sand, Sandstone Fragments	Mass Sieve Mass of Mass Soil % Retained % Passing
BORIN	SAMPL	FIC: D DESCRIPTIO	Mass of Mass So
363.0	162.9	200.1	Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passinu
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
\$4	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	849.8	814.8	35.0	17.5	82.5
3/8"	9.5	885.7	845.1	40.6	20.3	62.2
4	4.750	853.8	816.4	37.4	18.7	43.5
10	2.000	733.6	711.9	21.7	10.8	32.7
20	0.850	639.4	629.1	10.3	5.1	27.5
40	0.425	568.9	555.7	13.2	6.6	20.9
60	0.250	539.1	525.9	13.2	6.6	14.3
100	0.150	522.7	512.6	10.1	5.0	9.3
200	0.075	498.7	491.3	7.4	3.7	5.6
PAN		500.8	492.0	8.8	4.4	0.0

56.5	37.9	4.4	
% GRAVEL	% SAND	% SILT & CLAY	92

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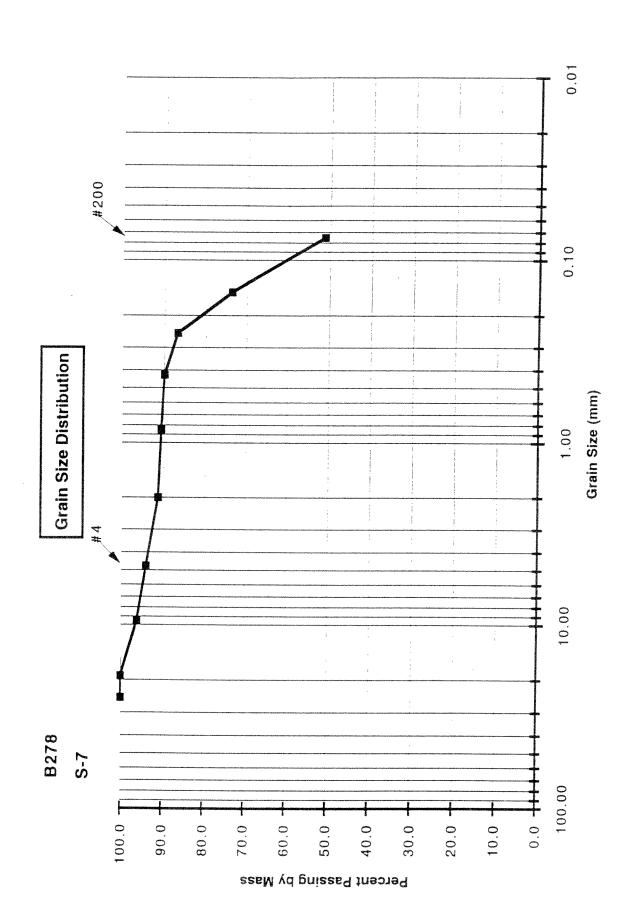
0,70	5-7 S-7	FIELD DESCRIPTION: Grey/Black Silty Sand, Some Gravel	Mass of Mass Soil % Dotning % Dotning
ROBING: D070	SAMPLE: S-7	FIELD DESCRIPTION:	Mass of Mass Soil
346.4	162.9	183.5	Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

	And we have a second	Mass Sieve	Mass of	Mass Soil	% Retained	% Paceing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	852.1	845.1	7.0	3.8	96.2
4	4.750	820.3	816.4	3.9	2.1	94.1
10	2.000	717.0	711.9	5.1	2.8	91.3
20	0.850	630.4	629.1	1.3	0.7	90.6
40	0.425	557.1	555.7	1.4	0.8	8.08
60	0.250	531.6	525.9	5.7	3.1	86.7
100	0.150	536.7	512.6	24.1	13.1	73.6
200	0.075	532.4	491.3	41.1	22.4	51.2
PAN		582.7	492.0	90.7	49.4	0.0
		WANTER VALUE AND	POURSED IN THE REPORT OF THE R	And a support of the	Statement and a second se	

5.9	42.9	۲ 49.4	
% GRAVEL	% SAND	% SILT & CLAN	

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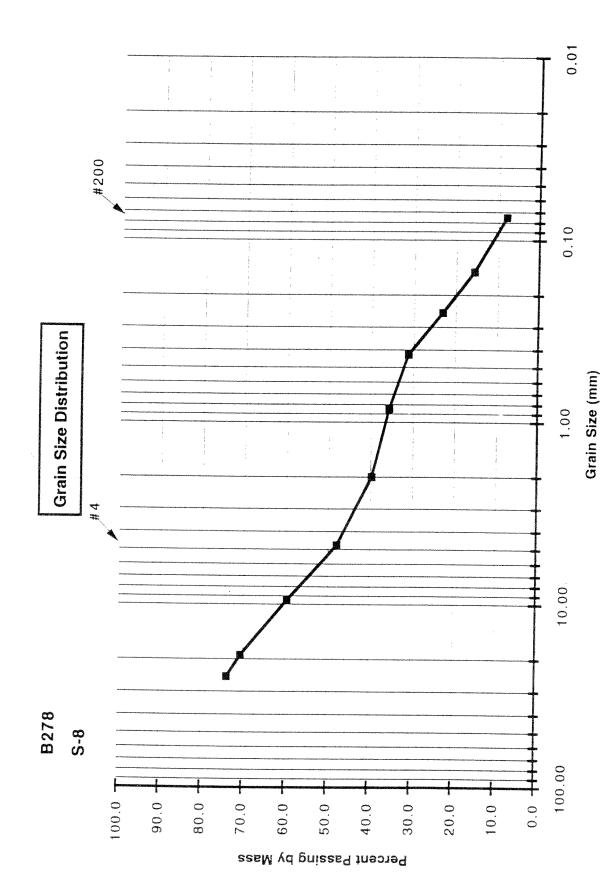
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0200	0/70	S-B	FIELD DESCRIPTION. Grav/Black Gravel & Sand	archiciació diavera carla
BODING. D070	DAELON	SAMPLE: S-8	FIELD DESCRIPTION	
519.8		162.9	356.9	
Mass Dish + Sample		MIASS OF UISH	Mass Sample	

A CANADA SA A C					10 Anna 10 Anna anna anna chuadh san ann ann ann ann ann ann ann ann ann	
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passinn
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hv mass
4	25.00	906.2	812.7	93.5	26.2	73.8
3/4"	19.00	826.6	814.8	11 8	3 3	70.0
3/8"	9.5	883.5	845.1	38.4	2 0 F	F0.7
4	4.750	858.6	816.4	42.2	a 11.0	13.1
10	2.000	741.3	711.9	29.4	0.1.a	D. / t
20	0.850	643.4	629.1			1.90 2F 7
40	0.425	571.8	555.7	16.1		00.1
60	0.250	554.7	525.9	28.8	ς τ	2.10
100	0.150	539.6	512.6	27.0	7.6	
200	0.075	518.0	491.3	26.7	7 5	?:
PAN		518.1	492.0	26.1	7.3	
		ามมีสูงกับสองและเขาะของสองสองสองสองสองสองสองสองสองสองสองสองสอ	and a second	Contraction of Contra) •	> > >

	25.9		7.3	M-2-
To Callette	% GRAVEL	% SAND	% SILT & CLAY	d 5

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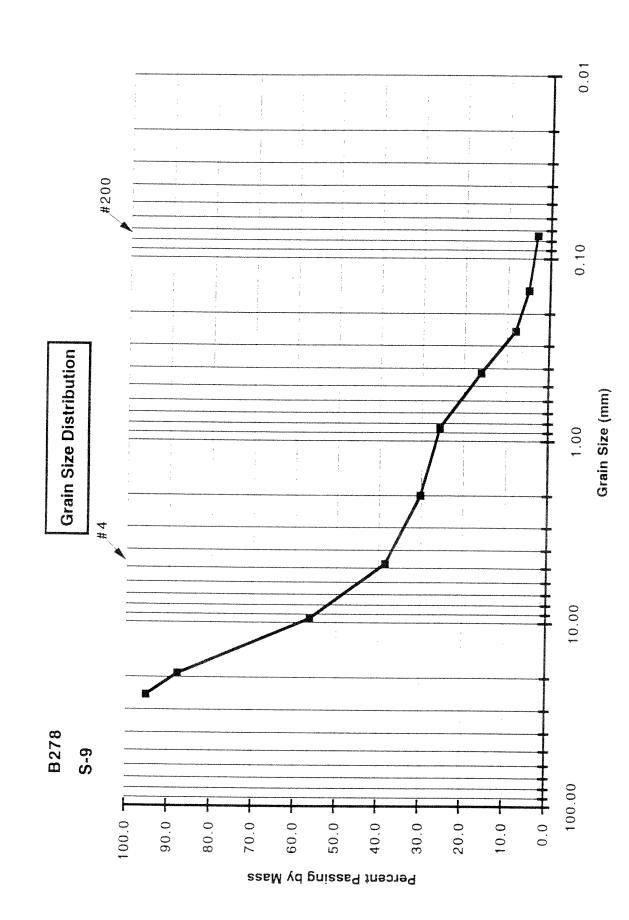
B278	S-9	FIELD DESCRIPTION: Brown Sandy Gravel	
BORING: B278	SAMPLE: S-9	FIELD DESCRIPTION:	
499.3	162.9	336.4	na na da mangana kun una na kun
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	829.2	812.7	16.5	4.9	95.1
3/4"	19.00	839.7	814.8	24.9	7.4	87.7
3/8"	9.5	950.4	845.1	105.3	31.3	56.4
4	4.750	877.1	816.4	60.7	18.0	38.3
10	2.000	739.5	711.9	27.6	8.2	30.1
20	0.850	644.2	629.1	15.1	4.5	25.7
40	0.425	588.8	555.7	33.1	9.8	15.8
60	0.250	552.3	525,9	26.4	7.8	0.8
100	0.150	522.6	512.6	10.0	3.0	0.9
200	0.075	497.7	491.3	6.4	1.9	
PAN		499.8	492.0	7.8	2.3	0.0
		AND AN ADDRESS AND ADDRESS AND ADDRESS ADDRESS ADDRESS ADDRESS ADDR	ALL DE LE REAL DE			

10 LOODLES	4
% GRAVEL	56.7
% SAND	35.3
% SILT & CLAY	2.3

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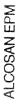
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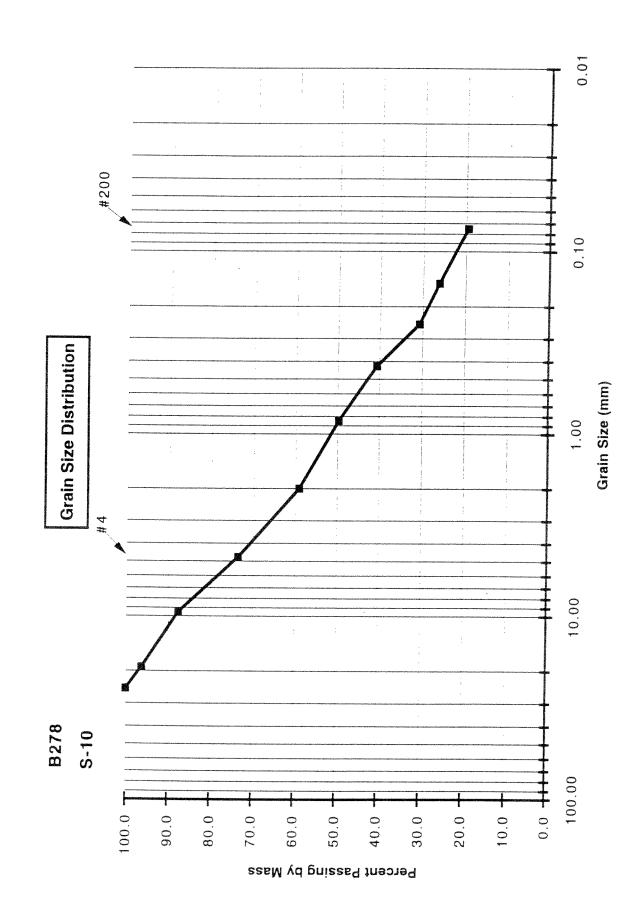
Mass of Mass Soil % Retained % Passing Sieve of Retained hymnose hymnose	% Retained	Mass Soil Retained		Mass Sieve plus Soil. a	Diam. (mm) plus Soil. a	Sieve Number
SAMPLE: S-10 FIELD DESCRIPTION: Reddish/Brown Sandy Gravel	S-10 Reddish/Brov	SAMPLE: S-10 SCRIPTION: Reddi	FIELD DE			Mass of Dish Mass Sample
¢	B278 S-10	BORING: B278 SAMPLE: S-10			430.4	Mass Dish + Sample Mass of Dish

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained		by mass
*	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	824.9	814.8	10.1	3.8	96.2
3/8"	9.5	868.2	845.1	23.1	8.6	87.6
4	4.750	854.0	816.4	37.6	14.1	73.5
10	2.000	750.5	711.9	38.6	14.4	59.1
20	0.850	654.1	629.1	25.0	9.3	49.8
40	0.425	580.2	555.7	24.5	9.2	40.6
60	0.250	552.4	525.9	26.5	6.6	30.7
100	0.150	525.0	512.6	12.4	4.6	26.1
200	0.075	508.9	491.3	17.6	6.6	19.5
PAN		541.8	492.0	49.8	18.6	0.0
vide contract a low of the second sec		and the second				

% GRAVEL	26.5
% SAND	54.1
% SILT & CLAY	18.6
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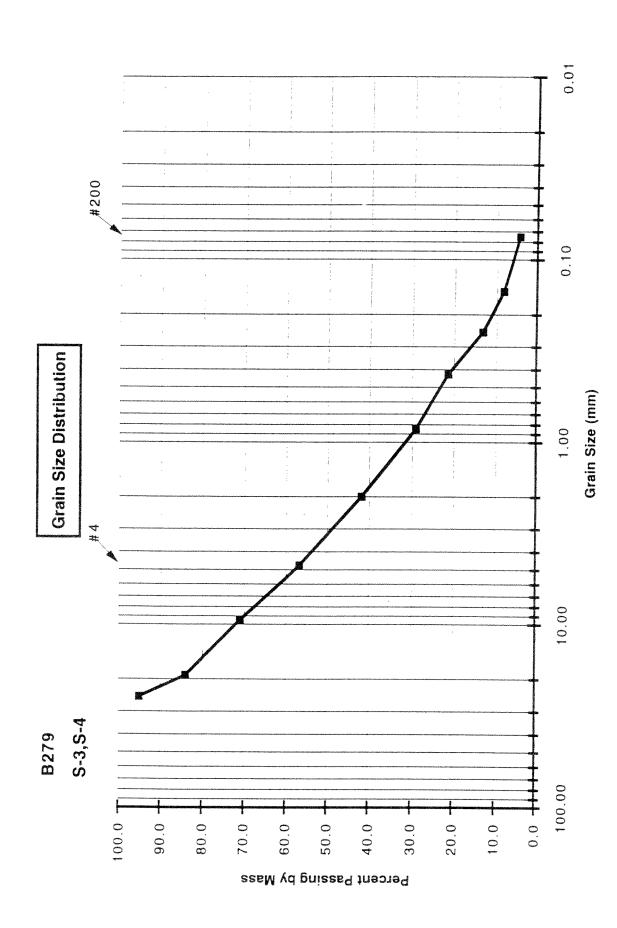
750.5	162.9	587.6
Mass Dish + Sample	Mass of Dish	Mass Sample

BORING: B279 SAMPLE: S-3,S-4 FIELD DESCRIPTION: Brown Sand & Gravel

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	842.1	812.7	29.4	5.0	95.0
3/4"	19.00	879.8	814.8	65.0	1.	83.9
3/8"	9.5	921.2	845.1	76.1	13.0	71.0
4	4.750	899.9	816.4	83.5	14.2	56.8
10	2.000	799.6	711.9	87.7	14.9	41.8
20	0.850	704.3	629.1	75.2	12.8	29.1
40	0.425	601.0	555.7	45.3	7.7	21.3
60	0.250	573.6	525.9	47.7	8.1	13.2
100	0.150	541.9	512.6	29.3	5.0	8.2
200	0.075	514.1	491.3	22.8	3.9	4.4
PAN		514.7	492.0	22.7	3.9	0.0

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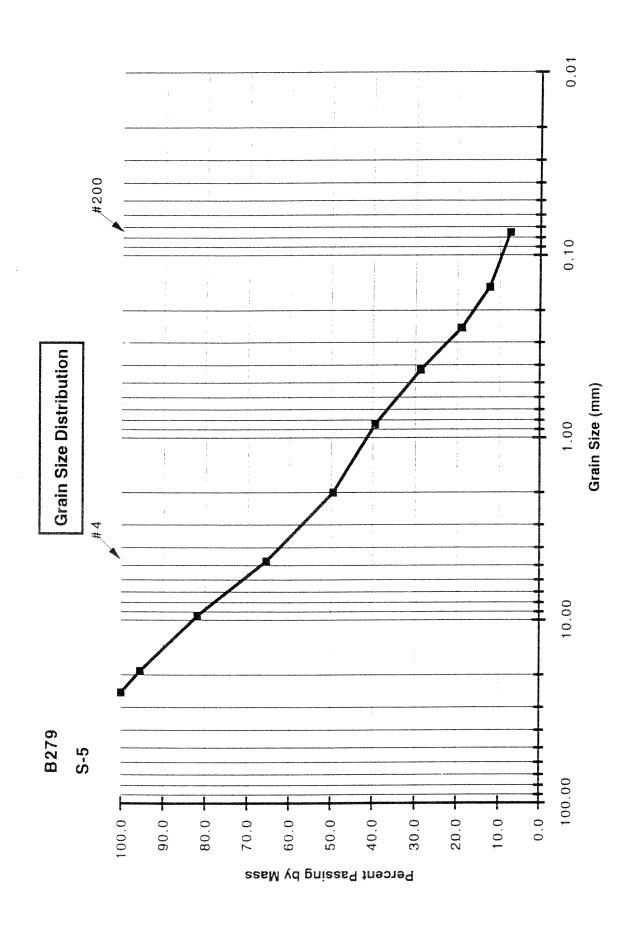
258.8	Mass Sample
162.9	Mass of Dish
421.7	Mass Dish + Sample

BORING: B279 SAMPLE: S-5 D DESCRIPTION: Grey Sand & Gravel

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	826.4	814.8	11.6	4.5	95.5
3/8"	9.5	880.5	845.1	35.4	13.7	81.8
4	4.750	858.6	816.4	42.2	16.3	65.5
10	2.000	753.4	711.9	41.5	16.0	49.5
20	0.850	655.2	629.1	26.1	10.1	39.4
40	0.425	583.5	555.7	27.8	10.7	28.7
60	0.250	551.3	525.9	25.4	9.8	18.9
100	0.150	529.7	512.6	17.1	6.6	12.2
200	0.075	503.8	491.3	12.5	4.8	7.4
PAN		508.7	492.0	16.7	6.5	0.0

% GRAVEL	34.5
% SAND	58.1
% SILT & CLAY	6.5
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SP	SW

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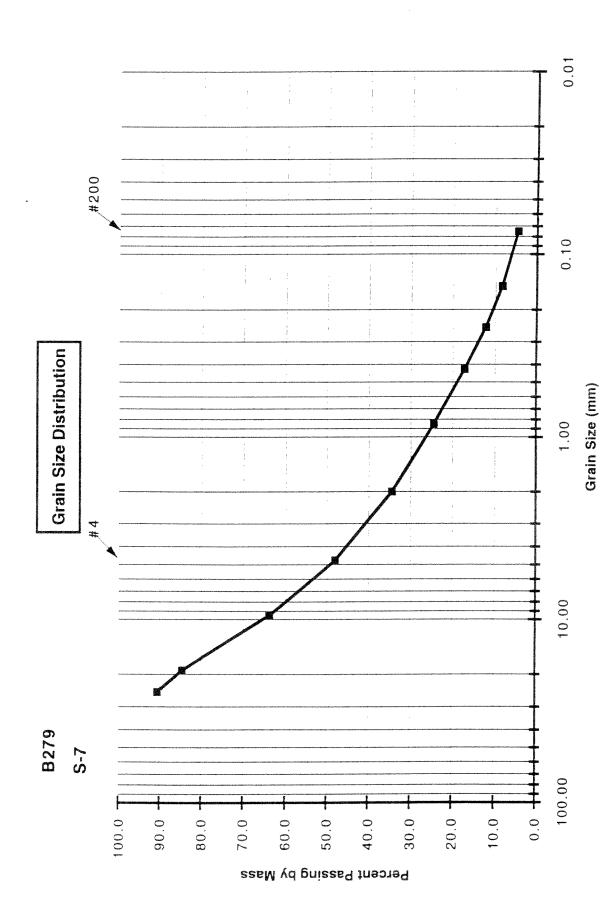
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B279	S-7	FIELD DESCRIPTION: Grey/Brown Gravel & Sand	
BORING: B279	SAMPLE: S-7	FIELD DESCRIPTION:	
499.8	162.9	336.9	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
an a	25.00	844.7	812.7	32.0	9.5	90.5
3/4 "	19.00	834.6	814.8	19.8	5.9	84.6
3/8"	9.5	915.3	845.1	70.2	20.8	63.8
4	4.750	869.7	816.4	53.3	15.8	48.0
10	2.000	757.7	711.9	45.8	13.6	34.4
20	0.850	662.7	629.1	33.6	10.0	24.4
40	0.425	580.2	555.7	24.5	7.3	17.1
60	0.250	542.6	525.9	16.7	5.0	12.2
100	0.150	525.6	512.6	13.0	3.9	8.3
200	0.075	503.6	491.3	12.3	3.7	4.7
PAN		505.1	492.0	13.1	3.9	0.0

42.5	43.3	3.9	
% GRAVEL	% SAND	% SILT & CLAY	35

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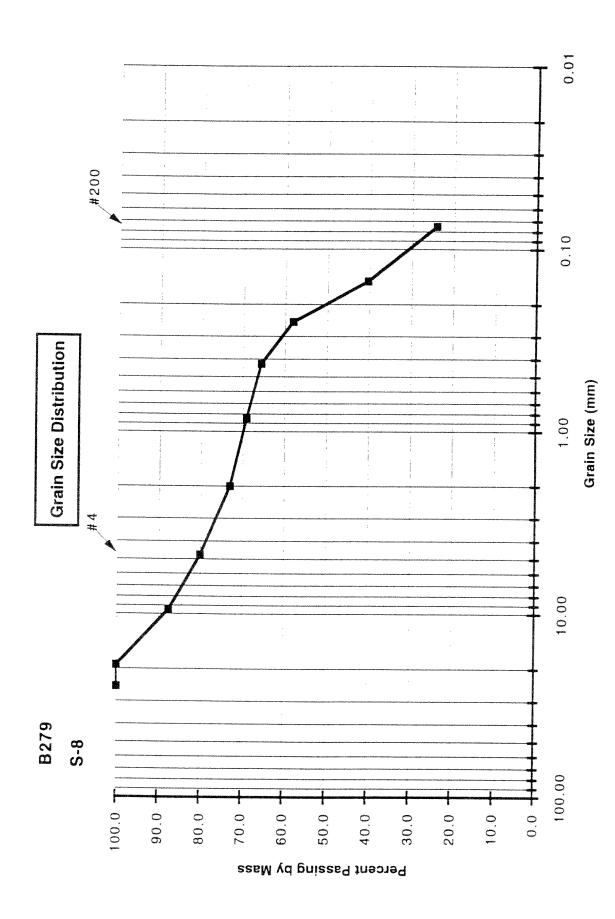
BORING: B279	SAMPLE: S-8	FIELD DESCRIPTION: Fine/Med. Brown Sand, Trace Gravel	Mass of Mass Soil % Retained % Passing	
BORIT	SAMP	D DESCRIPTIC	Mass S	
	*	ШШ	Mass of	
			Mass Sieve	
359.6	162.9	196.7		
Mass Dish + Sample	Mass of Dish	Mass Sample		

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	869.5	845.1	24.4	12.4	87.6
4	4.750	831.2	816.4	14.8	7.5	80.1
10	2.000	726.0	711.9	14.1	7.2	72.9
20	0.850	636.7	629.1	7.6	3.9	69.0
40	0.425	562.5	555.7	6.8	3.5	65.6
60	0.250	540.6	525.9	14.7	7.5	58.1
100	0.150	547.5	512.6	34.9	17.7	40.4
200	0.075	523.4	491.3	32.1	16.3	24.0
PAN		536.3	492.0	44.3	22.5	0.0

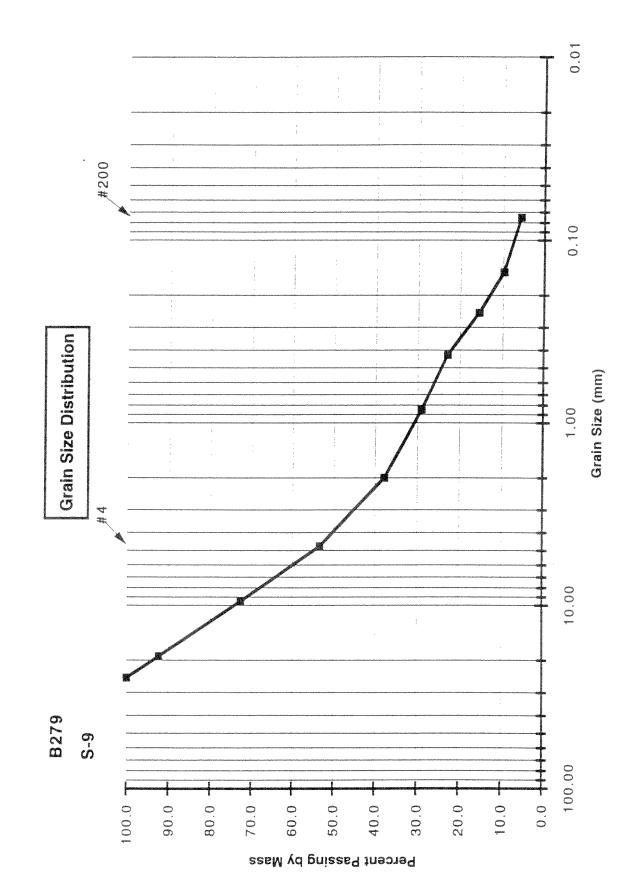
% SAND 56.0 % SILT & CLAY 22.5	% GRAVEL	19.9
	% SAND	56.0
	% SILT & CLAY	22.5

