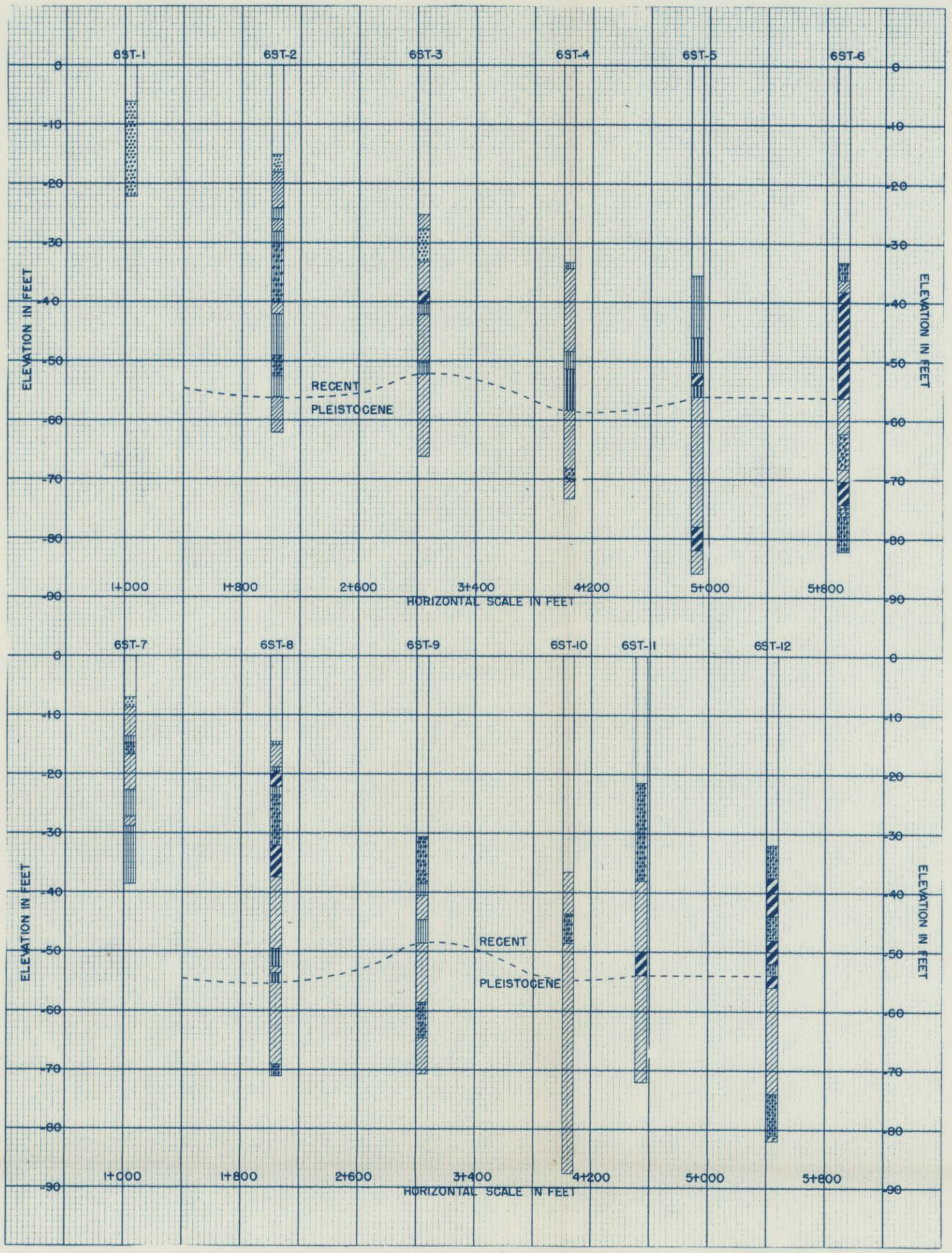



LEGEND

- WATER
- POORLY-GRADED SANDS
- SILTY SANDS
- CLAYEY SANDS
- INORGANIC SILTS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
- INORGANIC SILTS OR ELASTIC SILTS
- LEAN CLAYS, SILTY CLAYS, & SANDY CLAYS
- FAT CLAYS OF HIGH PLASTICITY