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BORING: R27a	SAMPLE: S-9	FIELD DESCRIPTION: Sandstone & Gravel	
Mass Dish + Sample 392.5		Iviass Sample 229.6	

		Mass Sieve	Mass of	Mace Coll	% Deterior	
Sieve Number	Diam. (mm)	nlue Soil a	Ciaus -		/« netained	% Passing
1 1		R'ino coud	oleve, g	Hetained	by mass	by mass
	25.00	812.7	812.7	c c	000	
3/4"	10 00	0 0 0 0			>.>	100.0
= 0 / 0		0.22.0	814.8	17.5	7.6	92.4
3/8	9.5	890.5	845.1	45.4	10.0	
4	4.750	ARD R			13.0	12.6
• • • • • • • • • • • • • • • • • • •		0.000	010.4	44.2	19.3	53.4
	2.000	747.8	711.9	35 0	15.6	
20	0.850	6401	600 4	0.000	0.01	31.1
UV			023.1	20.0	8.7	29.0
0+	0.425	569.8	555.7	14 1	R 1	0.00
60	0.250	543.0	505 O	+ + + + + + + + + + + + + + + + + + + +		22.9
100	0 + E O		040.3	17.1	1.4	15.4
	0.1.0	525.6	512.6	13.0	57	0 0
200	0.075	500.5	C 10V			3.0
PAN			0.101	۶.۲	4.0	5.7
		8.20c	492.0	10.8	4.7	0 0
			A STATE OF THE OWNER AND A STATE OF T	Sector and the sector of the s		0.0

46.6	47.6	4.7	
% GRAVEL	% SAND	% SILT & CLAY	SP

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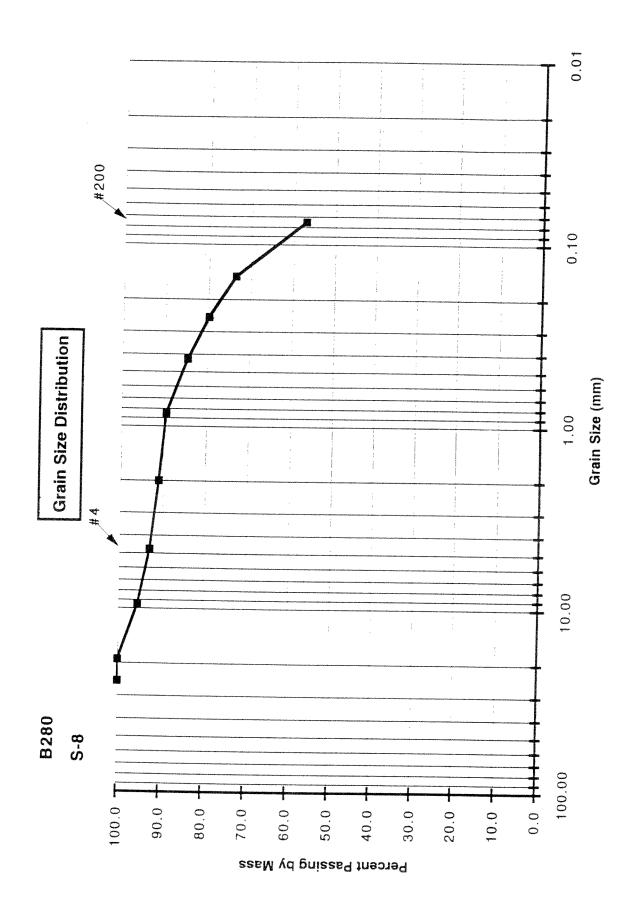
BORING: B280	SAMPLE: S-8	FIELD DESCRIPTION: Grey Silty Sand, Trace Coal Cinders	Maco Sinto Mana of Mana Call of Data and of D
304.9	162.9	142	Maco Ciano h
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
2 4	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	851.4	845.1	6.3	4.4	95.6
4	4.750	820.2	816.4	3.8	2.7	92.9
10	2.000	714.7	711.9	2.8	2.0	90.9
20	0.850	631.3	629.1	2.2	1.5	89.4
40	0.425	562.5	555.7	6.8	4.8	84.6
60	0.250	532.7	525.9	6.8	4.8	79.8
100	0.150	521.5	512.6	8.9	6.3	73.5
200	0.075	514.7	491.3	23.4	16.5	57.0
PAN		569.6	492.0	77.6	54.6	0.0

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1076.6	162.9	913.7
Mass Dish + Sample	Mass of Dish	Mass Sample

BORING: B280 SAMPLE: S-9,S-10,S-11 FIELD DESCRIPTION: Grey/Brown Sandy Gravel

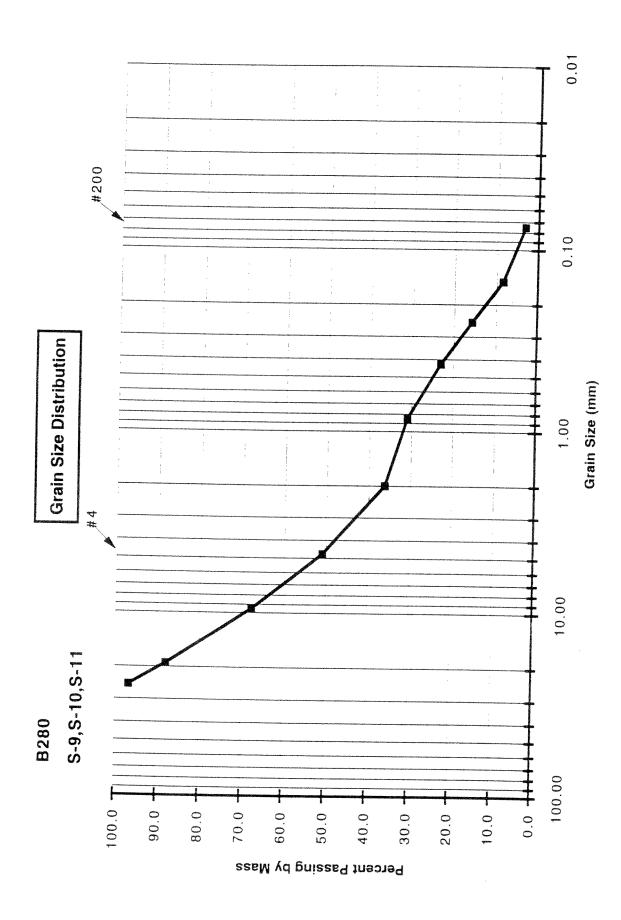
Mass of | Mass Soil | % Retained | % Paceing Mass Sieve

		mass sieve	Mass of	Mass Soll	Mass Soll % Hetained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	843.4	812.7	30.7	3.4	96.6
3/4"	19.00	895	814.8	80.2	8.8	87.9
3/8"	9.5	1029.3	845.1	184.2	20.2	67.7
4	4.750	970.1	816.4	153.7	16.8	50.9
10	2.000	846.5	711.9	134.6	14.7	36.1
20	0.850	676.9	629.1	47.8	5.2	30.9
40	0.425	628.4	555.7	72.7	8.0	23.0
60	0.250	593.0	525.9	67.1	7.3	15.6
100	0.150	578.7	512.6	66.1	7.2	8.4
200	0.075	538.4	491.3	47.1	5.2	3.2
PAN		518.9	492.0	26.9	2.9	0.0

3,4	45.8	47.7	2.9	
To COBBLES	% GRAVEL	% SAND	% SILT & CLAY	

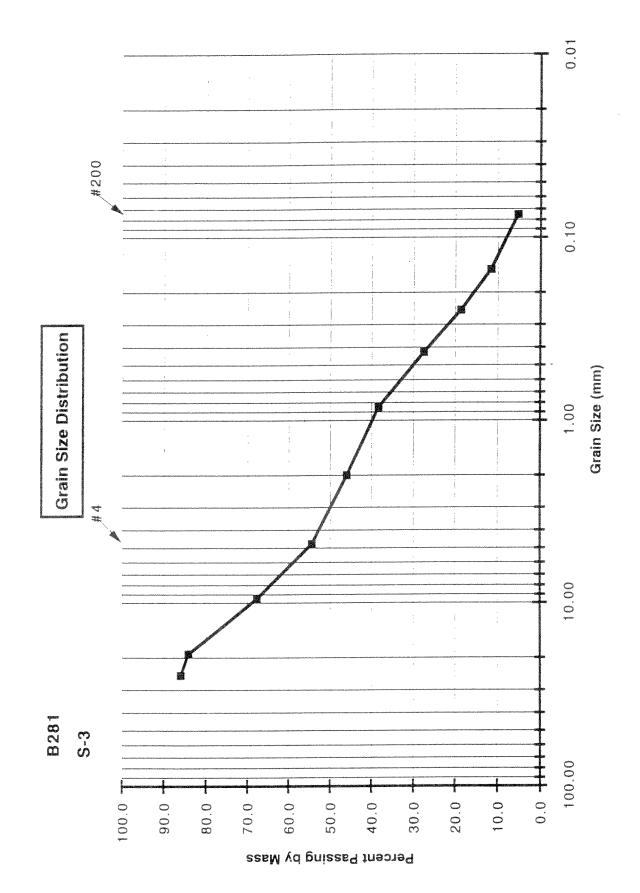


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BORING: B281	SAMPLE: S-3	FIELD DESCRIPTION: Fine/Med. Brown Sand & Gravel	
377.2	162.9	214.3	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Paceing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
-	25.00	842.8	812.7	30.1	14.0	86.0
3/4"	19.00	818.8	814.8	4.0	1.9	84.1
3/8"	9.5	880.3	845.1	35.2	16.4	67.7
4	4.750	844.7	816.4	28.3	13.2	54.5
10	2.000	730.1	711.9	18.2	8.5	46.0
20 -	0.850	645.6	629.1	16.5	7.7	38.3
40	0.425	578.8	555.7	23.1	10.8	27.5
60	0.250	544.9	525.9	19.0	8.9	18.6
100	0.150	527.7	512.6	15.1	7.0	11.6
200	0.075	504.7	491.3	13.4	6.3	5.3
PAN		500.8	492.0	8.8	4.1	0.0

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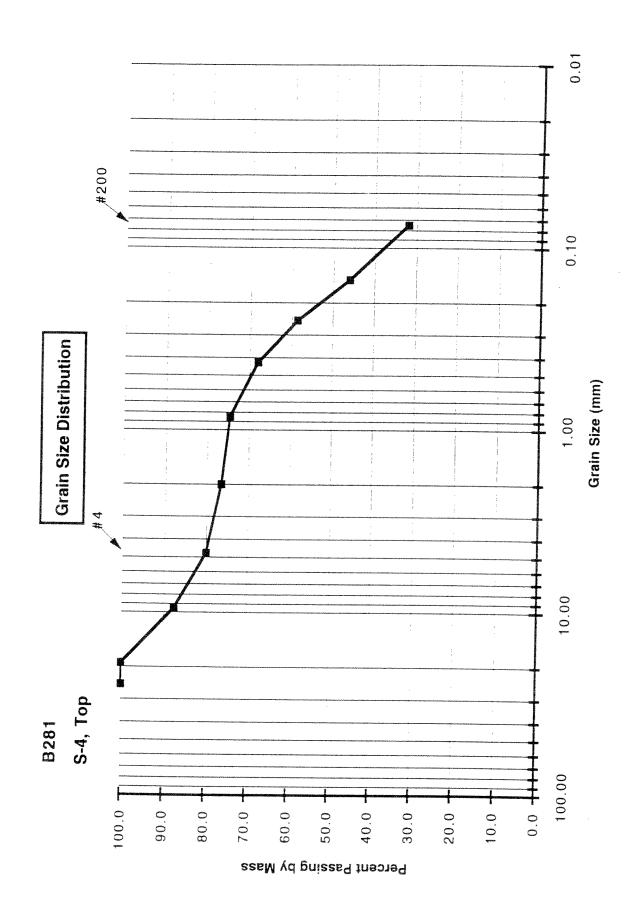
BORING: B281	SAMPLE: S-4, Top	FIELD DESCRIPTION: Grey/Brown Clayey Sand & Gravel	
		FIEL	
526.9	162.9	364	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
*	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	890.3	845.1	45.2	12.4	87.6
4	4.750	844.0	816.4	27.6	7.6	80.0
10	2.000	724.9	711.9	13.0	3.6	76.4
20	0.850	636.1	629.1	7.0	1.9	74.5
40	0.425	579.7	555.7	24.0	6.6	67.9
60	0.250	559.7	525.9	33.8	9.3	58.6
100	0.150	558.9	512.6	46.3	12.7	45.9
200	0.075	542.0	491.3	50.7	13.9	32.0
PAN		605.3	492.0	113.3	31.1	0.0

20.0	48.0	31.1	
% GHAVEL	% SAND	% SILT & CLAY	NORMAN CONTRACT, CANADA CAN

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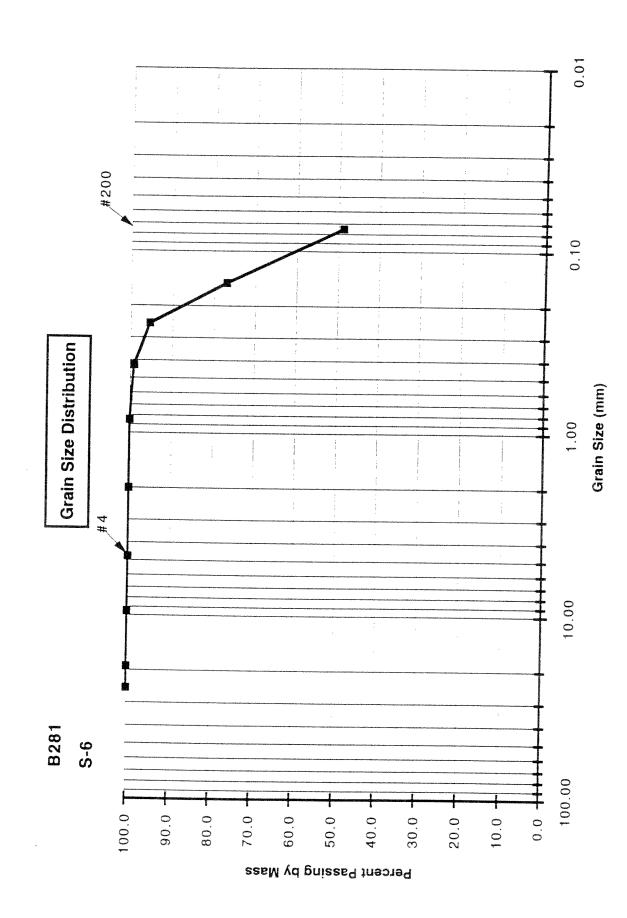
B281	S-6	FIELD DESCRIPTION: V. Fine Grey/Black Silty Sand		Mass of Mass Soil % Retained % Passing
BORING: B281	SAMPLE: S-6	ESCRIPTION:		Mass Soil
		FIELDD		Mass of
				Mass Sieve
369.7	162.9	206.8		
Mass Dish + Sample	Mass of Dish	Mass Sample	n social na seconda se ne esta de la constanta	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	814.8	814.8	0.0	0.0	100.0
3/8"	9.5	845.1	845.1	0.0	0.0	100.0
4	4.750	816.4	816.4	0.0	0.0	100.0
10	2.000	711.9	711.9	0.0	0.0	100.0
20	0.850	629.2	629.1	0.1	0.0	100.0
40	0.425	557.5	555.7	1.8	0.9	99.1
60	0.250	533.6	525.9	7.7	3.7	95.4
100	0.150	550.8	512.6	38.2	18.5	76.9
200	0.075	549.4	491.3	58.1	28.1	48.8
PAN		589.3	492.0	97.3	47.1	0.0

EL 0.0	51.2	\$ CLAY 47.1
% GRAVEL	% SAND	% SILT & CLAY

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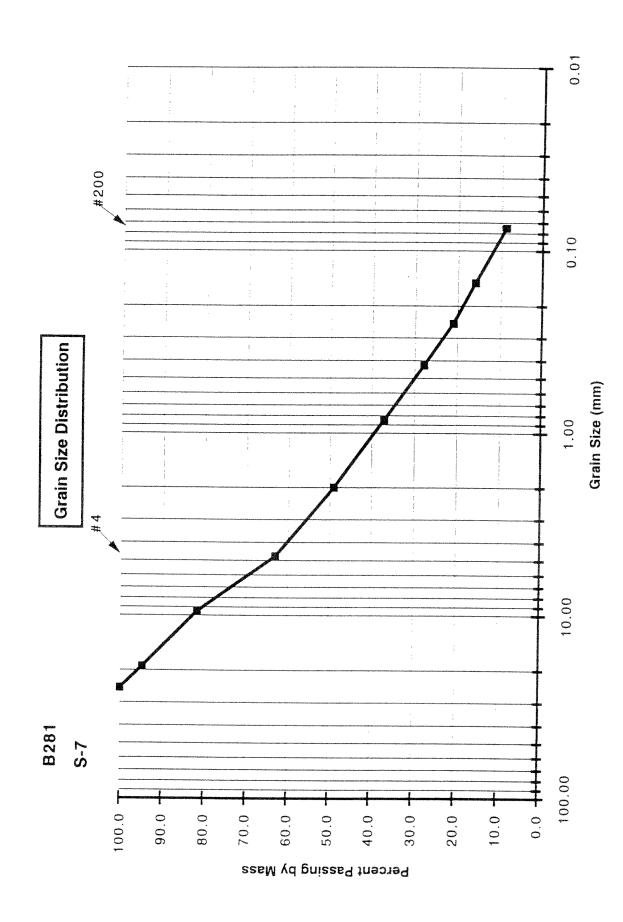
B281	S-7	FIELD DESCRIPTION: Brown Sand, Some Gravel	
BORING: B281	SAMPLE: S-7	FIELD DESCRIPTION:	
355.5	162.9	192.6	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
11	25.00	812.7	812.7	0.0	0.0	100.0
3/4 "	19.00	825	814.8	10.2	5.3	94.7
3/8"	9.5	870.1	845.1	25.0	13.0	81.7
4	4.750	852.3	816.4	35.9	18.6	63.1
10	2.000	739.0	711.9	27.1	14.1	49.0
20	0.850	652.2	629.1	23.1	12.0	37.0
40	0.425	573.5	555.7	17.8	9.2	27.8
60	0.250	539.1	525.9	13.2	6.9	6.02
100	0.150	522.4	512.6	9.8	5.1	15.8
200	0.075	504.9	491.3	13.6	7.1	8.8
PAN	7953 (1992)	506.6	492.0	14.6	7.6	0.0
		CONTRACTOR CONTRACTOR OF CONTRAC	and an and a second and a	A new manufacture of the second secon		

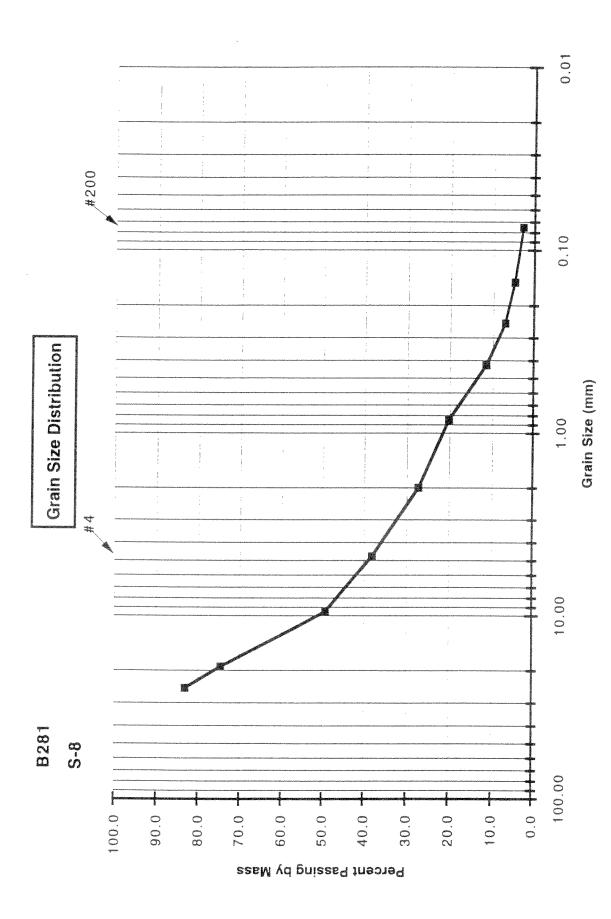
% GHAVEL	36.9
% SAND	54.3
% SILT & CLAY	7.6
% SILT & CLAY	7.6

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ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM

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BORING: B281	SAMPLE: S-8	FIELD DESCRIPTION: Brown Gravel	
509.4	162.9	346.5	
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mace Cinus	Ifoco A			
		evals seve	Mass of	Mass Soll	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	871.2	812.7	58.5	16.0	83.4
3/4"	19.00	844.5	814.8	2.00	с. С. а а	1 1 1 1
3/8"	9.5	932.8	845.1	87.7	0.0	(4.0 40.0
4	4.750	855.2	816.4	38.8	11 0.	49.2
10	2.000	749.2	711.9	37.3	10.8	0.00
20	0.850	653.9	629.1	24 R	0.0	+ 00
40	0.425	585.3	555.7	20.6	0 1. 1	20.1
60	0.250	541.6	525.9	15.7	с.о ч	9.L
100	0.150	520.6	512.6	8.0	0.4	0.7
200	0.075	498.0	491.3	6.7	0	4.7 2 0
PAN		499.2	492.0	7.2	2.1	0,0
			Name and a subscription of the	Y		0.0

6.9/	45.1	35.2	۲ 2.1	
% Cobbes	% GRAVEL	% SAND	% SILT & CLAY	

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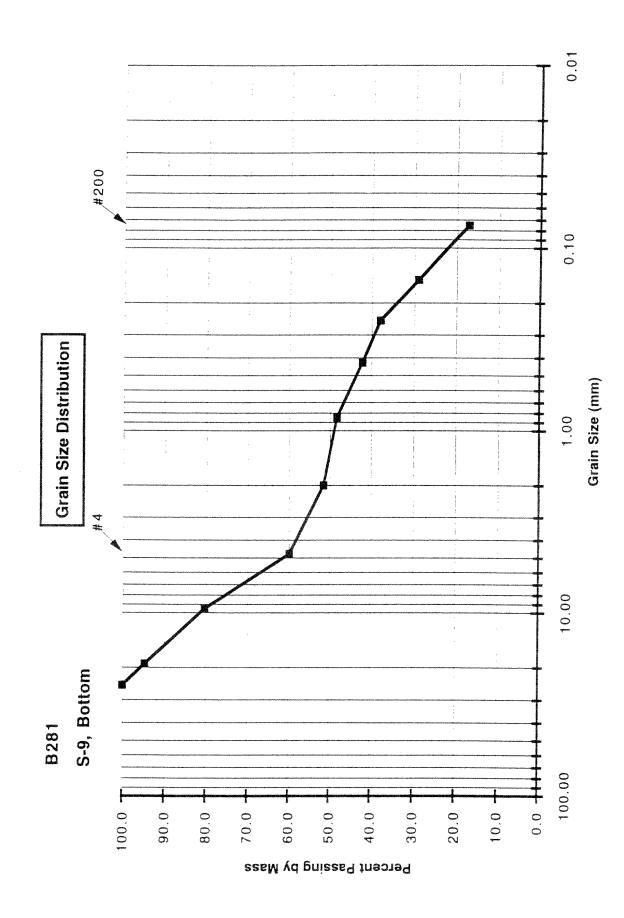
: B281	SAMPLE: S-9, Bottom	FIELD DESCRIPTION: Grey/Brown Sandstone and Gravel	
BORING: B281	SAMPLE	FIELD DESCRIPTION	
464.9	162.9	302	
Mass Disth + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
87	25.00	812.7	812.7	0.0	0.0	100.0
3/4 "	19.00	830.7	814.8	15.9	5.3	94.7
3/8"	9.5	888.7	845.1	43.6	14.4	80.3
4	4.750	878.0	816.4	61.6	20.4	59.9
10	2.000	736.9	711.9	25.0	8.3	51.6
20	0.850	639.2	629.1	10.1	3.3	48.3
40	0.425	574.2	555.7	18.5	6.1	42.2
60	0.250	538.8	525.9	12.9	4.3	37.9
100	0.150	539.5	512.6	26.9	8.9	29.0
200	0.075	526.9	491.3	35.6	11.8	17.2
PAN		540.2	492.0	48.2	16.0	0.0

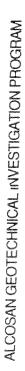
40.1	42.7	16.0	
% GRAVEL	% SAND	% SILT & CLAY	

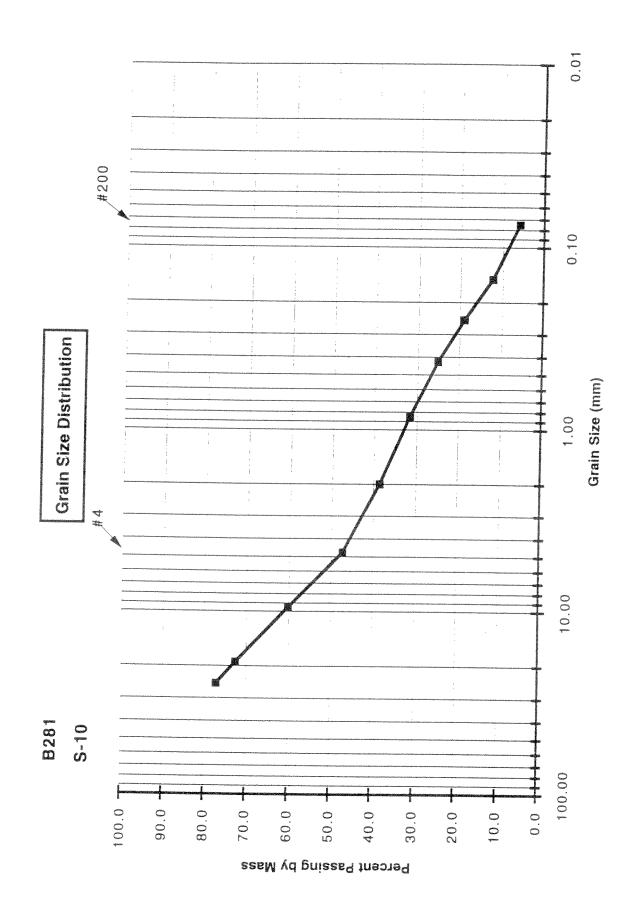
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BORING: B281	SAMPLE: S-10	FIELD DESCRIPTION: Sandstone and Gravel	
BORIN	SAMP	FIELD DESCRIPTIC	
412.4	162.9	249.5	
Mass Dish + Sample	Mass of Dish	Mass Sample	