RECENT

RECENT-PLEISTOCENE CONTACT, FAIR CORRELATIONS

PLEISTOCENE

OFFICE OF THE DISTRICT ENGINEER
U.S. ARMY ENGINEER DISTRICT, GALVESTON
CORPS OF ENGINEERS
GALVESTON, TEXAS

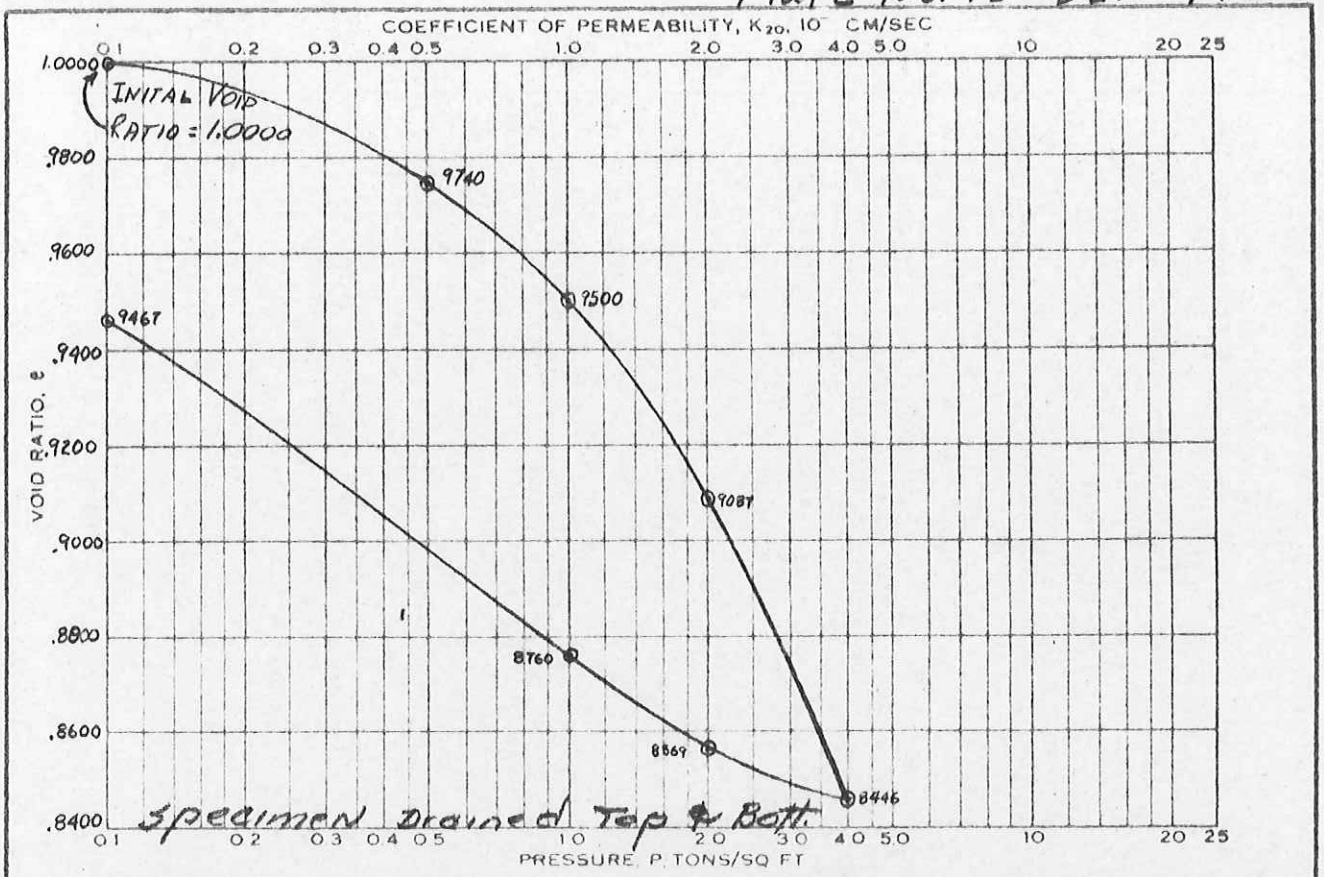
| | |
|---|---|
| DRAWN BY: M.D.S. | PORT ISABEL, TEXAS |
| GEOLOGY BY: M.D.S. | BRAZOS ISLAND HARBOR JETTIES |
| CHECKED BY: R.E.M. | GEOLOGIC CROSS SECTIONS |
| SUBMITTED BY: Ralph E. Mercer CHIEF, GEOLOGY SUB-SECTION | |
| CHIEF, FDN. & MTLS. BRANCH | CHIEF ENGINEERING DIVISION |
| | DATE 3 JAN. 1963 |
| | SCALE: AS SHOWN |
| | SPEC. DATE |
| | DRAWING NUMBER |
| | PLATE NO. 2 |
| | FILE NO. |