A design of the section of the						
		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hv mass
#	25.00	869.9	812.7	57.2	22.9	77 1
3/4"	19.00	826.3	814.8	11.5	46	72 5
3/8"	9.5	875.7	845.1	30.6	10.3	60.0
4	4.750	848.7	816.4	32.3	12 0	2.00
10	2.000	733.6	711.9	21.7	8 7	0.14 9 8 6
20	0.850	646.4	629.1	17.3	909	0.00
40	0.425	572.0	555.7	16.3	с. С. С.	01.0
60	0.250	541.5	525.9	15.6	5.0	18 0
100	0.150	529.1	512.6	16.5	9.9	10.0
200	0.075	506.8	491.3	15.5	5.5 6.2	8.0
PAN		503.9	492.0	11.9	4.8	0.0
		And the second				

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É

BORING: B202 SAMPLE: S-4 FIELD DESCRIPTION: Blk/Grey Clay w/Sand and Gravel	Mass Soil % Retained % Descinal	
BORING: B202 SAMPLE: S-4 SCRIPTION: BIK/Gre	Mass Soil	
FIELD DE	Mass of	010.0
	Mass Sieve	iam (mm) hive Sail a
340.1 162.9 177.2		Diam (mm)
Mass Dish + Sample Mass of Dish Mass Sample		Sieve Number

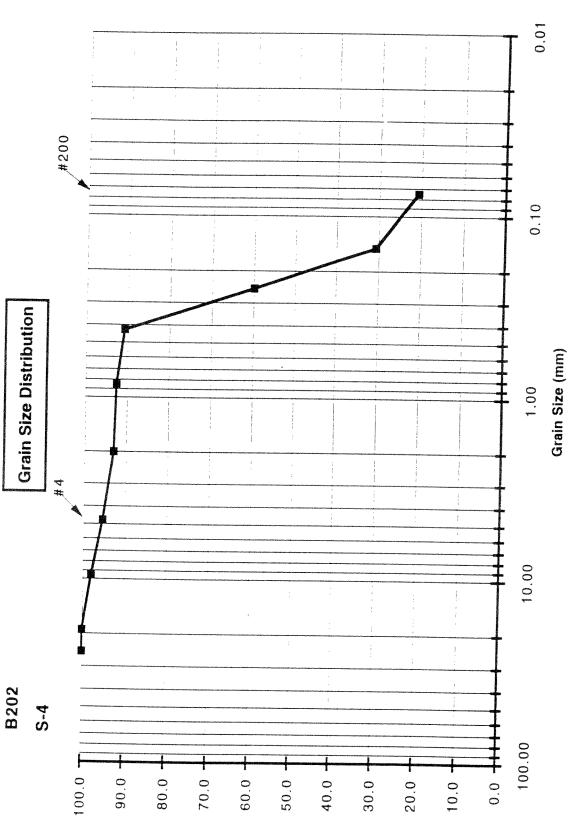
NUMPERION NUMPERION NUMPERION AND AND AND AND AND AND AND AND AND AN		Mass Sieve	Macoof	Noor Coll		
		DADIO COMM	Mass CI	INdess 2011	% Hetained	% Passing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	812.7	812.7	0.0		100 0
3/4"	19.00	814.8	814.8	0 0		100.0
3/8"	9.5	848.7	845.1	3.6		0.00
4	4.750	821.0	816.4	4.6	2 4	30.0
10	2.000	716.1	711.9	4.2	0.3	40.00
20	0.850	630.0	629.1			0.00
40	0.425	558.9	555.7		C.>	C.28
60	0.250	580.4	525.9	2.6	0.1	90.7
100	0.150	563.4	511.5	0.1 0.1	0.00	99.90
200	0.075	509.0	491.3	17.7	10.0	00.00
PAN		526.6	492.0	34.6	19.5	0.0
			And includes the second s)))	~ >.>

4.6	74.7	19.5	
% GRAVEL	% SAND	% SILT & CLAY	

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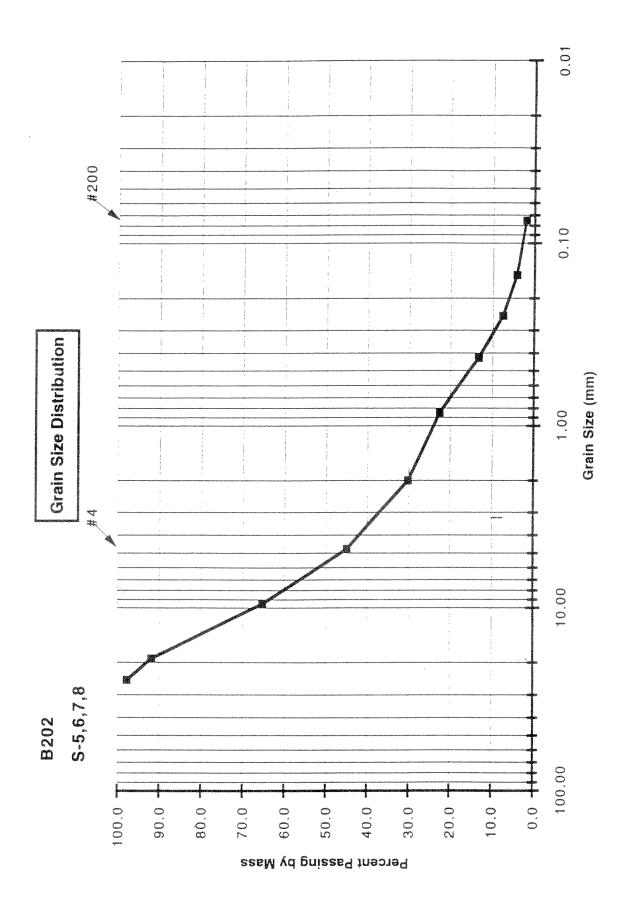
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Percent Passing by Mass

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Mass Sieve Mass of Mass Soil % Retained % Descin	Mass of M	Mass Sieve		
•				
FIELD DESCRIPTION: Brown Sandy Gravel	FIELD DESCI		861.4	Mass Sample
SAMPLE: S-5,6,7,8			162.9	Mass of UISh
BORING: B202			1024.3	Mass Dish + Sample

		Mass Sieve	Mass of	Mass Soil	% Retained	% Paceinu
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	Killeen I ov
2	25.00	831.9	812.7	19.2	00	07 R
3/4"	19.00	866.2	814.8	51.4	10.9	01.0
3/8"	9.5	1073.3	845.1	228.2	26.5	65.3
4	4.750	992.1	816.4	175.7	20.4	44.0
10	2.000	839.1	711.9	127.2	14.8	30.1
20	0.850	695.2	629.1	66.1	7.7	20 F
40	0.425	635.8	555.7	80.1	5.0	12.0
60	0.250	574.4	525.9	48.5	5.6	7 5
100	0.150	539.5	511.5	28.0	3.3	4.3
200	0.075	510.9	491.3	19.6	2.3	0 6
PAN		507.4	492.0	15.4	1.8	0.0
				Construction of the owner own		

2,2	52.9	42.9	1.8
& COBOLES	% GRAVEL	% SAND	% SILT & CLAY

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458	Mass Sample
162.9	Mass of Dish
620.9	Mass Dish + Sample

BORING: B206,	SAMPLE: S-7	Bro
		wn S
B208		Sandy
		Brown Sandy Gravel

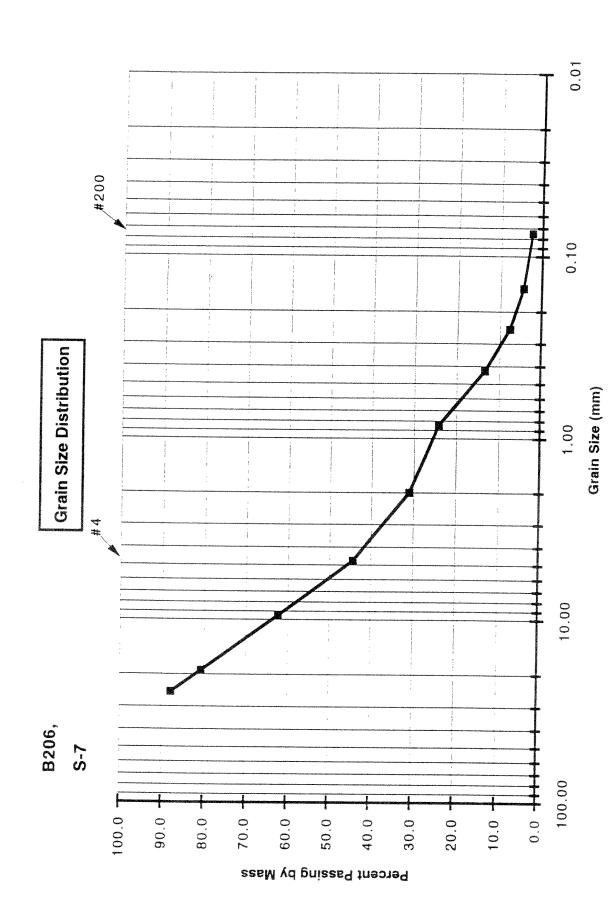
Sieve Number Diam. (mm) 1 " 25.00 3/4 " 19.00 3/8 " 9.5 4 4.750 10 2.000 20 0.850	a	Sieve, g			
			Retained	by mass	by mass
		812.7	55.8	12.2	87 A
	929	814.8	32.8	7.2	80.7
		845.1	83.9	18.3	62.3
	898.9	816.4	82.5	18.0	44.3
	772.8	711.9	60.9	13.3	31.0
	661.0	629.1	31.9	7.0	241
40 0.425	604.8	555.7	49.1	10.7	13.3
60 0.250	551.9	525.9	26.0	5.7	7.7
100 0.150	525.8	511.5	14.3	3.1	4.5
200 0.075	500.9	491.3	9.6	2.1	2.4
PAN	501.4	492.0	9.4	2.1	0.0

12.2	43.5	41.9	2.1	
% Cobres	% GRAVEL	% SAND	% SILT & CLAY	

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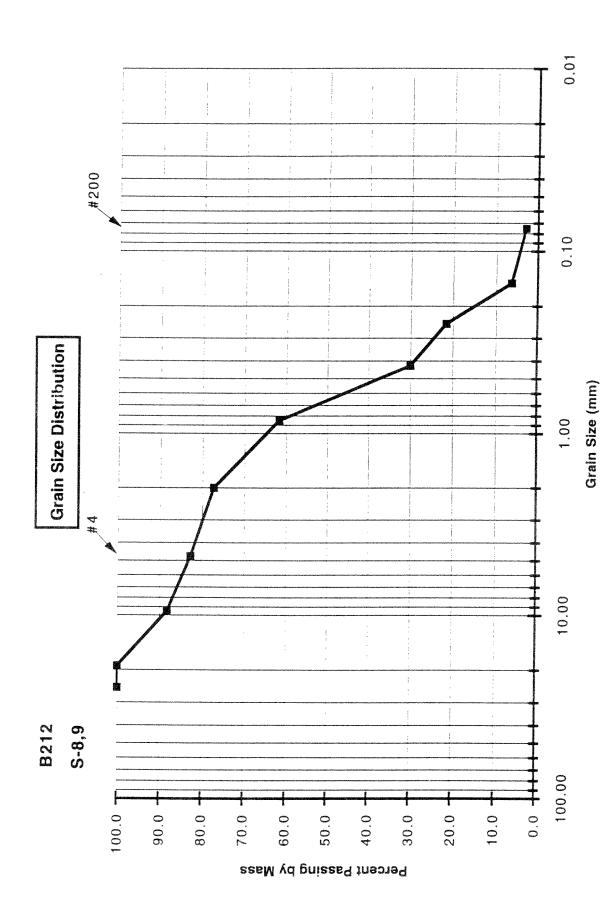
BORING: B212	SAMPLE: S-8.9	FIELD DESCRIPTION: Dense Med. Coarse Brown Sand	Mass Soil % Retained % Descinct
BORIN	SAMPL	FIELD DESCRIPTIC	Mass of Mass So
506.2	162.7	343.5	Mass Sieve
Mass Dish + Sample	Mass of Dish	Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Daeeina
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	V mass
	25.00	812.7	812.7	0.0	0.0	100 0
3/4"	19.00	814.8	814.8	0.0	0 0	100.0
3/8"	9.5	885.6	845.1	40.5	11 8	88.2
4	4.750	835.2	816.4	18.8	2.2.5	82.7
10	2.000	730.9	711.9	19.0	5.5	77 0
20	0.850	682.3	629.1	53.2	15.5	R1 7
40	0.425	664.7	555.7	109.0	31.7	30.0
60	0.250	554.9	525.9	29.0	8 4	01.0
100	0.150	563.5	511.5	52.0	15.1	6.4
200	0.075	503.2	491.3	11.9	3.5	0 0
PAN		500.0	492.0	8.0	0.3	
	and a second second second and a second s	PAGE/000000000000000000000000000000000000				>

17.3	79.8	2.3	n na
% GRAVEL	% SAND	% SILT & CLAY	

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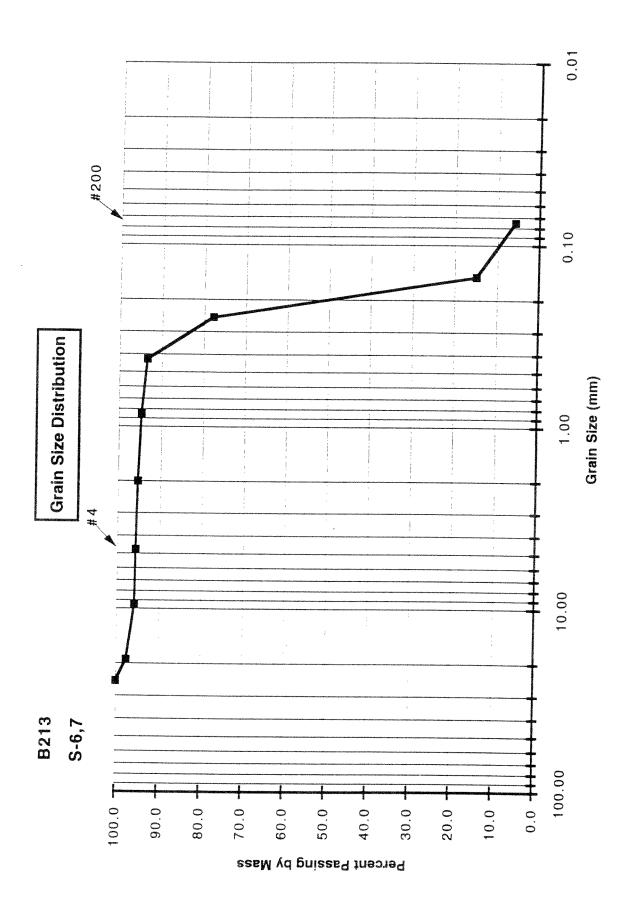
Mass Dish + Sample	589.8	BORING: B213
Mass of Dish	162.7	SAMPLE: S-6 7
Mass Sample	427.1	FIELD DESCRIPTION: Loose Fine/Med. Coarse Grev Sand
	Mass Sieve	Ve Mass of Mass Soil % Datained & Partin

				The sum of the interest of the sum of the su		
		Mass Sieve	Mass of	Mass Soil	% Retained	% Daccing
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hv mase
11	25.00	812.7	812.7	0.0	0.0	0.001
3/4"	19.00	825.3	814.8	10.5	2.0	100.0
3/8"	9.5	852.7	845.1	7.6	4 P	97.J
4	4.750	817.0	816.4	90	0.1	30.0 0F F
10	2.000	713.1	711.9			40.0 0 2 2 2
20	0.850	632.3	R 20 1	10		0.00
4.0	0 425			0.0	0.7	94.6
		200.3	1.000	5.2	1.2	93.4
00	0.250	592.8	525.9	6.99	15.7.	77.7
100	0.150	780.0	511.5	268.5	62 9	14 8
200	0.075	529.7	491.3	38.4	0 0 0	0.1
PAN		517.0	492.0	25.0	5.9	
	OVER OVER OVER DURING WHICH A AND A DURING WHICH AND A DURING	A DESCRIPTION OF A DESC				

4.4	89.8	5.9	
% GRAVEL	% SAND	% SILT & CLAY	

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B213	S-9	FIELD DESCRIPTION: Dense Med. Coarse Brown Silty Sand w/GraveL	
BORING: B213	SAMPLE: S-9	FIELD DESCRIPTION:	
404.0	162.7	241.3	
Mass Dish + Sample	Mass of Dish	Mass Sample	

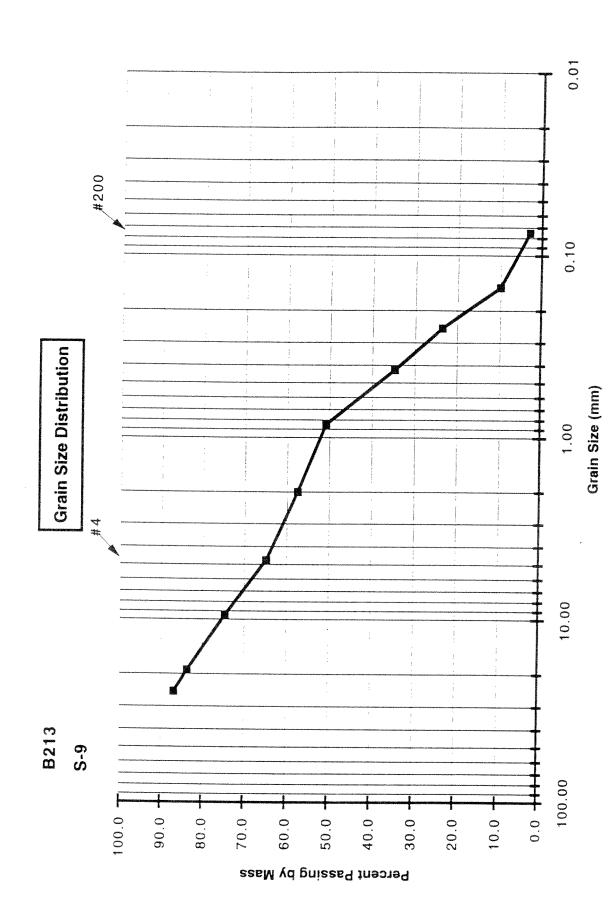
Sieve Number		Mass Sieve	Mass of	Mass Soil	% Retained	% Passing
	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
	25.00	844.6	812.7	31.9	13.2	86.8
3/4"	19.00	822.6	814.8	7.8	3.2	83.5
3/8"	9.5	867	845.1	21.9	9.1	74.5
4	4.750	839.7	816.4	23.3	9.7	64.8
10	2.000	729.7	711.9	17.8	7.4	57.4
20	0.850	645.1	629.1	16.0	6.6	50.8
40	0.425	594.5	555.7	38.8	16.1	34.7
60	0.250	552.9	525.9	27.0	1 1 2	23.5
100	0.150	544.3	511.5	32.8	13.6	9.9
200	0.075	508.1	491.3	16.8	7.0	3.0
PAN		499.2	492.0	7.2	3.0	0.0

13.2	22.0	61.8	3.0
% COBBLES	% GRAVEL	% SAND	% SILT & CLAY



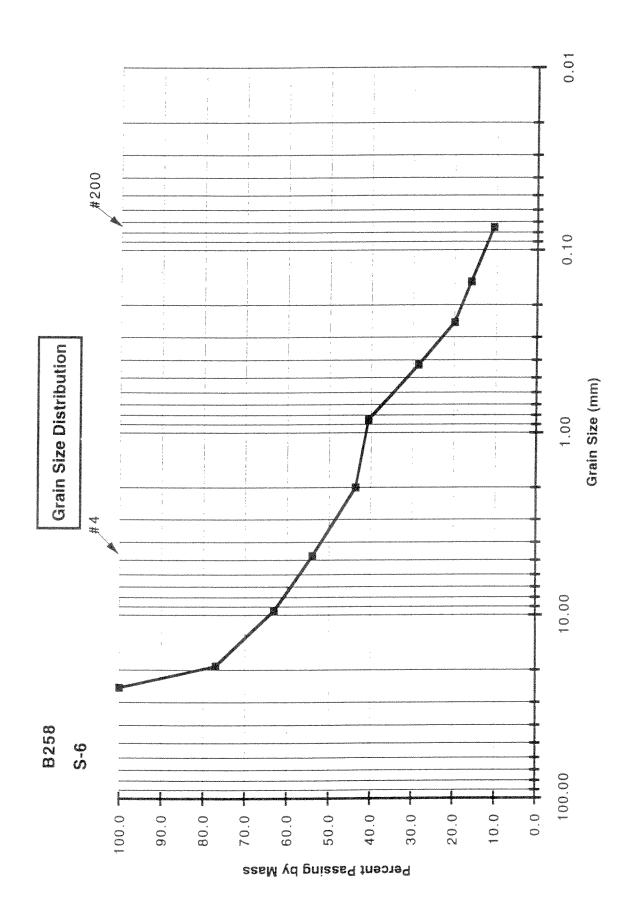
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ALCOSAN GEOTECHNIC, VESTIGATION PROGRAM





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BORING: B258 SAMPLE: S-6 FIELD DESCRIPTION: Grey/Brown Sandy Gravel	Mass of Mass Soil % Retained % Paceing
BORING: B258 SAMPLE: S-6 DESCRIPTION: Grey/B	Mass Soil
FIELD (Mass of
	Mass Sieve
347.1 162.9 184.2	
Mass Dish + Sample Mass of Dish Mass Sample	

		Mass Sieve	Mass of	Mass Soil	% Retained	% Docolna
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	hv mace
1 "	25.00	812.7	812.7	0.0	0.0	100.0
3/4"	19.00	857.3	814.8	42.5	23.1	76.0
3/8"	9.5	870.7	845.1	25.6	13.9	6.01
4	4.750	833.1	816.4	16.7	6 1	54.0
10	2.000	730.9	711.9	19.0	10.3	42.6
20	0.850	634.8	629.1	5.7	5 + 6	40.6
40	0.425	577.9	555.7	000	10 1	
60	0.250	541.8	525.9	15.9	R F	20.0
100	0.150	518.7	511.5	7.2	000	16.0
200	0.075	501.2	491.3	6.6	5.4	10.0 10.6
PAN		509.7	492.0	17.7	9.6	0.0
	In the second	and the second se				>

46.0	43.4	9.6	C	
% GHAVEL	% SAND	% SILT & CLAY	Sm	and the second se

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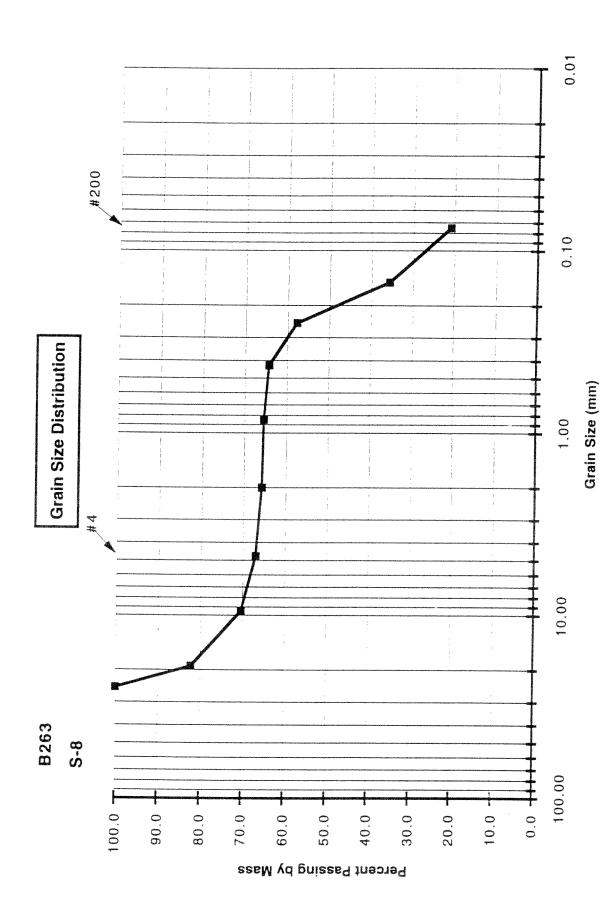
		Mass Sieve	Mass of	Mass Soil	% Retained	% Pacelnn
Sieve Number	Diam. (mm)	plus Soil, g	Sieve, g	Retained	by mass	by mass
=	25.00	.812.7	812.7	0.0	0.0	100.0
3/4"	19.00	854.1	814.8	39.3	17.8	82.2
3/8"	9.5	871.3	845.1	26.2	11.9	70.3
4	4.750	823.8	816.4	7.4	3.4	66.9
10	2.000	714.6	711.9	2.7	1.2	65.7
20	0.850	629.9	629.1	0.8	0.4	65.3
40	0.425	558.1	555.7	2.4		64.2
60	0.250	540.2	525.9	14.3	6.5	57.8
100	0.150	560.3	511.5	48.8	22.1	35.6
200	0.075	524.0	491.3	32.7	14.8	20.8
PAN		536.8	492.0	44.8	20.3	0.0

% GRAVEL	33.1
% SAND	46.1
SILT & CLAY	20.3



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10-10 F

LABORATORY TEST RESULTS

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PROFESSIONAL SERVICE INDUSTRIES PITTSBURGH, PA

ALCOSAN WASTEWATER TREATEMENT PLANT 1995 Geotechnical Investigation Program pH, Chloride, Sulfate, Resistivity Laboratory Results

**************************************	-		pH	Chloride	Sulfate	Resistivity
<u> </u>			<u> </u>	(mg/kg)	(mg/kg)	(ohms-cm)
Boring #	Depth (ft)	Material Description				
Soring #			7.6	175.8	440	3,250
201	10	Coal Cinder Fill	8.5	126.3	365	3,100
201	20	Grey Sand & Gravel	0.5	120.0		
				149.5	305	3,150
	10	Grey/Blk Clayey FILL	8.1	112.5	390	3,100
202	20	Grey/Blk Clay w/Sand&Gravel	7.3	112.5		
	20			147.5	1,460	1,250
	10	Brwn/Blk. Sandy FILL	8.2		420	7,300
203	20	Black Silty Clay Trace Coal	7.6	72.8	330	4,000
فالمحاجب والمرواف والمحاور والمحاول والمحاول والمحاور المحاو	25	Grey/Black Silty Clay (odor)	7.2	92.9	320	2,850
	and the second sec	Med. Coarse Brown Sand	7.4	116.2	320	
	40	Wied. Course			15,000	880
		Black FILL Material	7.5	325.6	1,320	1,700
204	10	Brown/Tan Silty Clay w/ Coal	7.6	157.4	1,320	1,700
	20	Brown ran eng eng			F 507	1,800
		Brown Sandy Clayey Fill	8.4	95.8	5,507	1.000
205	10	Brown Sandy Oldycy				6,600
		De la Cierdoro & Slag FIL I	8.4	23.7	600	3,400
206	10	Coal Cinders & Slag FILL	9.5	107.2	405	A REAL PROPERTY AND ADDRESS OF THE OWNER OWNE
	20	Coal Cinders & Slag FILL	6.5	92.1	450	2,500
~	30	Grey/Blk Clayey SILT	6.9	25.5	98	10,000
	40	Brown Sandy Gravel				
			7.9	40.2	68	17,000
208	10	Brown Sandy Gravel FILL	9.6	23.6	593	2,600
	20	Brown Sandy Gravel FILL	6.5	Contraction of the local division of the loc	255	2,900
	30	Grey/Blk. Silty SAND w/ Traces Coal	7.3		30	9,900
	40	Brown Sand & Gravel				
			7.4	. 20.7	110	5,000
211	10	Black Cinders w/ Bricks	7.3		660	4,200
644 · ·	25	Blk./Grey Clayey SILT	7.8	and the second se	29	14,000
	30	Brown Sandy Gravel	7.4		90	8,700
	40	Brown SAND, some Gravel		+ 00.0		
				9 42.0	225	4,400
21	20	Fine Grey Silty Sand	6.1		315	4,700
21	30	Soft Grey Silt w/ Sand	7.	0 32.0		
				2 133.3	970	*
	3 20	Coal Cinder Fill	6.			3,000
21	25	Black/Grey Clayey Silt	5.	8 30.3		
	25				5 12,320	2,000
		Brown Clayey Fill	8.			3,400
21		Brown Clayey Silt	and the second designation of the second designation of the second designation of the second designation of the	.0 72.4		4,500
	20	Med. Coarse Brown Sand	7	.1 52.0	405	1 4.000

2. . . .

			pH	Chloride	Sulfate	Resistivity
				(mg/kg)	(mg/kg)	(ohms-cm)
Boring #	Depth (ft)	Material Description	7.1	71.2	550	3,500
215	15	Fine Grey Silty Sand	7.4	62.1	585	2,800
·.	30	Brown Silty Sand				
			7.1	11.7	156	4,000
221	10	Black Cinder FILL	8.0	64.8	204	1,200
	20	Black Cinder FILL	6.6	26.7	129	7,700
	30	Fine Grey Sand	7.0	22.2	65	13,000
	40	Grey Sandstone Fragments, w/ Grave				
			6.5	186.4	1,280	680
222	15	Coal Cinder Fill	7.0	83.4	310	9,100
	30	Fine Grey Clayey Sand				
			8.0	123.2	1,190	2,050
223	20	Grey/Blk Clayey FILL w/ Gravel	7.6	93.0	440	3,100
	30	Black/Grey Clayey Silt	1.0			
			8.0	53.7	8,000	1,500
226	10	Brn/Blk Clayey FILL w/Gravel	7.8	31.7	940	2,500
	25	Brown Silty CLAY	7.3	35.1	305	7,000
	35	Brown Sandy Gravel	1.0	00		
			8.5	23.9	585	2,700
225	15	Brown Silty CLAY	7.4	25.8	233	2,900
	20	Brown/Grey Silty CLAY	7.3	41.4	122	12,000
	30	Brown Clayey SAND	6.7	39.3	114	8,900
	40	Dense Brown Sandy Gravel	0./	00.0		
			7.4	30.9	190	5,500
227	10	Black Silty Clayey FILL	7.3	53.0	585	3,100
	20	Brown Clayey Silt	7.6	41.2	150	5,100 (
	35	Brown Sandy Gravel	1.0	41.6		
			7.2	248.4	820	1,650
233	10	Loose Coal Cinder Fill		80.6	790	2,000
	25	Grey/Black Clayey Silt	6.9	CONTRACTOR OF THE OWNER OWN	420	7,400
	40	Brown Sandy Gravel	7.6	09.0		
				149.0	1,480	1,250
236	10	Coal Cinder Fill	7.0	149.0	770	2,900
	30	Fine Grey Sand	7.3	105.7		And a second
					99	9,000
238	10	Brown Clayey FILL w/ Slag & Cinders	<u>s 8.1</u>	25.8	180	6,700
	20	Brown/Grey Mottled Clayey SILT	5.8	and the second	57	16,000
	30	Dense Brown Sand & Gravel	6.5		72	7,400
	40	Dense Brown Sandy Gravel w/ Shale	6.5	35.4	16	1.400
				En e	7,360	1,300
239	10	Brown Clayey SILT	8.0	and the second	945	3,000
	20	Brown Clayey SILT	5.5	and a second	265	4,000
	25	Fine/Med. Coarse Brown Sand	7.1	61.0	200	1 4,000

10-2-52 - 2-200

						Chloride	1	fate	and the second se	SLIVILY
		T		pH		(mg/kg)	(mg	1/kg)	- Contraction of the local division of the l	is-cm)
			Material Description	+		9.3	4	58	and the second se	300
Boring	# D		Brown Silty CLAY	4.8		18.4	1 3	00	and the second se	700
•0		10	Brown Silty CLAY	4.1		29.2		81	Contraction of the Contraction o	,000
and the second		20	Brown Silty CLAY	6.		39.3		72	8	,700
- 🔘 -		30	Brown Sand & Gravel	7.	0	39.0	+			
		45	Brown Sand & Gravel		\rightarrow			900	2	,500
			Ett L w/Gravel	5.	.4	39.2		680	3	,700
241		10	Brown Clayey FILL w/Gravel	5 6	.7	31.4				
	<u> </u>	25	Brown Clayey FILL William Grey/Tan Mottled Silty Clayey SANI					530		3,100
					.3	51.8				2,400
		15	Brown Silty CLAY	8	5.5	61.8		2,840	·	
24	$\frac{2}{2}$	44	Grey Sandy SILT w/Gravel							4,700
		44 HQ		-+	7.0	18.6		219	1	6,300
		10	Brown Silty CLAY		7.5	14.4		66	1	and the second division of the second divisio
242	2-A	10	Grey Clayey SAND		7.0	38.4		104	1	14,000
		20	Grey Sandy Gravel		6.7	18.6		33		8,200
		30	Fine Grey Clayey Sand		0.1					
		40	Fille Giey etc.		- 0	191.1		3,360		750
			Black Clayey Fill		7.9	154.1		540		2,700
2	44	10	Black Clayey 1		7.6	1.1.1.				
		35				70		120		7,100
			Slag Fill L		7.3			177		470
1-2	45	10	Black Cinders & Slag FILL		7.2			222		2,900
	. 40	20	Black Cinders & Slag FILL Black Cinders & Slag FILL		5.6			180		3,700
		30	Black Cinders & Slag FILL Black Cinders & Slag FILL		6.6	35.		100	\rightarrow	
		40	Grey Sandstone & Shale					910	-+-	2,600
					8.		1	CARLON CONTRACTOR OF THE OWNER OF	-+-	3,050
<u>-</u>	<u> </u>	9	Brown Sandy Gravel (Fill)		6.	9 83.	6	695		
42	246	40	Grey Silty Clay w/ Gravel							1,300
					7.	5 176	.8	960		10,000
ļ		20	Brown Sandy Fill		7.	and a second sec	.9	320		10,000
	248	40	Damp Grey Clayey Silt	and a second						1,000
		40			1 a	.3 72	.0	6,70		
			Brown Clayey Fill				.3	470		6,500
	249	10	Clavov Silt	ويعار وروان وروان وروان وروان وروان وروان وروان وروان	+					
		40			+	31	5.7	2,53	31	2,200
			Brwn. Sandy Silty Fill w/coal		<u> </u>	3.3 30				
	250	10) Brwn. Sandy				7.0	5,2	79	2,400
-			Brwn. Sandy Silty Fill w/coal		8	3.6 5	1.0			
\vdash	251	1 (Brwn. Sandy Sing Para				1 7	6,3	44	1,400
F			0 Brwn. Sandy Silty Fill w/coal			9.0 5	4.7			
F	253	3 1	0 Brwn. Sandy Silty I in 1999					11.	220	1,100
-						9.7 6	54.8		<u> </u>	
. –	254	1 1	0 Brwn. Sandy Silty Fill w/coal		T				002	1,000
F		T		1)		8.6	91.4	1 1.3	383	1
1			0 Coal Cinders & Fine Sand (FI							

			pH	Chloride	Sulfate	Resistivity
			-pin	(mg/kg)	(mg/kg)	(ohms-cm)
Boring #	Depth (ft)	Material Description	7.8	15.7	18,000	2,000
2.56	10	Dk. Brown Fill w/ Gravel & Cinders	7.3	85.5	1,720	150
~	20	Coal Cinder FILL	7.1	24.0	80	4,300
and the second	30	Grey Clayey Silt	<i>f</i> .1	2 1.0		
			7.0	8.6	3,200	4,900
257	10	Brwn. FILL w/ Coal Cinders		415.5	8,500	2,400
257	20	Black Cinder FILL	8.9 6.7	50.6	135	2,700
	30	Grey Clayey SILT		5.3	9	5,500
	40	Tan/Grey Claystone	8.3	0.0		s
				24.0	1,330	3,600
258	10	Black Cinder FILL	7.4	47.3	1,000	1,200
250	20	Black Cinder FILL	9.6	61.1	15	2,800
	30	Black Cinder FILL	8.4	19.9	9	7,100
	40	Grey Clayey Silt	7.6	19.5		
			+	22.9	7,200	3,100
259	10	Dk. Brwn Sandy Clayey FILL w/Slag	8.3	22.5	420	2,300
209	20	Brn. Clayey Sand w/ Gravel	7.4	17.2	1	4,500
	30	Grey Clayey Silt w/ Gravel	7.1	17.5		
				41.6	5,600	2,900
260	10	Coal Cinder & Slag FILL	7.4	214.4	520	1.600
200	20	Black Coal Cinder FILL	7.1	42.0	63	5,000
	30	Black Coal Cinder FILL	7.1		36	4,500
	40	Grey Silt w/ Traces of Wood Fibers	7.3	10.0		-
				29.2	1,000	4,600
261	10	Brown Sandy FILL w/ Trace of Coal	7.2		800	4,400
201	20	Brown Sandy FILL w/ Trace of Coar	7.1		18	4,700
	30	Brown Sandy FILL w/ Trace of Coal	6.9	1 10.3		and a second

DS	Profes	ssional	Service	Industries	, Inc.
ESTED FOR:	Alcosan %EPM Team 3300 Preble Aver	iue	PRO	ECT:	831-57219-3
Attention:	Pittsburgh, PA 15 John Frauenhoffe		DAT	E RECEIVED:	June 21, 1995
PA CE <u>RTIFIED ID</u>			REP LAB	ORT DATE: ORATORY NO.:	luly 20, 1995 NO51315
REMARKS:	P. O. # MAVY 37 Sample Descripti		: Elev	en (11) Samples	of Soll
	Submitted By		: Clie		
	Method of Test		: SW CA	846 Method 90 L DOT 417M, A	945, AASHTO T260, STM G57
Determination		#1 8201, S-2	#2 8201, S	<u>Results</u> #3 -4 B202, S-	#4 2 B202, 5-4
al Chloride, al Sulfate, m pH (Standard L	ng/kg Jnits)	175.8 440 7.6 3,250	126.3 365 8.5 3,100	149.5 305 8.1 3,15D	112.5 390 7.3 3,100
Resistivity, ohms-cm		#5 B203, S2	#6 B203,	#7 54 B203, S	#8 55 B203, 58
Total Chloride, mg/kg Total Sulfate, mg/kg nH (Standard Units)		147.5 1,460 8.2 1,250	72.8 420 7.0 7,300	330	116.2 320 7.4 2,850
Resistivity, oh	ms-Cm		#9 B244, 5-7	#10 B246, S-2	#11 B246, 5-8
Total Chloride, mg/kg Total Suifate, mg/kg pH (Standard Units)			154.1 540 7.6 2,700	119.4 910 8.1 2,600	83.6 695 6.9 3,050
Resistivity, C	nm5-CIII			Respectfully sub PROFESSIONAL	service IND., INC
				Chris Mendoza	Level IL
1-Client Icv/9766				Chemistry Dep ne: 412/922-4000	artment Manager Fax: 412/922-4014



Professional Service Industries, Inc.

				PRO	ECT:	831-5T219-2
TESTED FOR:	Alcosan %EPM Team 3300 Preble Aver Pittsburgh, PA 1	nue 5233				
Attention:	John Frauenhoffe				E RECEIVED:	June 19, 1995
PA CERTIFIED ID N	D.: 02-349				ORT DATE:	June 30, 1995
	P. O. # MAW 3	7229.PD.0	7			
REMARKS:	Sample Descript		9 6		en (7) Samples (of Soll
	Submitted By		\$ +	Clie		
	Method of Test		*	SW CA	846 Method 91 L DOT 417M, /	045, AASHTO T260, ASTM G57
					Results	/
Petermination	B2		5-2	#2 B204, S	#3 -4 B244, S	#4 -2 B248, S-4
Total Chloride, m Total Sulfate, mg/ pH (Standard Uni Resistivity, ohms-	kg ts)	325.6 15,000 7.5 880		157.4 1,320 7.6 1,700	191.1 3,36Q • 7.9 750	176.8 960 7.5 1,300
			# B248	5 1, S-8	#6 B249, 5-2	#7 B249, 5-8
Total Chloride, 1 Total Sulfate, m pH (Standard U Resistivity, ohm	g/kg nits)		74 320	1.9) 7.4	72.0 6,700 8.3 1,000	72.3 470 7.7 6,500
					Respectfully su	bmitted, L SERVICE IND., INC.

PROFESSIONAL

Chris Mendoza, Level II Chemistry Department Manager

			L. L.	Inc	
	Profess	sional Ser	vice Industries, aboratory Division	1110.	
(05)	Pittsburg	h Testing La		831-5T219-1	
STED FOR:	Alcosan	10	PROJECT:		
3100	3300 Preble Aven %EPM Office				
	Pillsburgh, PA 15		DATE RECEIVED:	June 15, 1995	
Itention:	John Frauenhoffer		REPORT DATE:	June 23, 1995	
A CERTIFIED ID N	10.: 02-349		LABORATORY NO.:	INO51258	
	ASR				
REMARKS:	Sample Descripti	on :	Six (6) Bottles Soil		
		¢	Client		
	Submitted By		unare Mathod 90	145, AASHTO T260,	
	Method of Test	•	CAL DOT 417, AST	FM G57	
			Results		
mination			#2		#3
		辞1	#2 B250-S2		8251-52
		B205-52	0250 02		8.6
			9.3		57.0
		8.4	36.7		5,279
pH (Standard Ur	(1(3)	95.8	2,531		2,400
Chloride, mg/kg		5,507	2,200		
Sulfate, mg/kg Resistivity, ohm	s-cm	1,800			
Resistant, on			#5		#6
		#4	#5 B254-!	52	B255-52
		B253-52	0254		8.6
			. 9.7		91.4
	1 (2)	9.0	64.8	\$	1,383
pH (Standard)	Jnits	54.7	11,220		1,000
Thloride, mg/	<g< td=""><td>6,344</td><td>1,100</td><td></td><td>· •</td></g<>	6,344	1,100		· •
Sulfate, mg/kg	ms-CM	1,400			
Resistivity, oh	the Constant			L-illed	

Respectfully submitted, PROFESSIONAL SERVICE IND., INC.

Chiris Mendoza, Level II Chemistry Department Manager

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1-Client

jcv/9660

STE	Pro	ofessional	Service	Industrie	s, Inc.	
ED FOR:	Alcosan clepM Team			JECT:	831-5T219-	5
ention: CERTIFIED ID N	3300 Preble Pittsburgh, F John Frauen	A 15233		TE RECEIVED: PORT DATE:	June 28, 1 July 11, 19	
MARKS:		W37229.PD.07 1 6/28/95		BORATORY NC		
,	Sample De Submitted Method o	Ву	: Cl	ient	9045, AASHTO	1 7260,
<u>Determination</u> Total Chloride, Total Sulfate, m pH (Standard L Resistivity, ohn	ig/kg Jnits)	#1 B226 S-2 53.7 8,000 8.0 1,500 #6 B239 S-5	#2 B226 5-5 31.7 940 7.8 2,500 #7 B241 5-2	Results #3 B226 S-7 35.1 305 7.3 7,000 #8 B241 S-5	#4 B239 5-2 53.6 7,360 8.0 1,300 #9 B242 5-3	#5 B239 S-4 61.0 945 5.5 3,000 #10 B242 S-9 61.8
Total Chlorid Total Sulfate, pH (Standard Resistivity, o	mg/kg Units)	61.0 265 7.1 4,000	39.2 900 5.4 2,500	31.4 680 6.7 3,700	51.8 530 7.3 3,100	2,840 8.5 2,400



Chloride, mg/kg I Sulfate, mg/kg (Standard Units)

istivity, ohms-cm

<u>Results</u>

#11	#12	#13
B227 5-2	B227 S-4	B227 S-7
30.9	53.0	41.2
190	585	150
7.4	7.3	7.6
5,500	3,100	5,100

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Respectfully submitted, PROFESSIONAL SERVICE IND., INC.

, × LINUS Chris Mendoza, Level II

Chemistry Department Manager

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1-Client

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hei	Professiona Pittsburgh Tes	I Service	ory Division	, шс.
100	Pittsbulgn	PRO	JECT:	831-57219-4
for:	Alcosan %EPM Team 3300 Preble Avenue			ι.
	Pittsburgh, PA 15233	DA	TE RECEIVED:	June 23, 1995
n:	John Frauenholfer	and the second	ORT DATE	<u>june 30, 1995</u> .: INO51331
TIFIED ID N	0.: 02-349 P. O. # MAW 37229.PD	.07		
ξ(K5:	Sample Description	: Nii	ne (9) Samples (3[301
	Submitted By	: Cl	ient	9045, AASHTO T260, ASTM G57
	Method of Test	: SV C,	V 846 Method : AL DOT 417M,	ASTM G57
			Results	
mInation		#1 B222, S-3	#2 B222, S-6	#3 B223, 5-4
		186.4	83.4	123.2 1,190
l Chloride, m I Sulfate, mg/	Kg	1,280 6.5	310 7.0	8.0 2,050
(Standard Uni stivity, ohms-	(S)	680	9,100 . `	# G
2000011		#4 8223, 5-6	#5 8233, 5-2	B233, 5-5
		93.0	248.4	80.6 790
al Chloride, r Il Sulfate, mi	z/ kg	440 7.6	820 7.2	6.9 2,000
, (Standard U sistivity, ohm	nitsi	3,100	1,650 #8	得 9
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		#7 B233, S-8	#0 B236, 5-2	8236, S-6
	Are	69.0	149.0 1,480	105.7 770
c Il Chloride, otal Sulfate, r	ng/kg	420 7.6 7,400	7.0	7.3 2,900
of (Standard) Rr Hvity, oh	ms-cm	7,400	Respectfully	submitted, NAL SERVICE IND., INC
Valuet			PROFESSION	lis
			Chris Mend	oza, Level(II Department Manager
1- ient			Chemistry	

412 966 -0--

10,3899

	Professional S	Professional Service Industries, Inc.					
15		PROJECT:	B31-5T219-6				
ED FOR:	Alcosan c‰EPM Team 3300 Preble Avenue Pittsburgh, PA 15233 John Frauenhoffer	DATE RECEIVED:	July 6, 1995 July 14, 1995				
ntion:	NO.: 02-349	REPORT DATE: LABORATORY NO.:					
MARKS:	P. O. # MAW37229.PD.07 Sample Description Submitted By	: Nine (9) Samples of : Client	Soil 145. AASHTO T260,				
	. Method of Test	SW 846 Method 30 CAL DOT 417, AS					

	Results				
<u>Determination</u>	#1 B212 S-4	#2 B212 5-6	#3 B213 54	#4 B213 S5	#5 B214 52
Total Chloride, mg/kg Total Sulfate, mg/kg DH (Standard Units)	42.0 225 6.9 4,400	92.3 315 7.0 4,700	133.3 970 6.2	30.3 530 5.8 3,000	161.5 12,320 8.3 2,000
Resistivity, ohms-cm	#6 B214 S-4	₽7 B214 5-9	₩ B215 5-3	#9 B215 5-6	
Total Chloride, mg/kg Total Sulfate, mg/kg 5H (Standard Units)	72.4 525 7.0 3,400	52.0 405 7.1 4,500	71.2 550 7.1 3,500	62.1 585 7.4 2,800	
Resistivity, ohms-cm				, submitted,	

*Insufficient Sample

Respectfully submitted, PROFESSIONAL SERVICE IND., INC.

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Chris Mendoza, Level II Chemistry Department Manager



ANALYTICAL REPORT

	Ar	ALTHCAL	PROJECT:	831-5T219-7	
TESTED FOR:	Alcosan c/oEPM Team 3300 Preble Avenue		PROJECT		205
	Pittsburgh, PA 15233		DATE RECEIVED:	October 31, 1	. 995
Attention:	John Frauenholler		REPORT DATE:	November 17	r, 1995
PA CERTIFIED ID NO).: 02-349		LABORATORY NO).: INO525	,39
	P. O. # MAW 3722	9.PD.07			
REMARKS:		* \$	Twenty-one (21) S	amples of som	
	Sample Description		Client		- 100
	Submitted By		owned Method 9	045, AASHTO T26	0, CAL DOT 422,
,	Method of Test	•	ASTM G57		
		рН	Chlorides,	Sulfates, mg/kg	Resistivity, ohms-cm
Sample Identification	on (Sta	(Standard Units)	the second s	18,000	2,000
		7.8	15.7	1,720	150 4,300
1 - B256, S-2		7.3	85.5 24.0	80	4,900
#2 - B256, S-4		7.1	8.6	3,200	2,400
#3 - B256, S-6		7.0	415.5	8,500 135	2,700
#4 - B257, S-2		8.9	50.6	135	5,500
#5 - B257, S-4		6.7	5.3	1,330	3,600
#6 - B257, S-6		8.3	24.0	1,000	1,200
#7 - B257, S-8		7.4	47.3	15	2,800
#8 - B258, S-2		9.6 8.4	61.1	9	7,100
#9 - B258, S-4		7.6	19.9	7,200	3,100
#10 - B258, S-6		8.3	22.9	420	2,300
#11 - B258, S-8 #11 - B258, S-8		7.4	22.5	5,600	2,900
#12 - B259, S-2 #13 - B259, S-4		7.4	41.6	520	1,600
#13 - B260, S-2 #14 - B260, S-2		7.1	214.4	63	5,000
#14 - B260, S-4 #15 - B260, S-4		7.1	42.0	36	4,500
#16 - B260, 5-6		7.3	16.9	1,000	4,600
#16 - B260, 5 - 8 #17 - B260, S-8		7.2	29.2	800	4,400
#1/ - D200, 5 -)	7.1	13.1	18	4,700
#18 - B261, S-2	- 4	6.9	10.9	1	4,500
#19 - B261, S-	6		17.2		
#20 - B261, S-	6	7.1		hmitted	
#21 - B259, S-	·v		Respectfull PROFES/10	y submitted, ONAL SERVICE INE)., INC.

Chris Mendoza, Level D Chemistry Department Manager Information To Build On

1-Client

1-Frauenhoffer & Associates.

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ANALYTICAL REPORT

TESTED FOR:	Alcosan %EPM Team 3300 Preble Avenue Pittsburgh, PA 15233		PROJECT:	831-5T219-8
Attention:	John Frauenhoffer		DATE RECEIVED:	November 6, 1995
PA CERTIFIED ID	NO.: 02-349		REPORT DATE:	November 28, 1995
REMARKS:	P. O. # MAW 37229.PD.07		LABORATORY NO .:	INO52596
	Sample Description	:	Thirty Six (36) Samples	of Soil
	Submitted By	*	Client	
	Method of Test	5 9	SW846 Method 9045, G57, ASTM D512	CAL DOT 417 & 422, ASTM

Sample Identification	pH (Standard Units)	Chlorides, ppm	Sulfates, mg/kg	Resistivity, ohms-cm
#1 - B240, S-2	4.8	9.30	458	5,300
#2 - B240, S-4	4.8	18.4	300	5,700
#3 - B240, S-6	6.6	29.2	81	24,000
#4 - B240, S-8	7.0	39.3	72	8,700
#5 - B242, S-1	7.0	18.6	219	4,700
#6 - B242, S-2	~ 7.5	14.4	66	6,300
#7 - B242, S-3	7.0	38.4	104	14,000
#8 - B242, 5-4	6.7	18.6	33	8,200
#9 - B245, S-2	7.3	7.8	120	7,100
#10 - B245, S-4	7.2	49.1	177	470
#11 - B245, S-6	5.6	26.1	222	2,900
#12 - B245, S-9	6.6	35.1	180	3,700
#13 - B206 , S-2	8.4	23.7	600	6,600
#14 - B206, S-4	9.5	107.2	405	3,400
#15 - B206, S-6	6.5	92.1	450	2,500
#16 - B206, S-8	6.9	25.5	97.5	10,000
#17 - B208, S-2	7.9	40.2	67.5	17,000 ·
#18 - B208, S-4	9.6	23.6	593	2,600
#19 - B208, 5-6	6.5	85.8	255	2,900
#20 - B208, S-8	7.3	39.6	30	9,900
#21 - B211, 5-2	7.4	20.7	110	5,000
#22 - B211, S-5	7.3	63.4	660	4,200



Information To Build On

Alcosan November 28, 1995 Page 2 of 2

Sample Identification	pH (Standard Units) -	Chlorides, ppm	Sulfates, mg/kg	Resistiv ohms-cm
#23 - B211, S-6	7.8	27.9	28.5	14,000
#24 - B211, S-8	7.4	39.3	90	8,700
#25 - B221, S-2 °	7.1	11.7	156	4,000
#26 - B221, S-4	8.0	64.8	204	1,200
#27 - B221, S-6	6.6	26.7	129	7,700
#28 - B221, S-8	7.0	22.2	64.5	13,000
#29 - B225, S-3	8.5	23.9	585	2,700
#30 - B225, S-4	7.4	25.8	233	2,900
#31 - B225, S-6	7.3	41.4	122	12,000
#32 - B225, S-8	6.7	39.3	114	8,900
#33 - B238, S-2	8.1	25.8	99	9,000
#34 - B238, S-4	5.8	27.3	180	6,700
#35 - B238, S-6	6.5	52.5	57	16,000
#36 - B238, S-8	6.5	35.4	72	7,400

Respectfully submitted, PROFESSIONAL SERVICE IND., INC.