BRAZOS ISLAND HARBOR, TEXAS
SUMMARY OF UNCONFINED COMPRESSION DATA

TABLE NO. 1

| DISTRICT SERIAL NO | HOLE NO | DEPTH FT. | MECHANICAL ANALYSIS Gr | Sa | Fines | LL | bar LS | NATURAL WATER CONTENT, % | U.D.W. p.c.f. | % STRAIN @ MAX. STRESS | MAX. STRESS LBS./sq. ft. | POCKET PENET. | CLASSIFICATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62-6222 | 6ST-4 | 40.0-42.0 | 0 | 1 | 99 | 39.6 | 15.0 | 43.6 | 76.3 | 11.96 | 1496 748 | .25 | G,Cl(CL), So |
| 62-6229 | 6ST-4 | 56.0-58.0 | 0 | 1 | 99 | 56.3 | 13.0 | 33.6 | 85.8 | 10.50 | 2349 1175 | .50 | G,Si(MH), med |
| 62-6235 | 6ST-4 | 68.0-70.0 | 0 | 21 | 79 | 40.9 | 12.0 | 22.8 | 102.5 | 4.20 | 3474 1737 | 3.25 | G,SaCl(CL), v/st |
| 62-6246 | 6ST-5 | 54.0-56.0 | 0 | 1 | 99 | 52.8 | 14.0 | 45.9 | 75.0 | 14.75 | 2236 1118 | 1.5 | G,Cl(CH), St |
| 62-6253 | 6ST-5 | 68.0-70.0 | 0 | 12 | 88 | 47.5 | 14.0 | 27.7 | 96.9 | 3.50 | 2276 1138 | 2.0 | G,Cl(CL), v/st. |
| 62-6258 | 6ST-5 | 78.0-80.0 | 0 | 5 | 95 | 29.5 | 7.5 | 22.6 | 100.6 | 3.50 | 5520 2760 | 3.50 | Ru,Cl(CL), v/st |
| 62-6264 | 6ST-6 | 40.0-42.0 | 0 | 0 | 100 | 51.0 | 19.0 | 51.2 | 72.7 | 10.50 | 1243 622 | 0.0 | G,Cl(CH), v/so |
| 62-6272 | 6ST-6 | 58.0-60.0 | 0 | 23 | 77 | 36.8 | 12.0 | 21.3 | 105.0 | 2.80 | 6103 3052 | 3.50 | G,SaCl(CL), v/st |
| 62-6253 | 6ST-9 | 44.0-46.0 | 0 | 0 | 100 | 33.0 | 7.0 | 33.3 | 91.3 | 14.75 | 930 465 | 0.0 | G,Cl(CL), v/so |
| 62-6239 | 6ST-9 | 56.0-58.0 | 0 | 42 | 58 | 25.3 | 5.0 | 22.5 | 104.3 | 8.40 | * 1432 716 | .25 | Lt G,SaCl(CH), So |
| 62-6353 | 6ST-10 | 54.0-56.0 | 0 | 25 | 75 | 38.4 | 9.0 | 32.3 | 84.9 | 11.20 | * 2173 1087 | .75 | G,SaCl(CL), med |
| 62-6363 | 6ST-10 | 74.0-76.0 | 0 | 10 | 90 | 36.2 | 9.0 | 21.5 | 105.2 | 2.10 | 1343 672 | 3.0 | G,Cl(CL), v/st |
| 62-6380 | 6ST-11 | 52.0-54.0 | 0 | 4 | 96 | 53.0 | 15.0 | 49.8 | 73.7 | 9.1 | 2707 1354 | .75 | D,Cl(CH), med |
| 62-6385 | 6ST-11 | 62.0-64.0 | 0 | 24 | 76 | 41.3 | 12.0 | 20.1 | 108.0 | 4.2 | 3049 1525 | 3.0 | G,SaCl(CL), v/st |
| 62-6398 | 6ST-12 | 50.0-52.0 | 0 | 0 | 100 | 66.2 | 18.0 | 37.9 | 83.4 | 2.8 | 1206 603 | 1.25 | G,Cl(CH), st. |
| 62-6404 | 6ST-12 | 62.0-64.0 | 0 | 36 | 64 | 35.3 | 10.0 | 22.3 | 103.9 | 5.6 | 4341 2171 | 1.75 | G,SaCl(CL), st. |