Chris Mendoza, Level II Chemistry Department Manager

1-Client 1-Frauenhoffer & Associates. jcv/14,857

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ROCK COMPRESSION TESTING DATA

Professional Service Industries, Inc Pittsburgh, PA

(

ALCOSAN GEOTECHNICAL INVESTIGATION PROGRAM

(

TABLE OF BEARING CAPACITIES OF ROCK SAMPLES ALCOSAN WASTEWATER TREATMENT PLANT

.33*Qu (tsf) 204 204 204 203 203 203 212 212 212 212 212	.33*Qu (tsf) 184 202 238 238 206
.10°Qu (tst) 80 61 63 63 64 64 64 64 64	.10*Qu (tsf) 56 61 72 62
Qu' 361 559 342 192 342 192 36 55 55 88 88 88	<mark>Qu'</mark> ((sf) 202 554 215 49
Qu'=Qu'RQD^2 (psi) 5,019 7,617 7,762 4,754 4,754 2,660 413 771 3,769 1,221 596	Qu'=Qu*RQD^2 (psi) 2807 7689 2988 682 682
Qu (psi) 11,180 8,440 9,430 11,080 8,530 10,570 8,920 8,920 8,920 8,920	Qu (psi) 7765 8520 10000 8660
FOD 0.67 0.95 0.35 0.49 0.22 0.22 0.37 0.37	ples
Rock Description Grey Silty Shale Grey Siltstone Grey Siltstone Grey Sandstone w/Mica Grey Sandstone Grey Limestone Grey Sandstone Grey Sandstone Grey Sandstone Grey Sandstone Grey Silty Shale Grey Silty Shale	Averages for Above Samples Silty Shales Siltstones Sandstones Limestones
Depth (ft) 61 63 63 63 63 63 63 64 7 64 64	
Boring 267 268 268 243 237 237 235 235 235 281 281 281	





March 22, 1996

PROJECT:

Alcosan EPM

OUR REPORT #: \$12-50351-3

. . .

Mr. Dan Jovanovich Attention:

DATE:

	Capping	Dismeter	Area	Chippedo	Gan sections Bactor	i iling -	(pai)
Core B	Linzah (In.)			1.77	1.016	7,000	2190
TB224 S-1	3.54	2.0	3.1416	1.40	1.051	9,100	2760
TB224 S-2	2.80	2.0	3.1416	1.40			

	Locations
bre Number	
TB224 S-1	
TB224 5-2	
nte se que contra de la constitu de la constitución y constitución de la constitución de la constitución de la	

JIT:sms

Respectfully submitted, Professional Service Industries, Inc.

Page 3 of 3

Information To Build Or



TE STED FOR:	Alcosan EPM Project Office 3300 Preble Avenue Pittsburgh, PA 15233-1092	PROJECT:	Alcosan EPM	
Attention:	Mr. Dan Jovanovich			
DATE:	March 22, 1996	OUR REPOR	T #: 812-50351-3	
			1. A	-

	Before Attar			and the	to the second second second second		
	Cappiles) conth clud-	Diemeter (In.)	Artes Da?	Capped)	Eerrection. Factor	Totel Lose (Lhs.)	-i(pal)
TB228 S-1	3.85	2.0	3.1416	1.92	1.005	8,100	2570
TB228 S-2	3.75	2.0	3.1416	1.87	1.008	9,900	3130
TB228 S-3	4,0	2.0	3.1416	2.00	1.000	7,600	2420
TB230 S-1	4,0	2.0	3.1416	2.00	1.000	6,700	2130
TB230 S-2	4.0	2.0	3.1416	2.00	1.000	10,200	3250
TB229	4.0	2.0	3.1416	2.00	1,000	10,700	3400

Case Number	Lorentions
TB228 S-1	
TB228 S-2	
TB228 S-3	
TB230 S-1	
TB230 S-2	
TB229	58.7 - 59.5

JT:sms

Respectfully submitted, Professional Service Industries, Inc.

Information To Build OF

Page 2 of 3



Alcosan EPM PROJECT: Alcosan EPM Project Office TESTED FOR: 3300 Preble Avenue Pittsburgh, PA 15233-1092 Mr. Dan Jovanovich Attention: OUR REPORT #: 812-50351-3 March 22, 1996 DATE:

REMARKS:

Please find results of fourteen (14) rock core specimens obtained by PSI for unconfined compressive strength testing.

	BeforeAtter			-1-D,		Total Louid	Compressive Strength
	Capping Length (hal)	Diameter,	(int)	(Capped)	Langue Cal	20,500	6530
TB265. S-2	4.0	2.0	3.1416	2.00	1.000		6780
TB265 S-1	4.0	2.0	3.1416	2.00	1.000	21,300	5470
TB247 S-1	4.0	2.0	3.1416	2.00	1.000	17,200	
	4,0	2.0	3.1416	2.00	1.000	14,100	4490
TB247 S-2	4.0	2.0	3.1416	2.00	1.000	8,600	2730
TB219 S-1	4.0	2.0	3.1416	2.00	1.000	6,600	2100
TB219 S-2				and the second s	dons		
TB265 S-2			ang nganakan karang				
TB265 S-1					a for the for the second s		
TB247 S-1		an man takan meningkan takan tak	an a				
TB247 S-2	a construction and an an address of the Dark Construction of			an landi a canta any ang			
TB219 S-1	54° depth					nie z de francé de la companie de la companie de la construction de la construction de la construcción de la co	and an and an
TB219 5-2	54' depth						

JIT:sms

Respectfully submitted, Professional Service Industries, Inc.

Page 1 of 3

Information To Eulld On



TESTED FOR:Mr. Bob Stanley
Alcosan EPM Project Office
3300 Preble Avenue
Pittsburgh, PA 15233-1092PROJECT: Alcosan EPM OfficeDATE:July 16, 1996OUR REPORT #: 812-50351-6

REMARKS: Please find results of three (3) rock core specimens obtained by PSI for unconfined compressive strength testing. Tests were performed according to ASTM C42-90.

Core #	Before/After Capping Length (In.)	Diameter (In.)	Area (In. ²)	L/D (Capped)	Correction Factor	Total Load (Lbs.)	Compressive Strength (psi)
TB-270	/4.00	2.00	3.14	2.0		27000	8600
B-267	/4.50	2.00	3.14	2.2		35100	11180
Г В- 268	/4.15	2.00	3.14	2.1		26500	8440
TB-232	UNABLE	TO	CUT	OR	CAP	N/A	
TB-269	UNABLE	ТО	CUT	OR	CAP	N/A	
TB-271	UNABLE	ТО	CUT	OR	CAP	N/A	
Core #				Locati	ons		
TB-270	DEPTH=63'-()" GRAY SH	IALE	a da a da a da a da a da a da da da da d	an in the second se		
TB-267	DEPTH=61'-(" GRAY SII	LTY SHA	ALE			
TB-268	62'-0" GRAY	SILTSTON	3				
TB-232	65'-0" GRAY	SILTSTON	E;Insuffic	cient length fo	or Comp. Streng	gth Testing	
TB-269	60'-0"; Insuffi	cient length	for Com	pressive Stren	gth Testing	af while the pression of the state of the	
TB-271	N/A ; Insuffic	ient length fo	or Compr	essive Streng	th Testing		
COMMENTS: A). Date Poured: B). Nominal Maximum Size of Coarse Aggregate: Compare Coorditionary							

C). Curing Conditions:

 \Box Limewater Bath for Minimum 40 Hours (73° F ± 3°F) Per ASTM C42-90)

□ Air Dry for 7 Days (60°-80°F) per ACI 318, Chapter 5.

Respectfully submitted, *PSI* Information To Build On



TESTED FOR:Mr. Bob Stanley
Alcosan EPM Project Office
3300 Preble Avenue
Pittsburgh, PA 15233-1092PROJECT: Alcosan EPM OfficeDATE:June 12, 1996OUR REPORT #: 812-50351-6

REMARKS: Please find results of one (1) rock core specimens obtained by PSI for unconfined compressive strength testing. Tests were performed according to ASTM C42-90.

Core #	Before/After Capping Length (In.)	Diameter (In.)	Area (In. ¹)	L/D (Capped)	Correction Factor	Total Load (Lbs.)	Compressive Strength (psi)		
271	/4.16	2.01	3.17	2.07		13800	4350		
Core Number	Locations								
271	DEPTH=64' GREY SILTY SHALE								

COMMENTS:

- A). Date Poured:
- B). Nominal Maximum Size of Coarse Aggregate:
- C). Curing Conditions:
 - □ Limewater Bath for Minimum 40 Hours (73° F ± 3°F) Per ASTM C42-90)
 - □ Air Dry for 7 Days (60°-80°F) per ACI 318, Chapter 5.

Respectfully submitted, PSI

Information To Build On





TESTED FOR:Mr. Bob Stanley
Alcosan EPM Project Office
3300 Preble Avenue
Pittsburgh, PA 15233-1092PROJECT: Alcosan EPM OfficeDATE:July 16, 1996OUR REPORT #: 812-50351-6

REMARKS: Please find results of one (1) rock core specimens obtained by PSI for unconfined compressive strength testing. Tests were performed according to ASTM C42-90.

Core #	Before/After Capping Length (In.)	Diameter (In.)	Area (In. ²)	L/D (Capped)	Correction Factor	Total Load (Lbs.)	Compressive Strength (psi)		
TB-281	/4.40	2.00	3.14	2.2*	nen en forder en	28000	8920		
Core Number	1.3			Locatio	ons				
TB-281	DEPTH=54'-0" GREY LIMESTONE								

Rock core was not trimmed shorter. PSI was concerned that core might fracture or disintegrate during the trimming process.

COMMENTS:

- A). Date Poured:
- B). Nominal Maximum Size of Coarse Aggregate:
- C). Curing Conditions:
 - □ Limewater Bath for Minimum 40 Hours (73° F ± 3°F) Per ASTM C42-90)
 - □ Air Dry for 7 Days (60°-80°F) per ACI 318, Chapter 5.

ЛТ:sms

Respectfully submitted, *PSI* Information To Build On



TESTED FOR:	Mr. Bob Stanley	PROJECT:
	Alcosan EPM Project Office	
	3300 Preble Avenue	
-	Pittsburgh, PA 15233-1092	
DATE:		OUR REPOR

PROJECT: Alcosan EPM Office

OUR REPORT #: 812-50351-6

REMARKS: Please find results of five (5) rock core specimens obtained by PSI for unconfined compressive strength testing. Tests were performed according to ASTM C42-90.

Core #	Before/After Capping Length (In.)	Diameter (In.)	Area (In. ²)	L/D (Capped)	Correction Factor	Total Load (Lbs.)	Compressiv e Strength (psi)		
TB262A	/4.23	2.00	2.00 3.14 2.1 28000						
TB-235	/4.25	2.00	3.14	2.1		33200	10570		
TB-243	/4.25	2.00	3.14	2.1		29600	9430		
TB-280	/4.30	2.00	3.14	2.1		26800	8530		
TB-237	/4.30	2.00	3.14	2.1		34800	11080		
TB-273	BROKE	WHILE		CAPPING					
Core Number				Locatio	ns				
TB262A	DEPTH=46.5'								
TB-235	DEPTH=55'-0'	s							
TB-243	DEPTH=48'-0'	1				an a			
TB-280	DEPTH=60'-0"	' GREY LIM	ESTONI						
TB-237	DEPTH=59'-0"	GREY SAN	IDSTON	E	nen san ang biyan in siyan san san ang san	an a			
TB-273	TB-273 DEPTH=58'-0" GREY SILTSTONE								
COMMENT	S: A).	Date Poured			4	~			

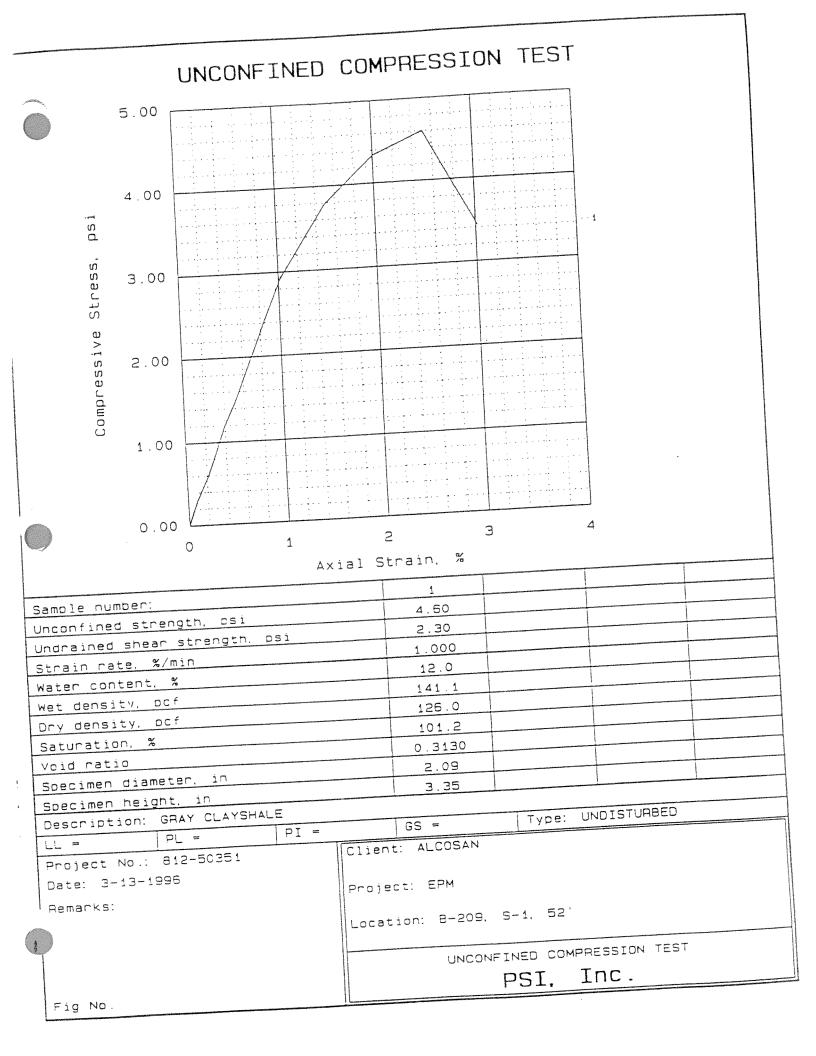
B). Nominal Maximum Size of Coarse Aggregate:

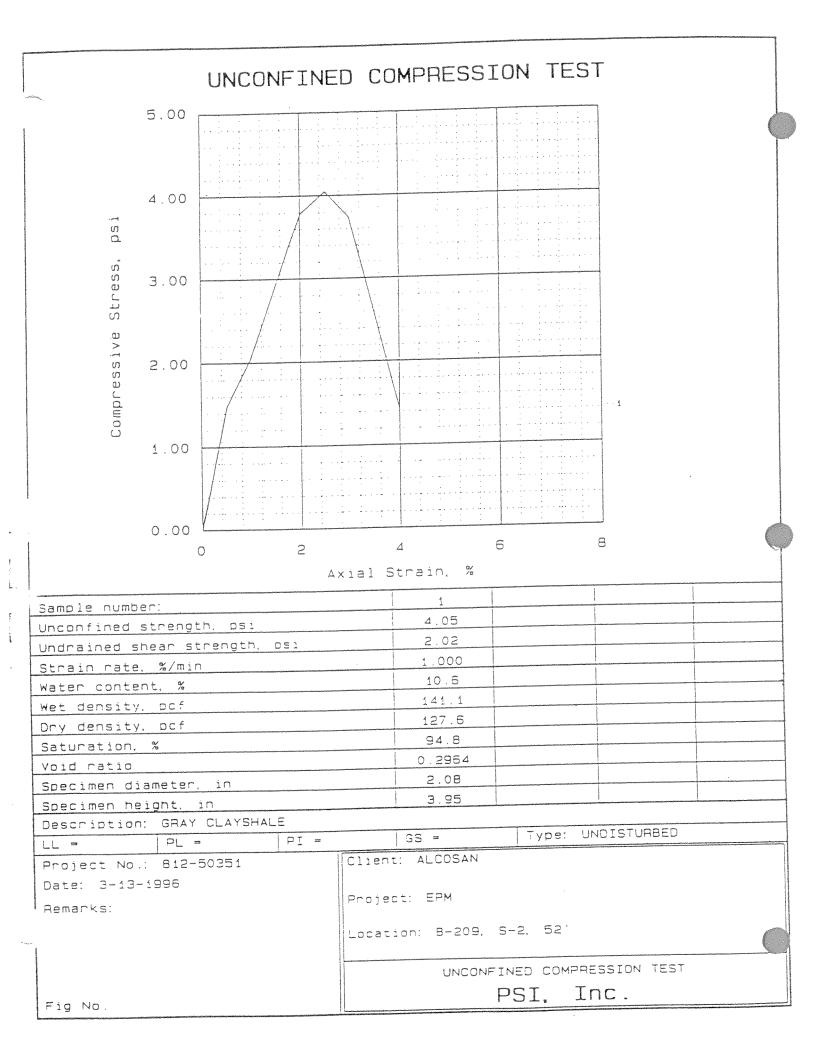
C). Curing Conditions:

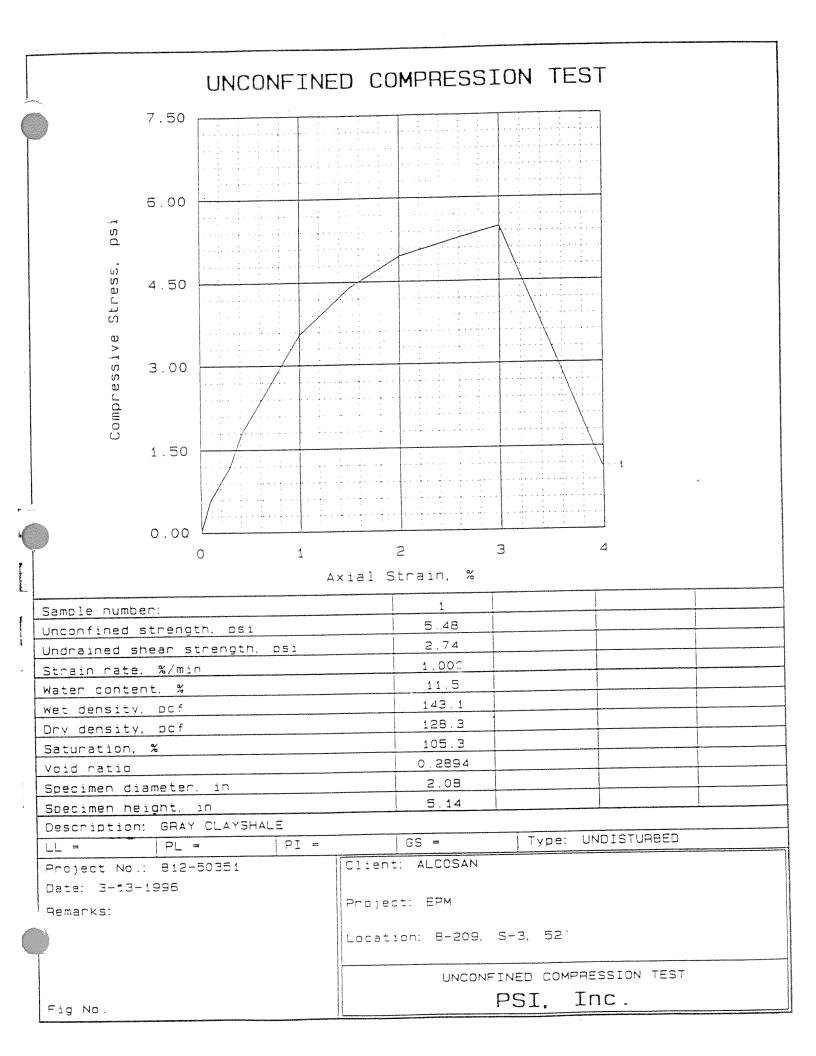
- □ Limewater Bath for Minimum 40 Hours (73° F ± 3°F) Per ASTM C⁴2-90)
- □ Air Dry for 7 Days (60°-80°F) per ACI 318, Chapter 5.

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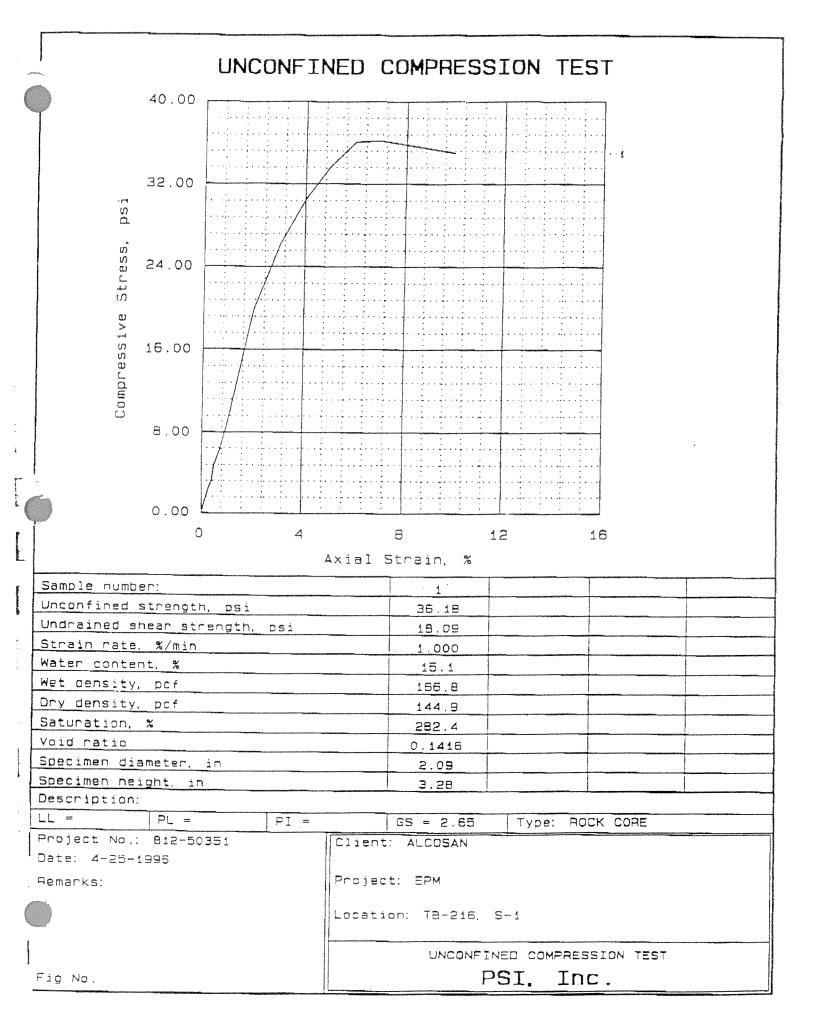
UNCONFINED COMPRESSION TEST RESULTS ON ROCK CORE SPECIMENS PROFESSIONAL SERVICE INDUSTRIES

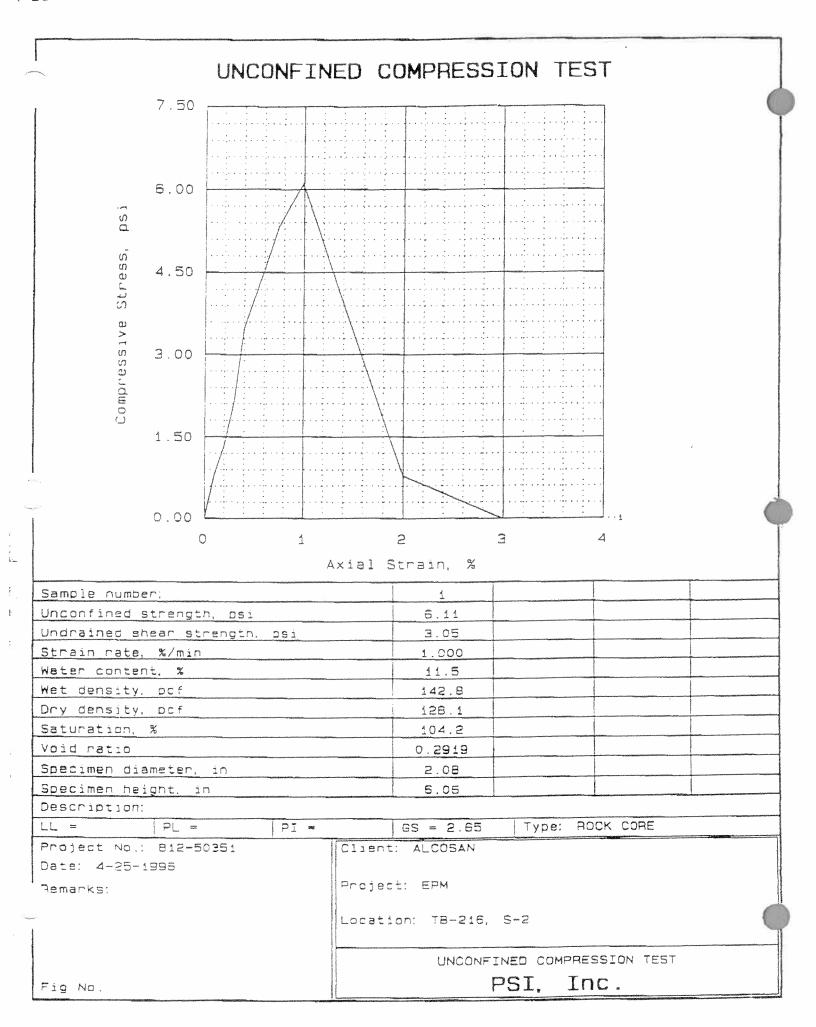


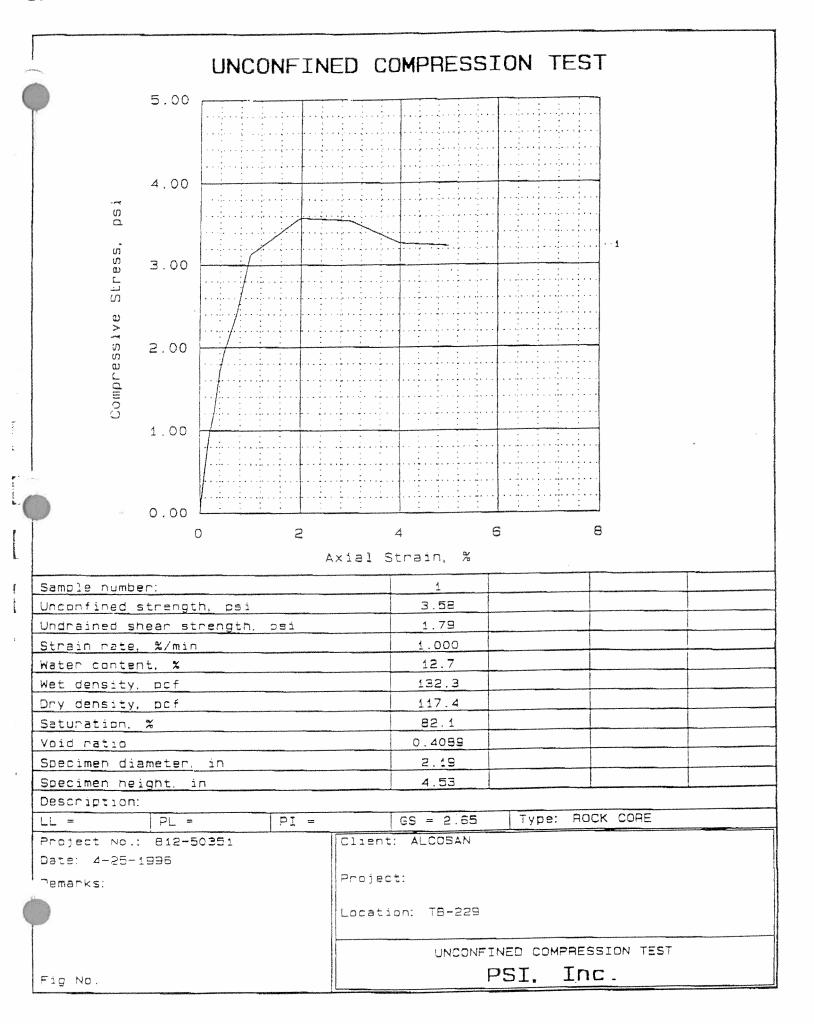




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	0		4		8	12		16		
-			,	Axial S	Strain, %					
Sample numb	en:				1					Non-Marcolanda <u></u>
Unconfined	strength	n, pisi			23.09					
Undrained s	hear str	rength.	DS1		11.55					
Strain rate					1.000	ļ				-
Water conte					9.5					100100)
Wet density	A DESCRIPTION OF A DESC				118.8		an a			20000000000000000000000000000000000000
Dry density Saturation,				R	108.5					
Void ratio	74	aan too ah		****	48.2		-			
Specimen di	amoter	in			0.5250	+				
Specimen he					2.53					
Description	Contraction of the second s	·	anders and a second descent		2.0/				scenese lensing graphere sources	
LL =	PL =		PI =		GS = 2.65		Type:	ROCK CORE	nan an	Namisia) (NC 1999), dan sana ang sana a
Project No.					: ALCOSAN					
Date: 4-25-	1996			And an address of the Andress						
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anna				UNCONFINED COMPRESSION TEST						
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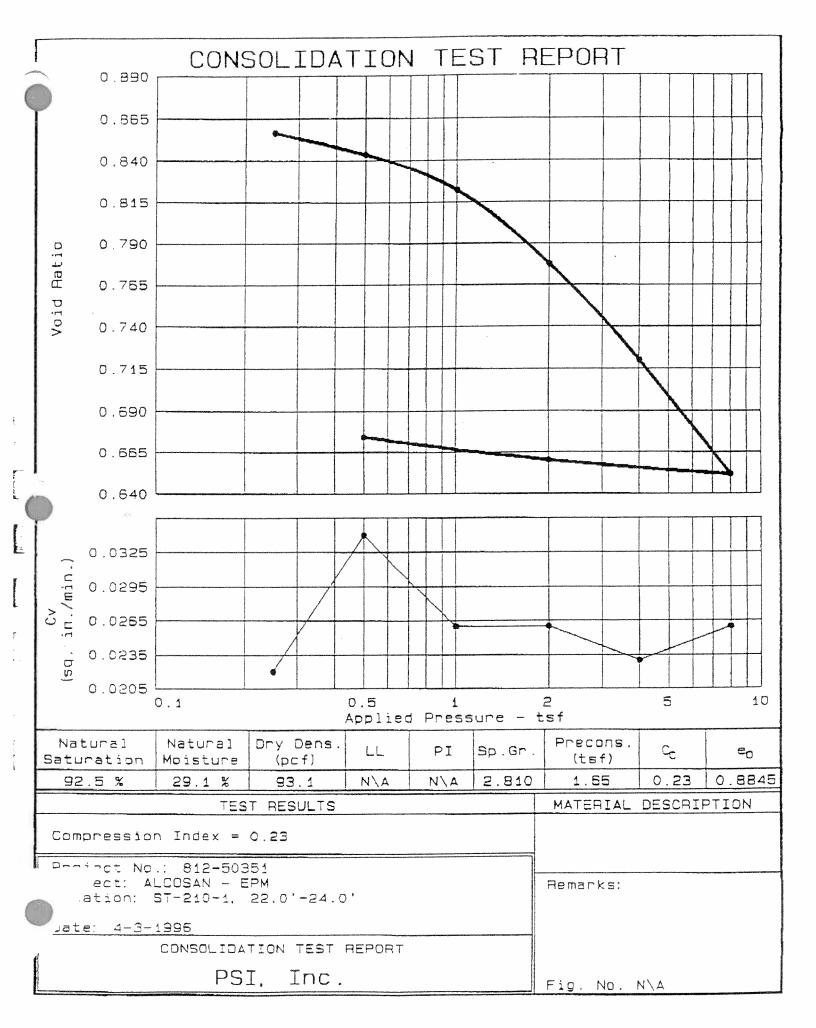


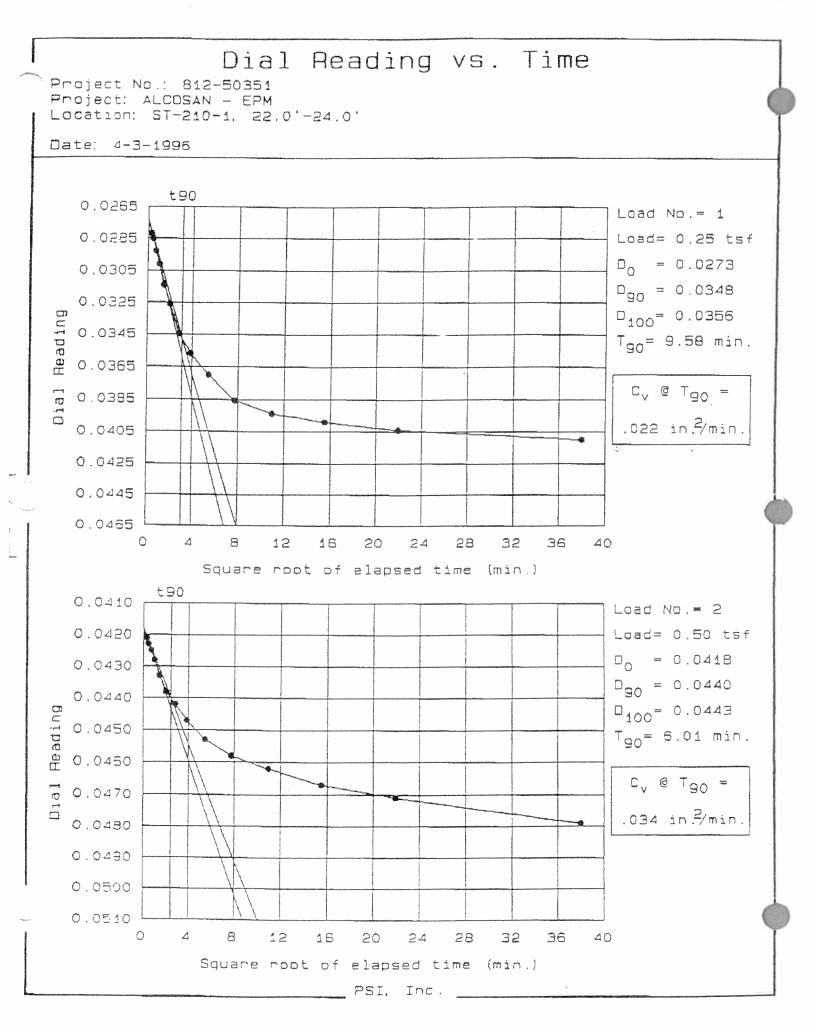


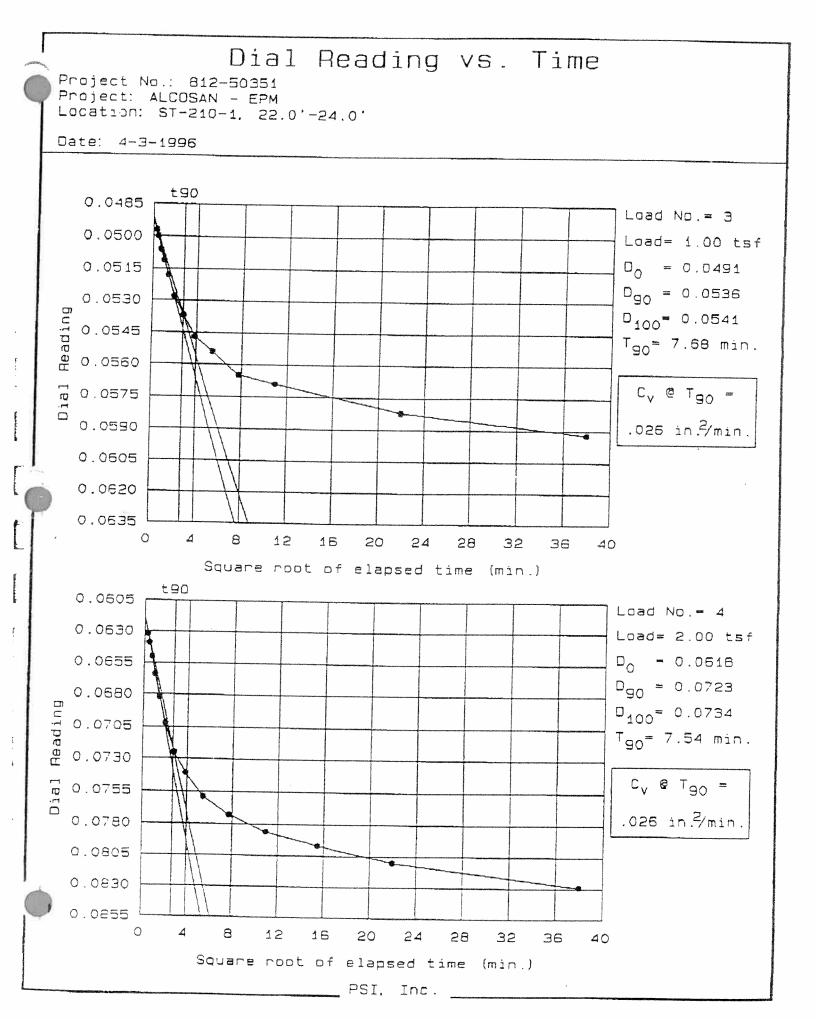


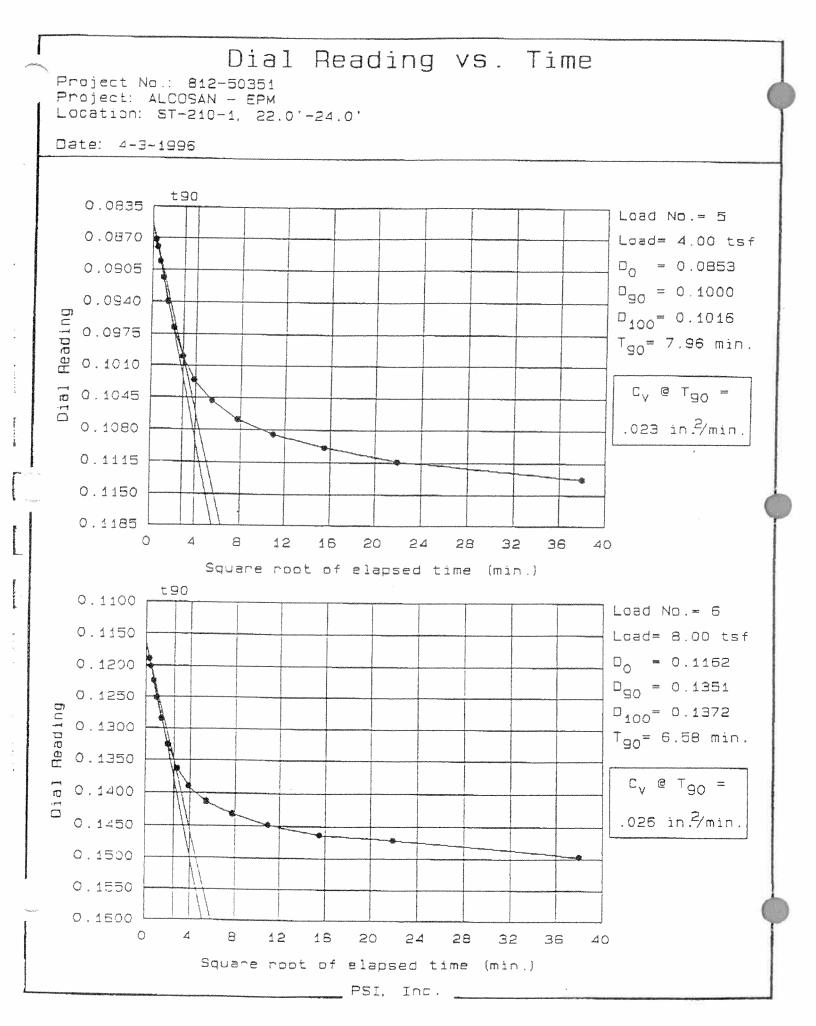
CONSOLIDATION TEST RESULTS PROFESSIONAL SERVICE INDUSTRIES

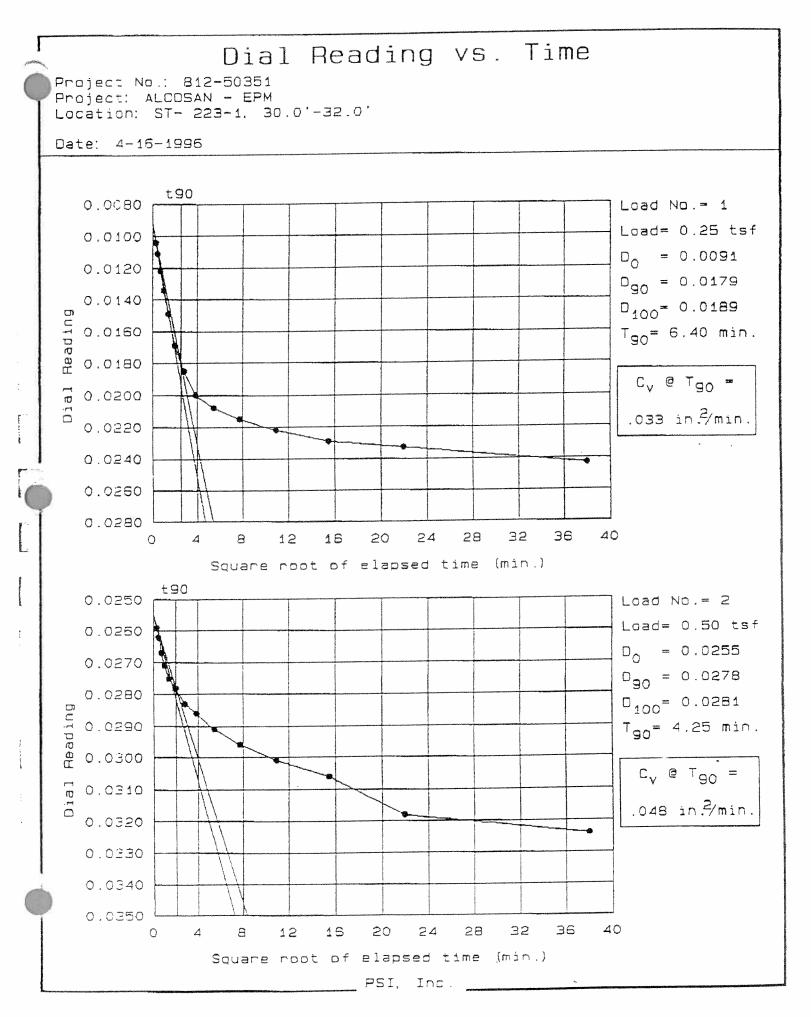
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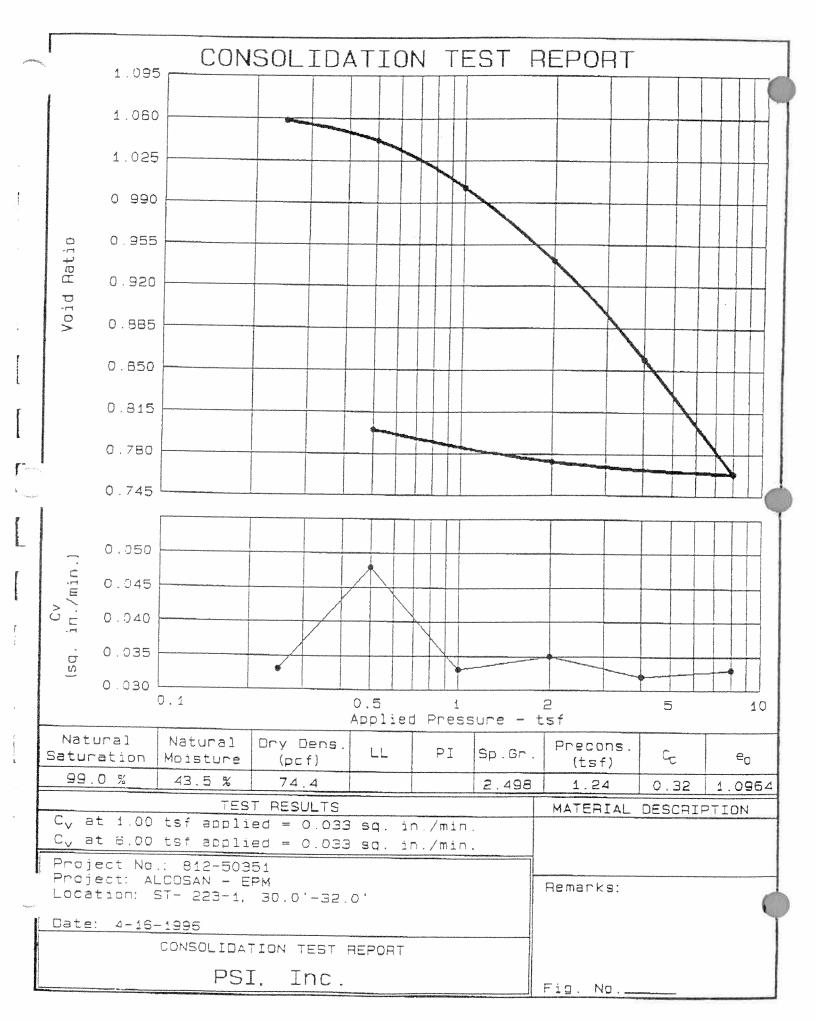


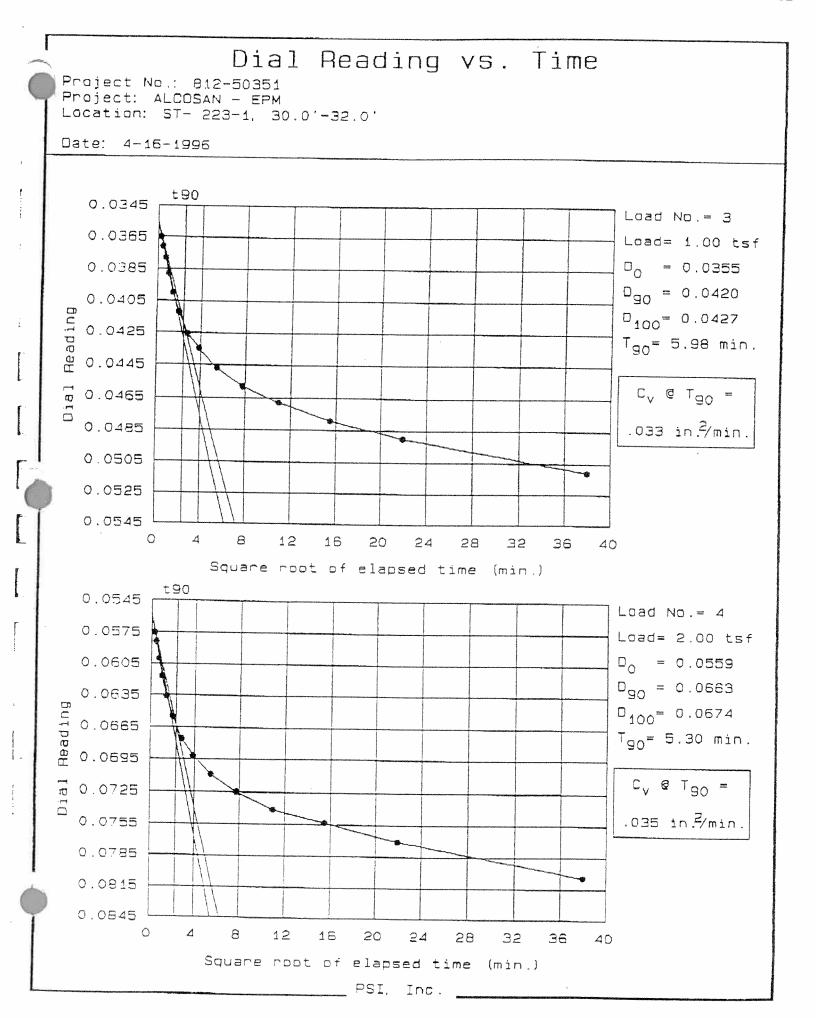


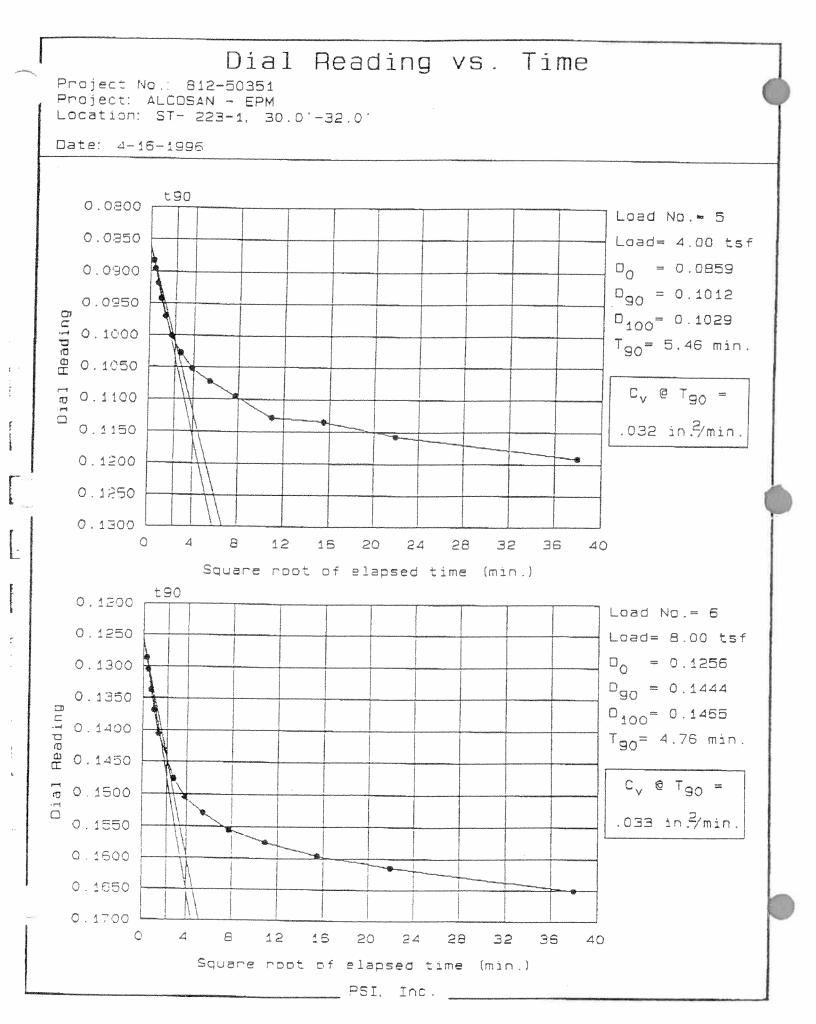






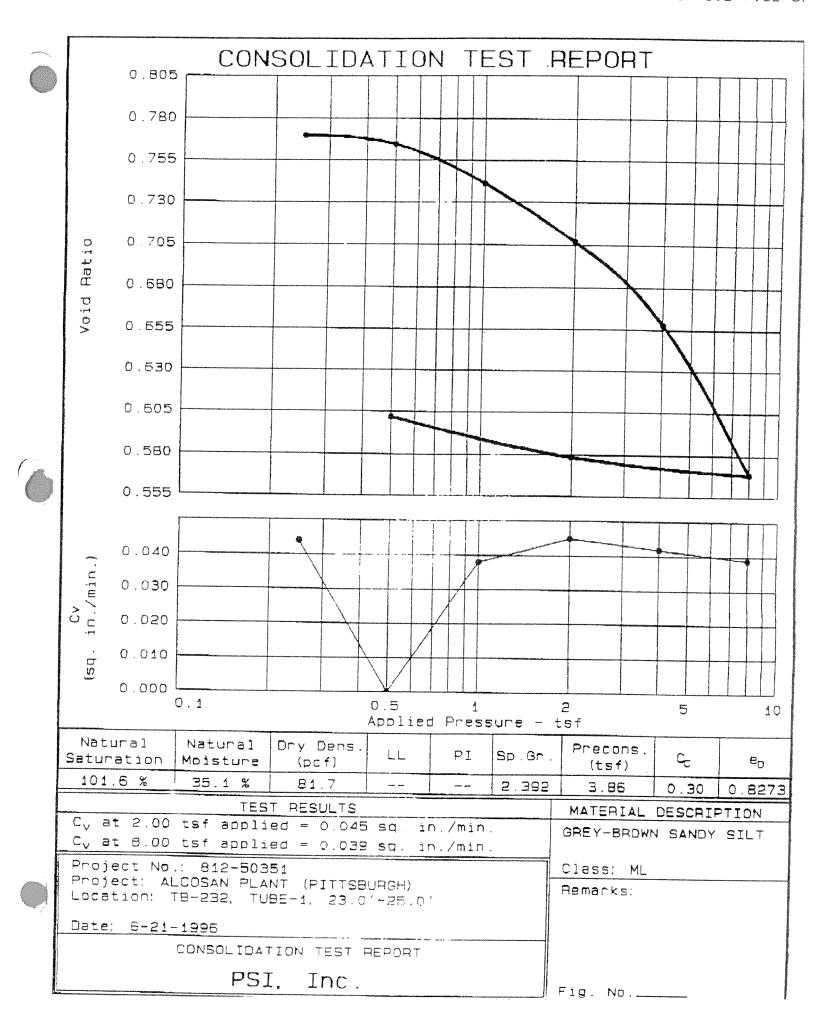


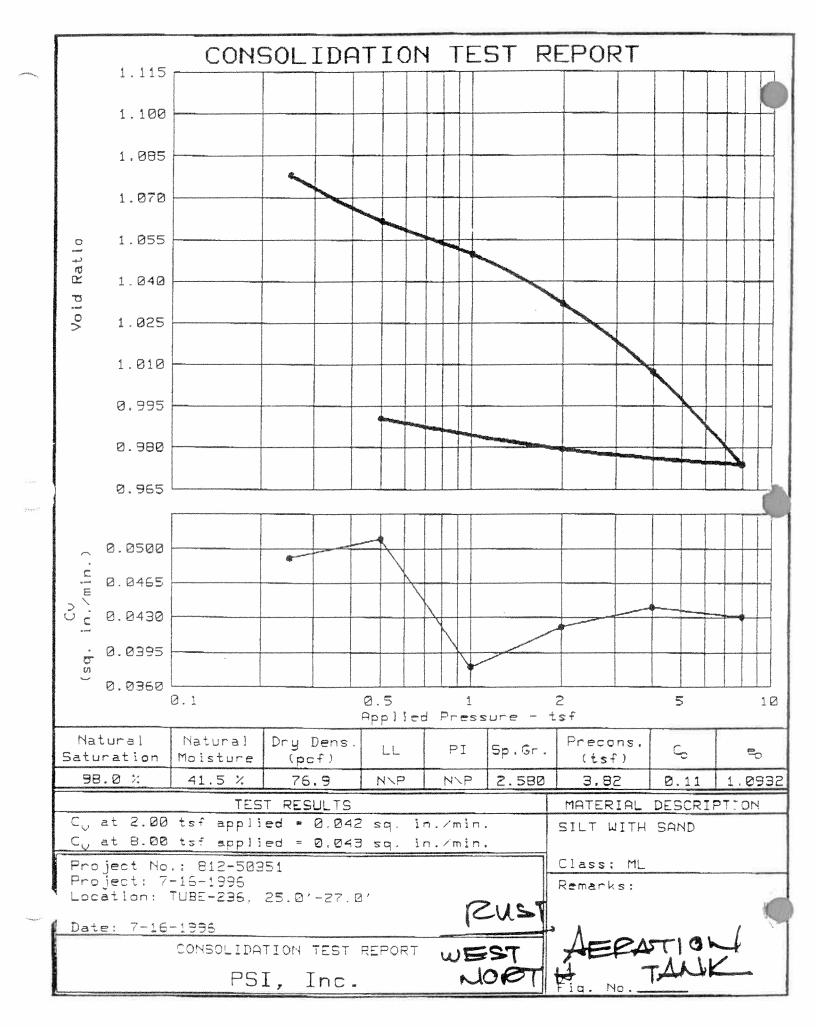


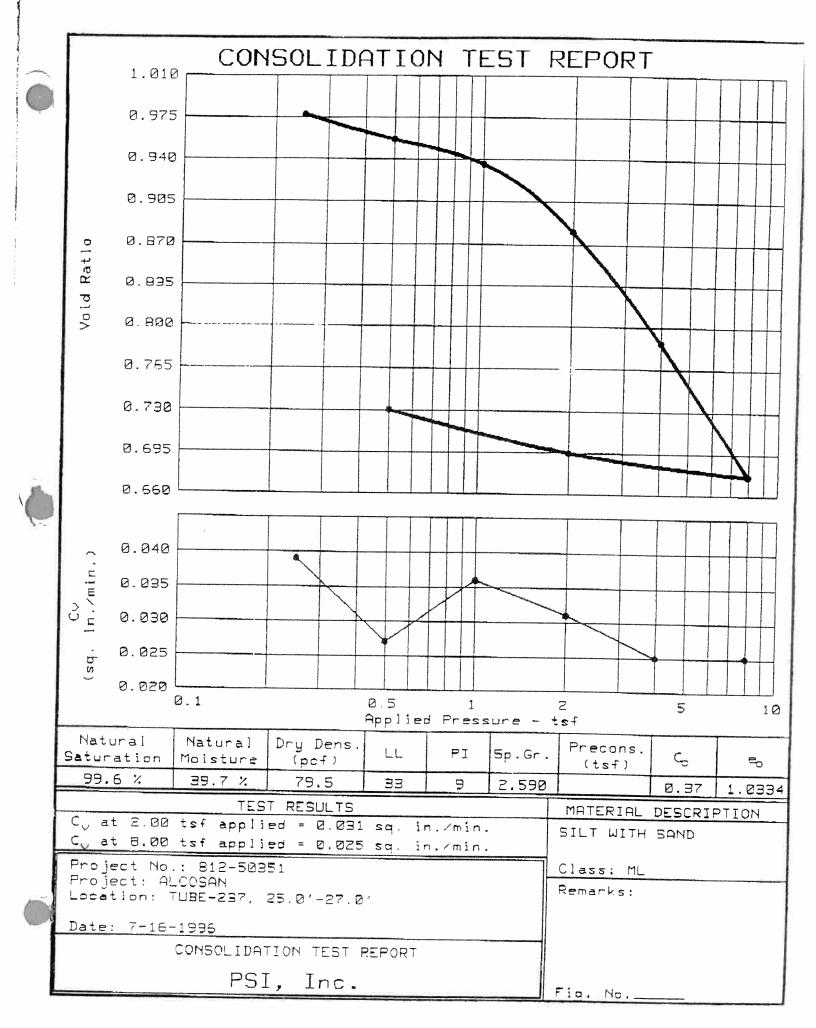


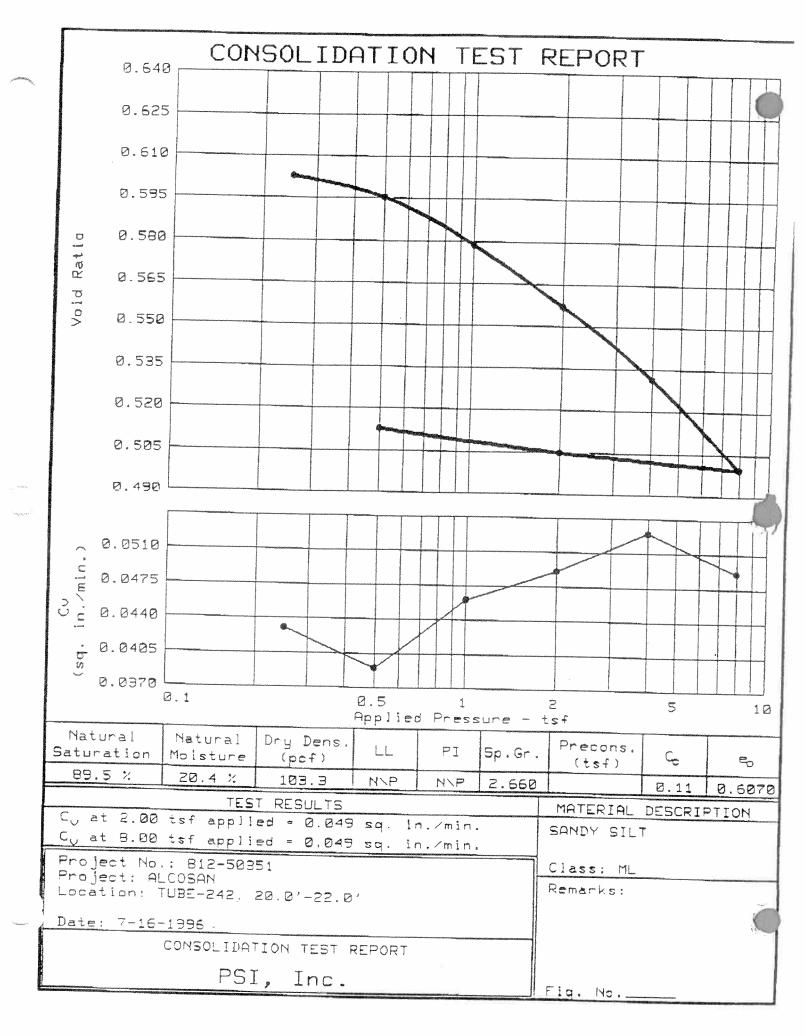
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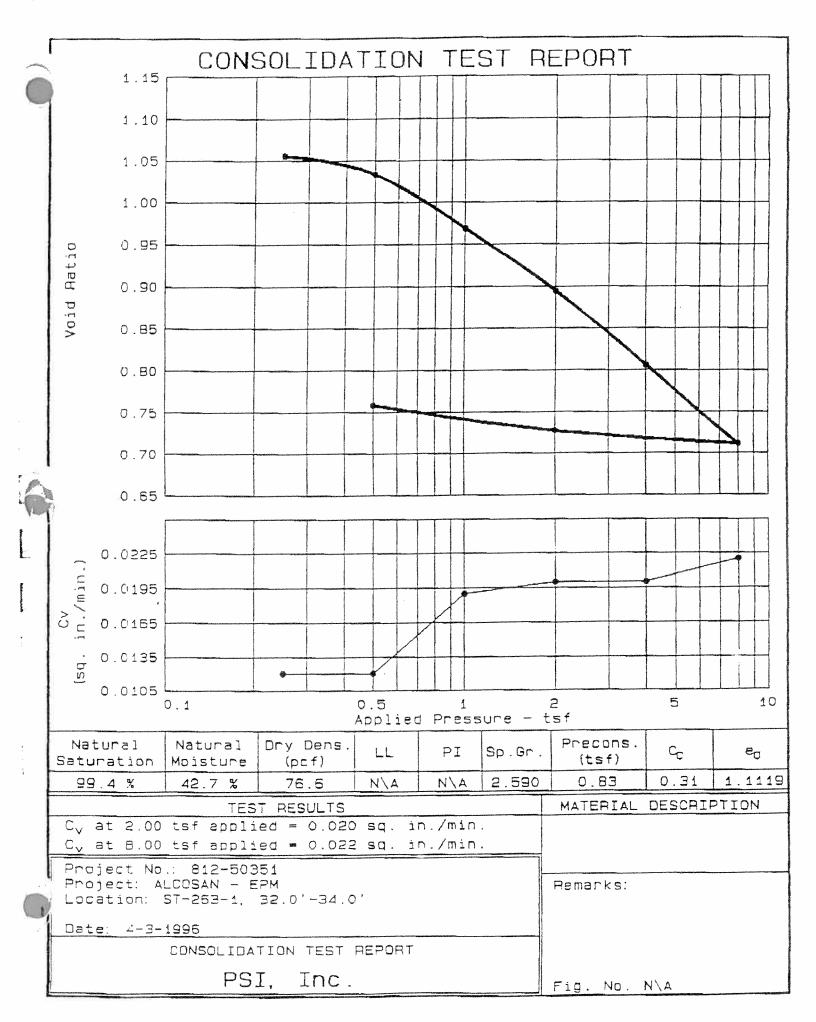
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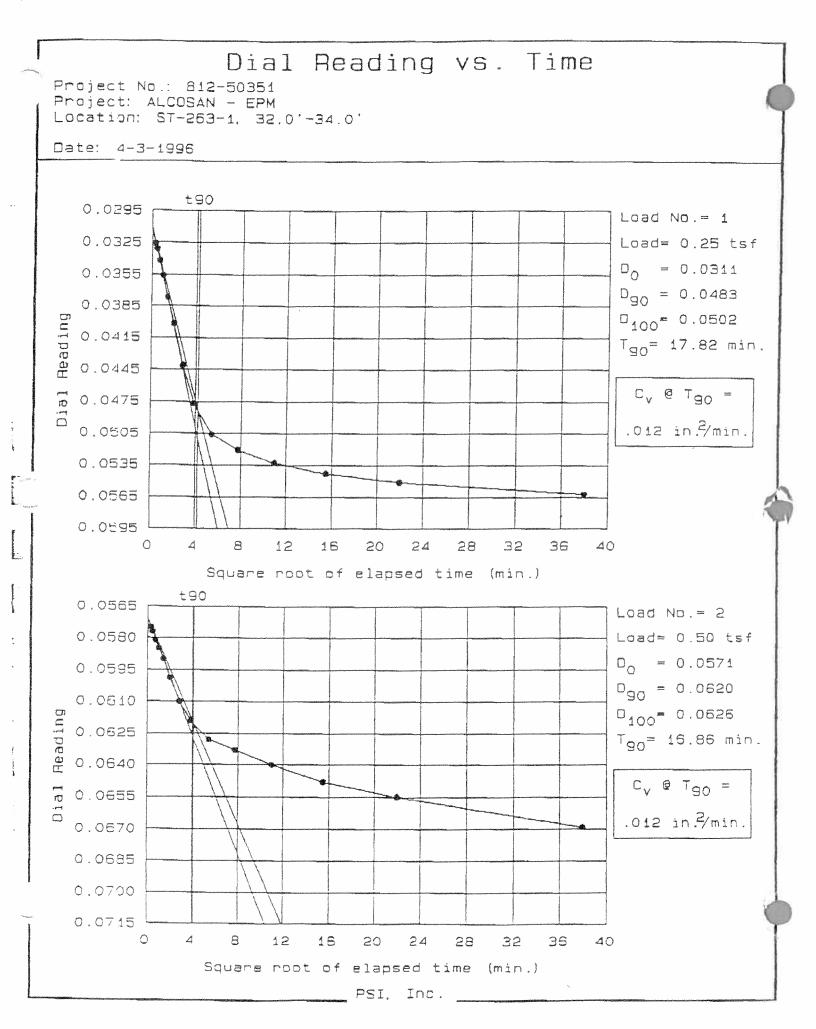


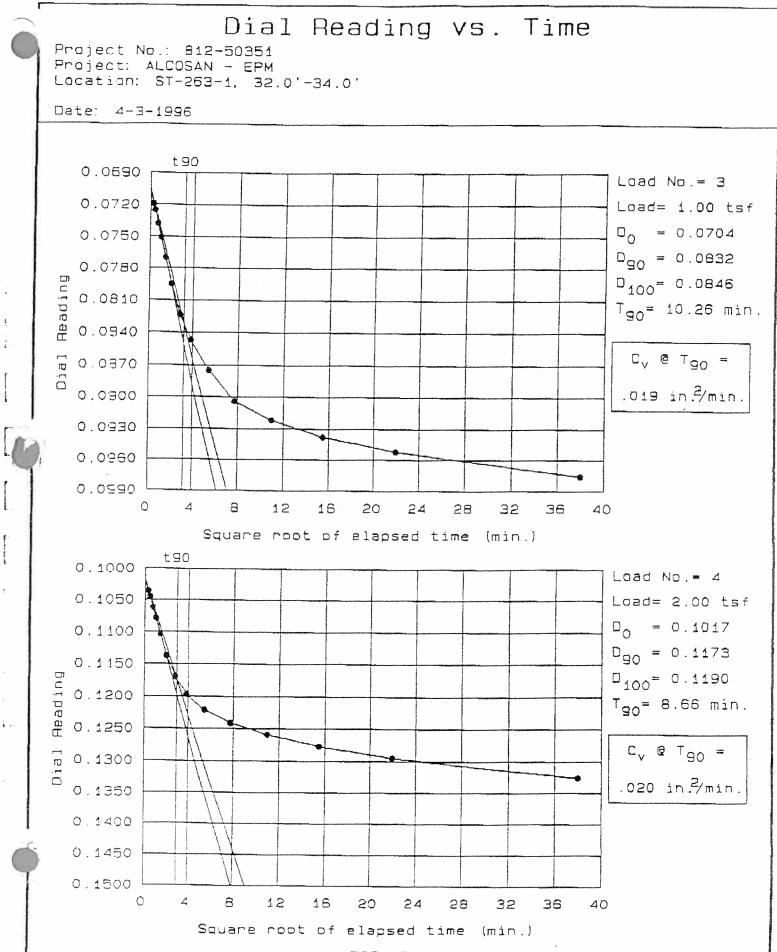


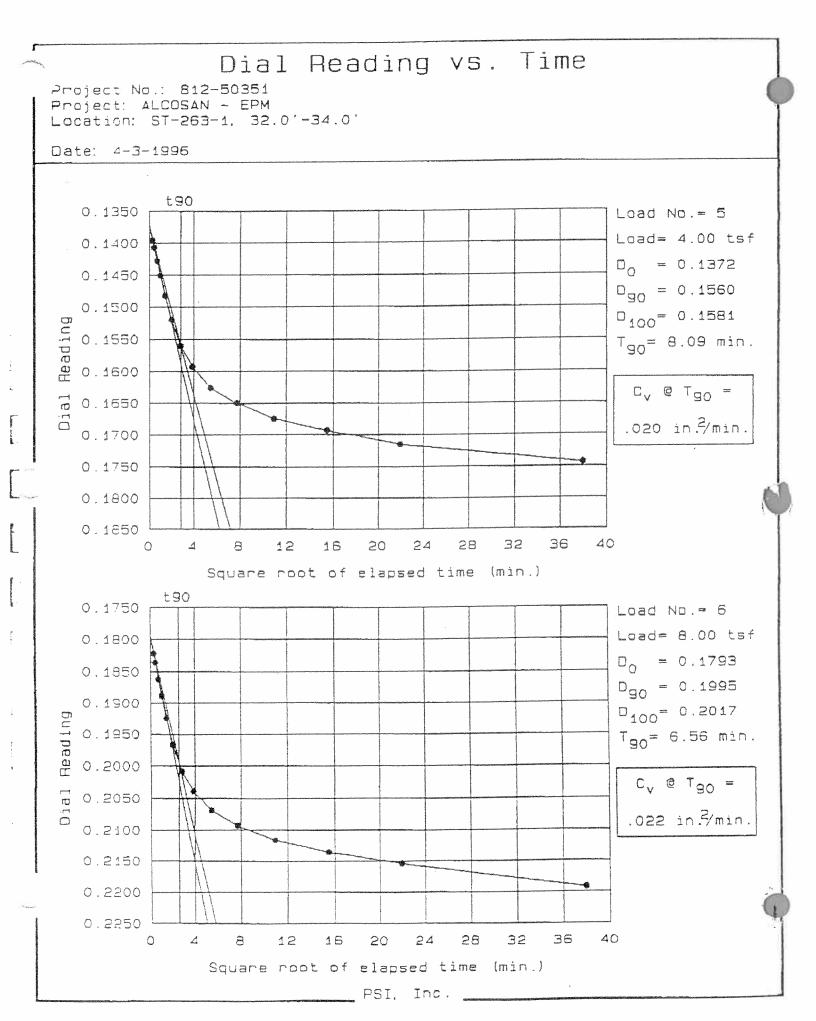


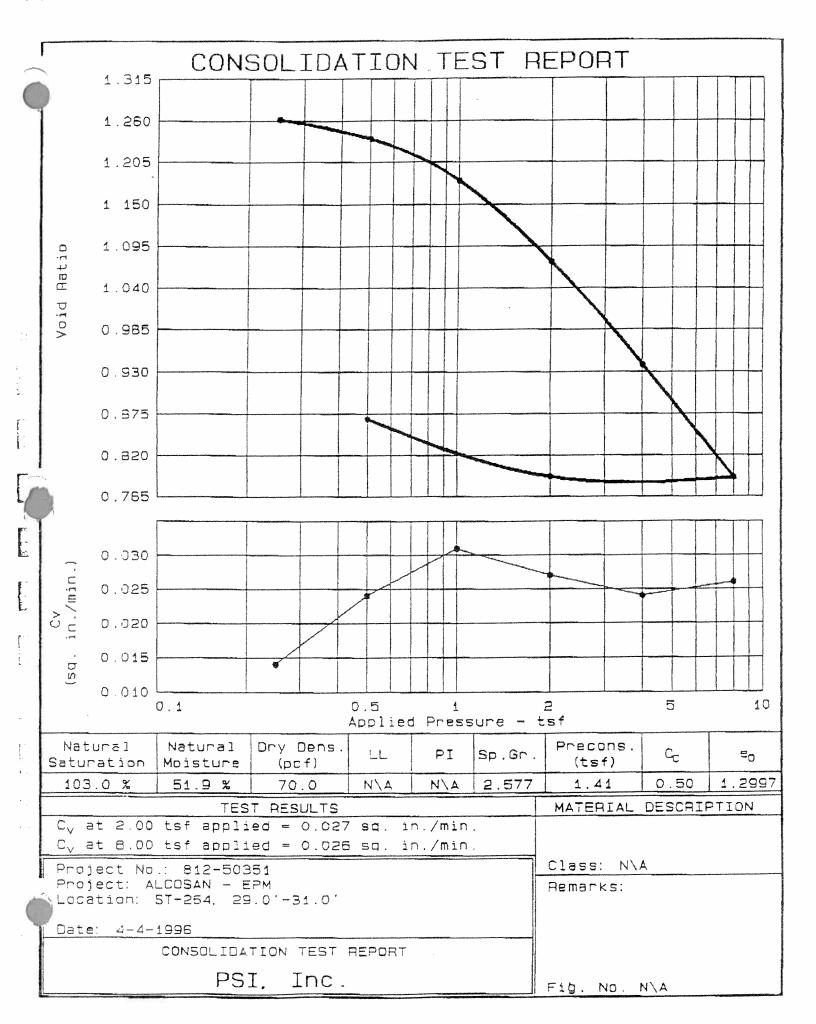


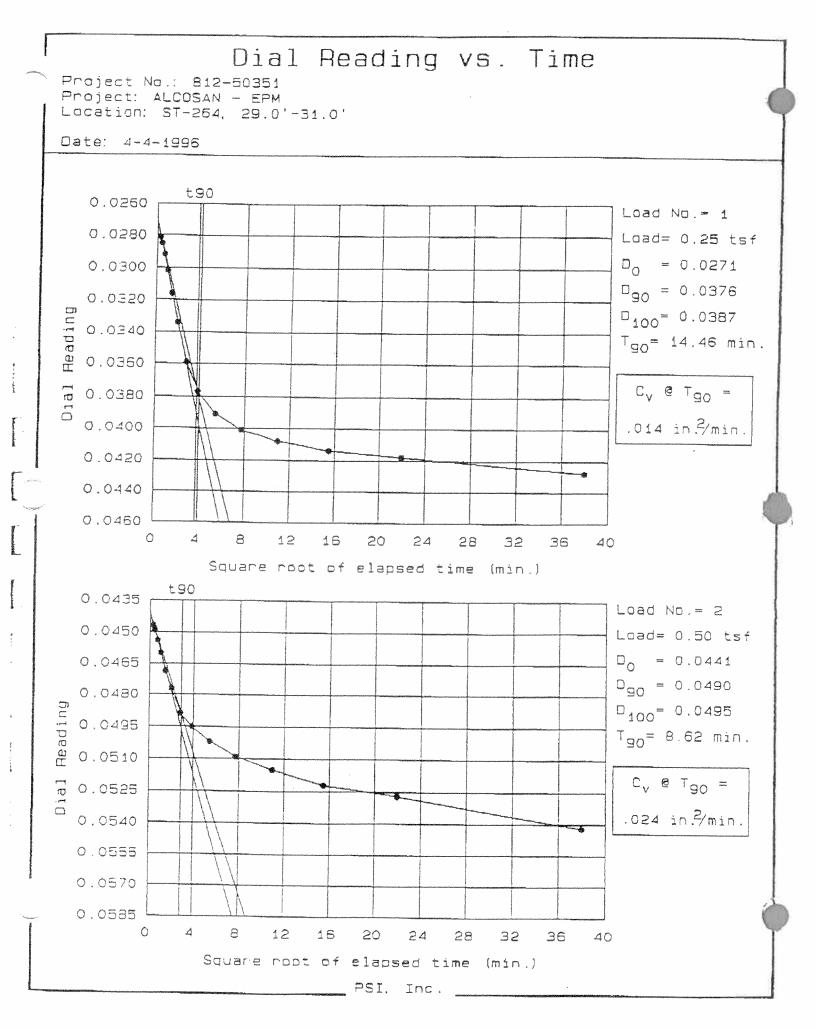


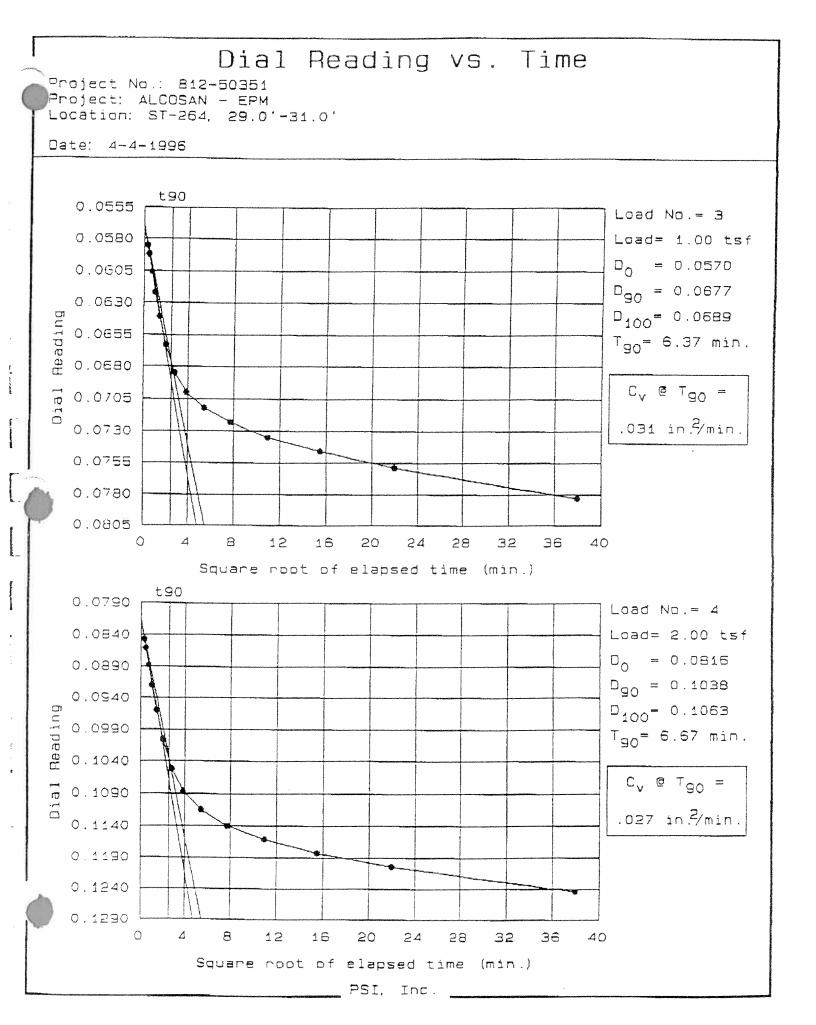


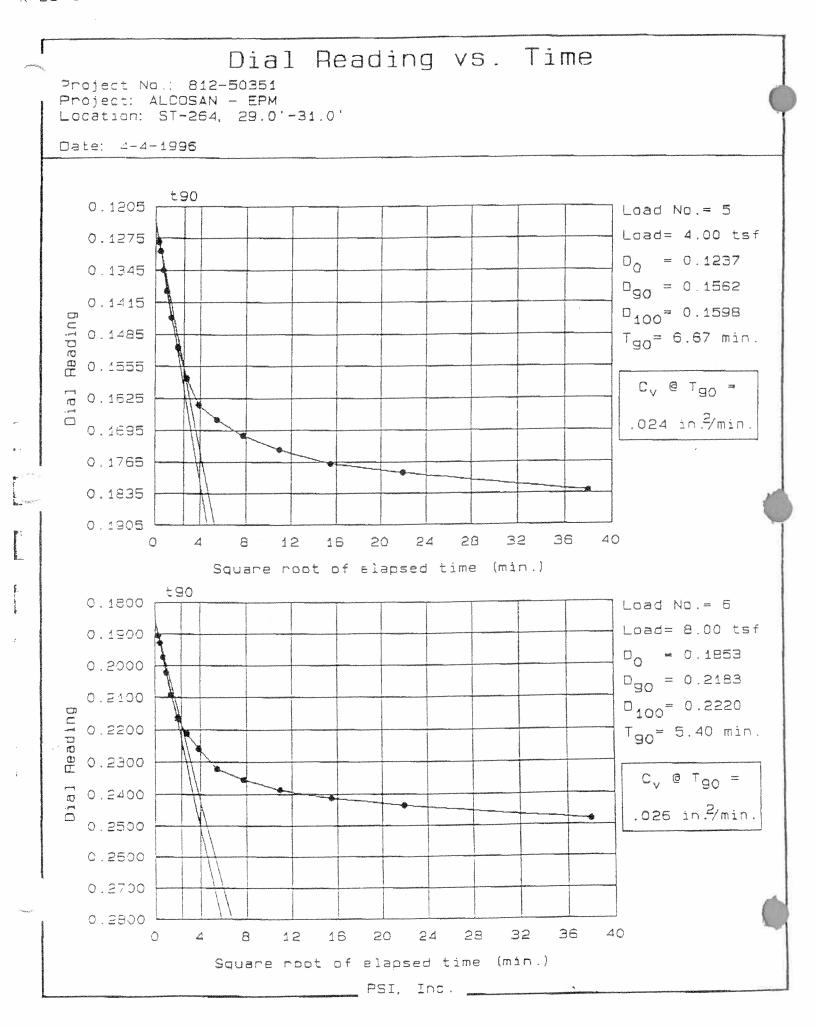




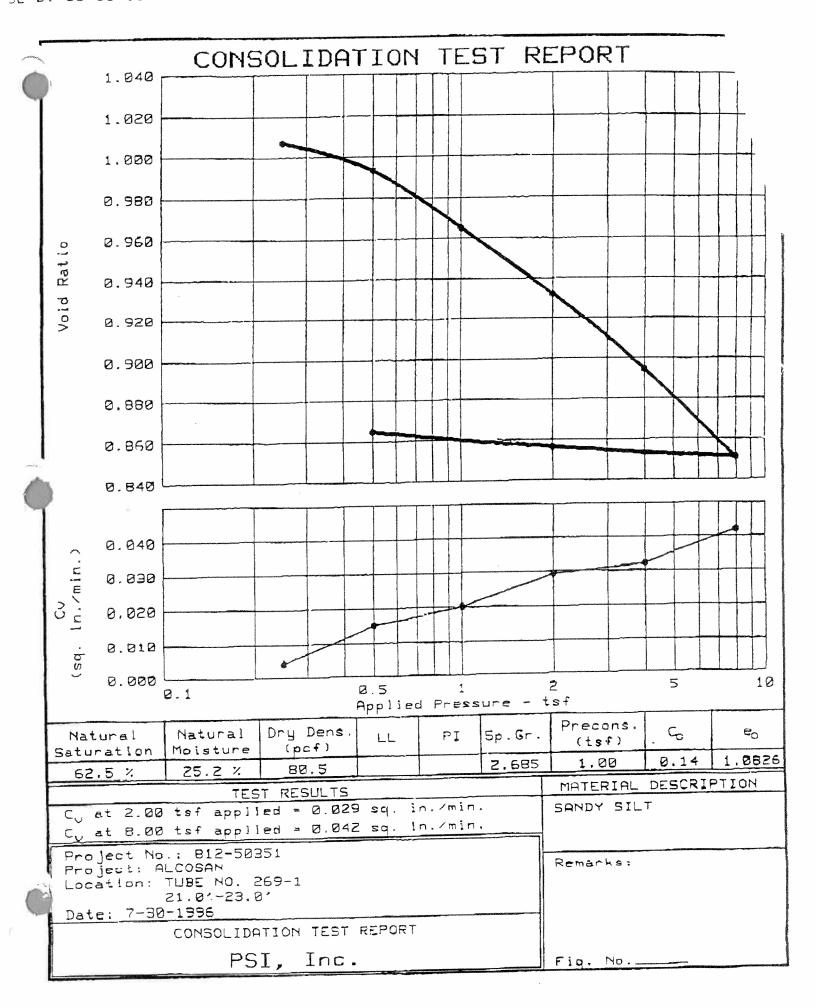


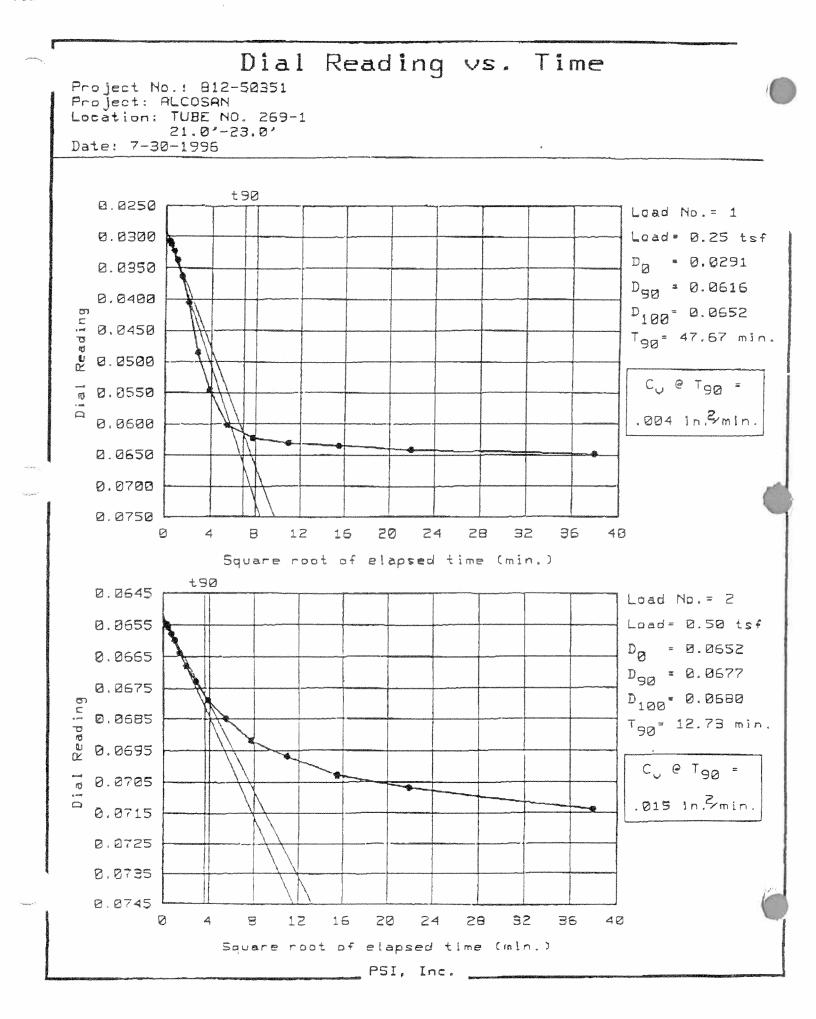


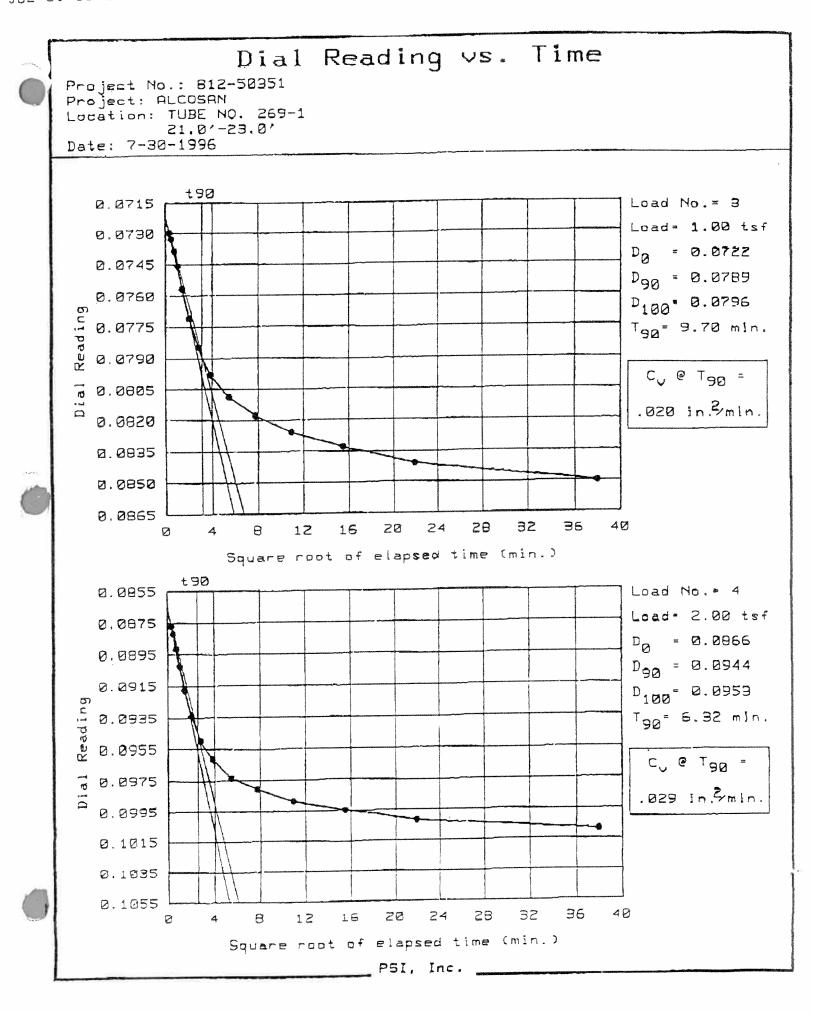


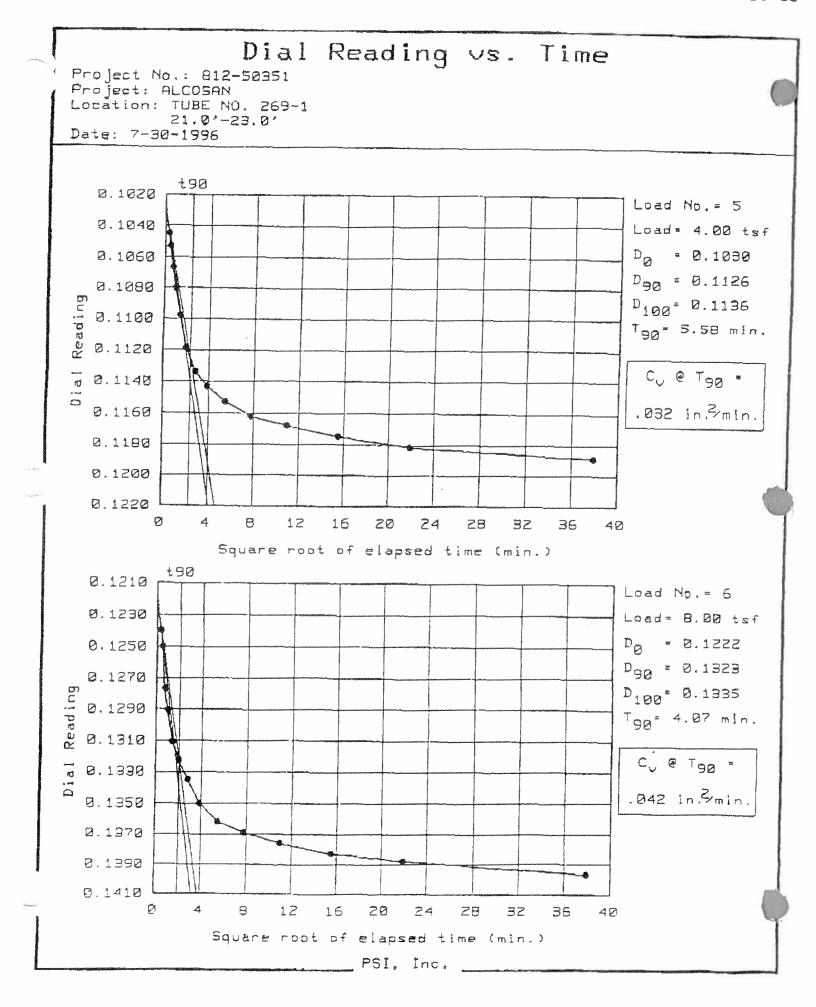


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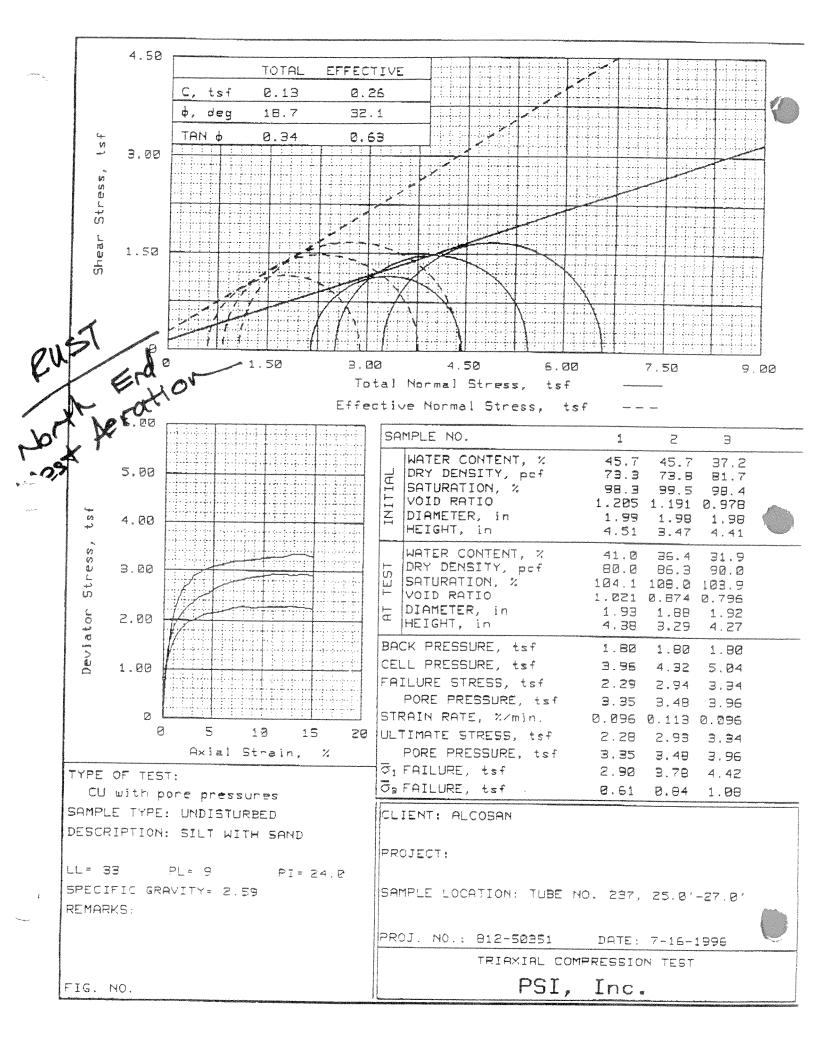


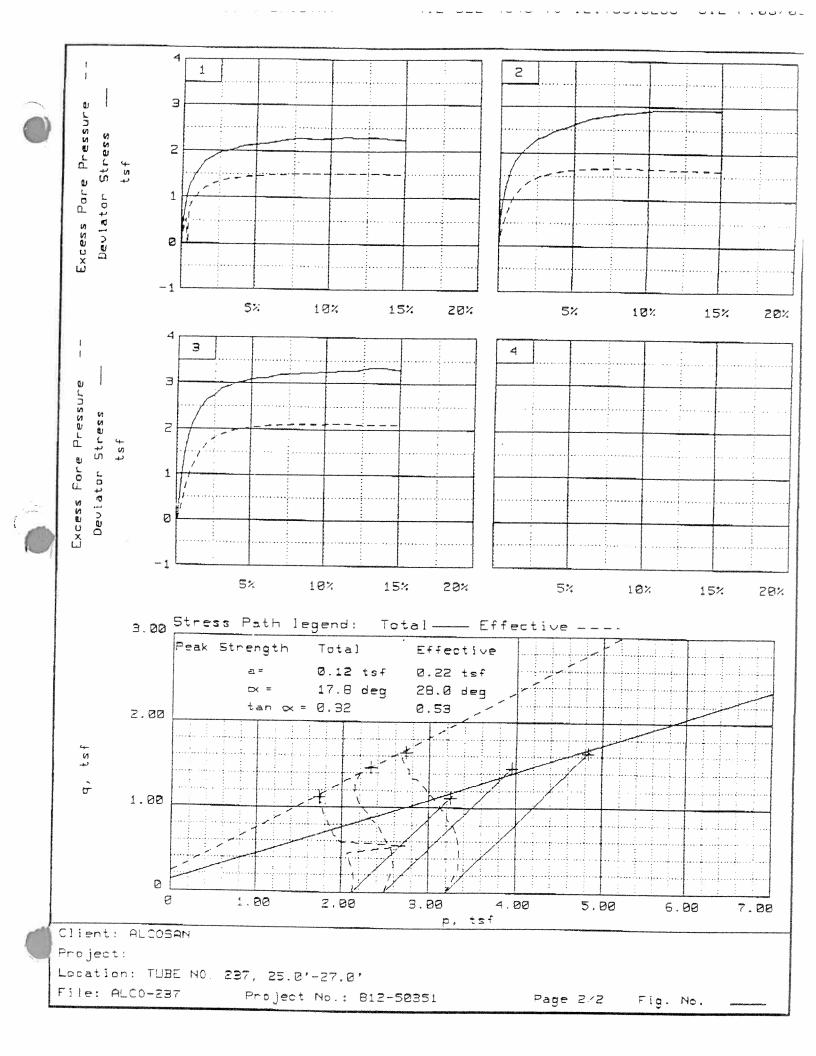


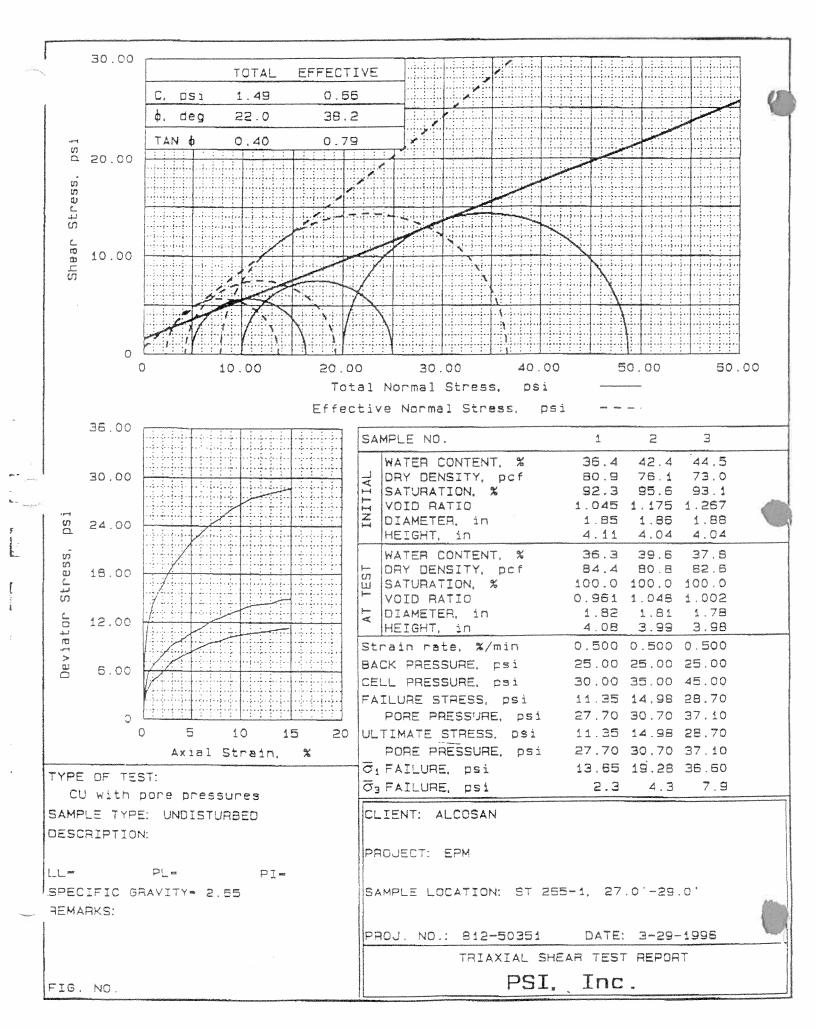


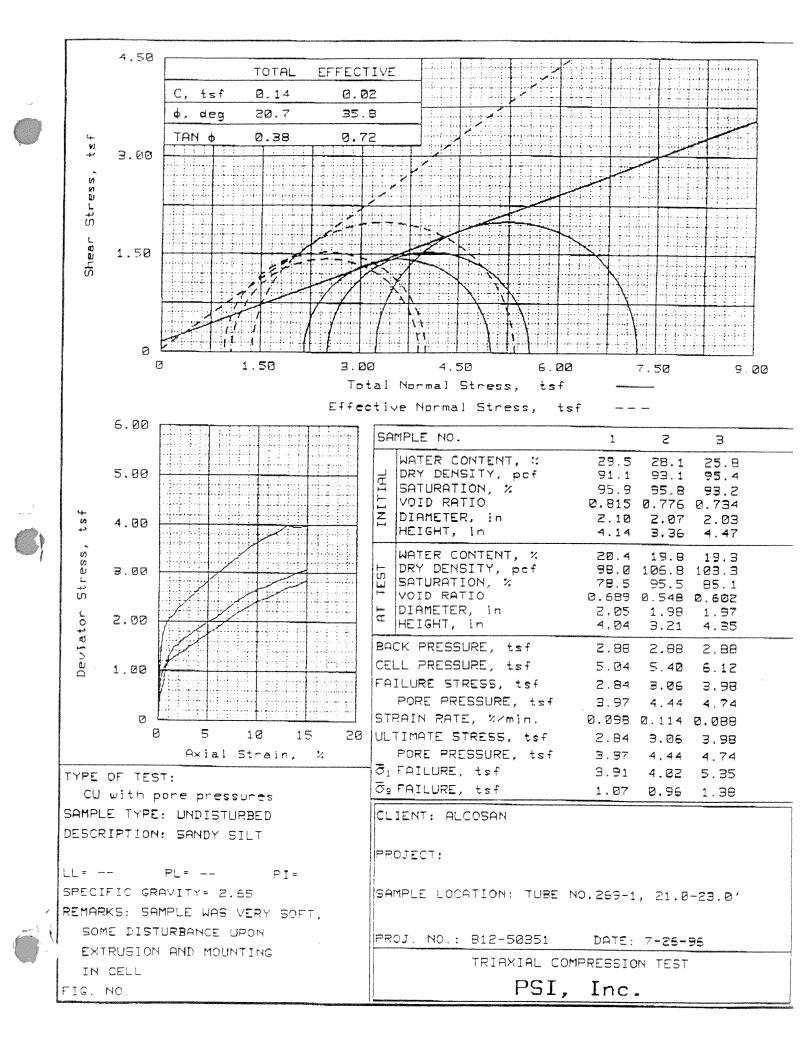
TRIAXIAL SHEAR TEST REPORTS

Professional Service Industries, Inc. Pittsburgh, PA









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