Plate No. 13 DLR 946




## TEST DATA

Type of Specimen: Undisturbed

Overburden Pressure, $P_0$ Tons/Sq Ft

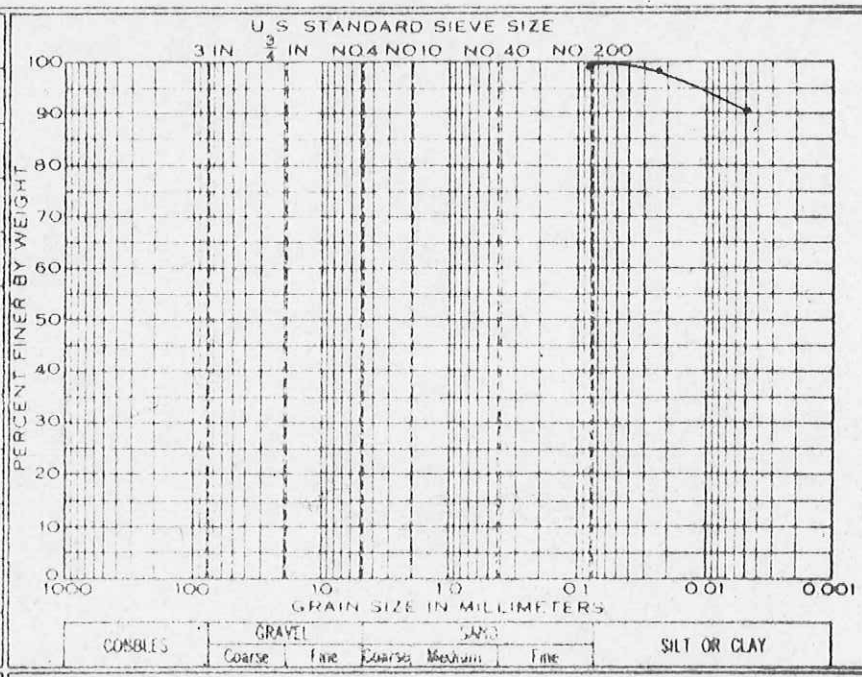
Preconsol Pressure, $P_c$ Tons/Sq Ft

Compression Index, $C_c$

Permeability at Initial e

$K_{20}$ _____ x $10^{-}$ Cm/Sec Ft/Min

| | | | |
|---|---|---|---|
| Initial Ht. | 1.158 in. | Diam. | 4.0 in |
| Initial Saturation, $S_0$ | % | | 100 |
| Final Saturation, $S_f$ | % | | 100 |
| Initial Dry Density | Lbs/Cu Ft | | 84.9 |
| Initial Water Content, $W_0$ | % | | 40.0 |




Remarks:

Project BRAZOS ISLAND HARBOR

Area

Boring No. 6ST-11 Sample No. 62-6377

Elev or Depth 46.0-48.0 Date DEC. 1962

Gray Clay (CH) Stiff

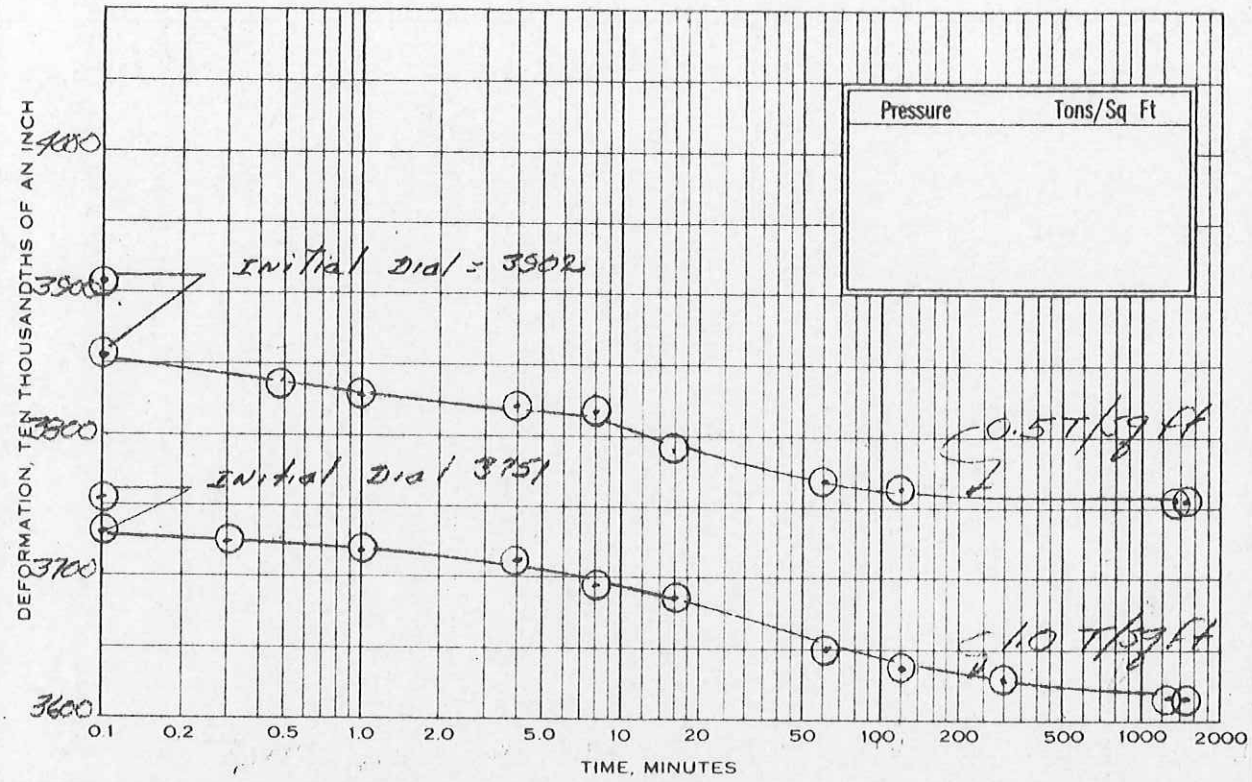
Classification

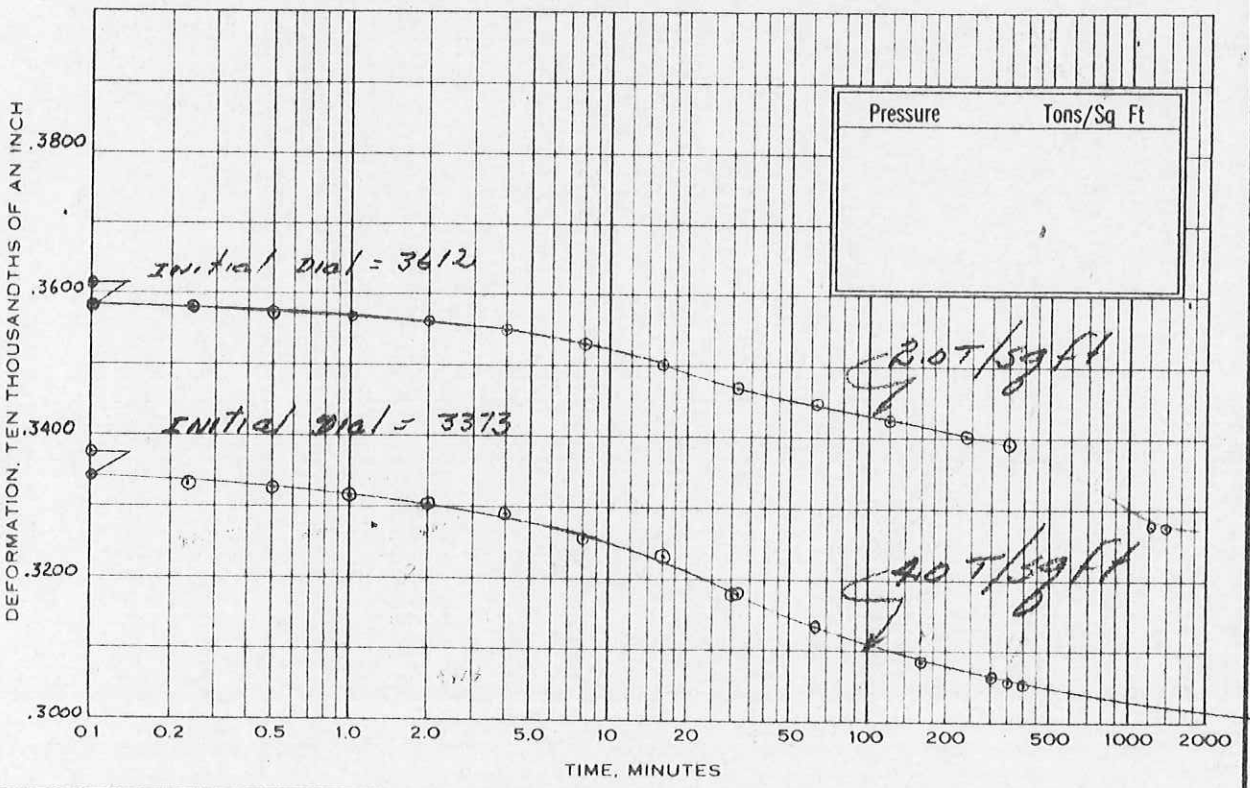
| | | | |
|---|---|---|---|
| LL | 68.4 | G | 2.72 |
| PL | 26.7 | $D_{10}$ | |

# CONSOLIDATION TEST REPORT

ENG FORM 1 DEC 53 2080

Plate No. 14 DLR 946




.3004
@ 4271 Min.

Project BRAZOS ISLAND HARBOR

Area

| Boring No. GST-11 | Sample No. 626377 | Elev or Depth 46.0-48.0 | Date DEC 1962 |
|---|---|---|---|

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 54 2088 (Translucent) (EM 1110-2-1803)

Brazos Island Harbor Jetty

# TEST DATA SUMMARY

Sheet ____ of ____

FEATURE Log of Soil Boring

| BORING NO. | SAMPLE NO. | DEPTH OR ELEV OF SAMPLE | LABORATORY CLASSIFICATION | MECHANICAL ANALYSIS GRAVEL % | SAND % | FINES % | $D_{10}$* | ATTERBERG LIMITS LL | PL* | SPECIFIC GRAVITY G | NATURAL WATER CONTENT % | NATURAL DRY DENSITY LBS CU FT | COMPACTION DATA OPTIMUM WATER % | MAXIMUM DRY DENSITY LBS CU FT | SHEAR DATA INITIAL e | DRY DENSITY LBS CU FT | $W_i$ % | $W_f$ % | $S_i$ % | TYPE TEST | SPECIMEN SIZE INCHES | TEST | $\sigma_m$ T/SQ FT | $\sigma_1$ T/SQ FT | C T/SQ FT | Ø DEGREES | PERMEABILITY e | K FT/MIN | CONSOLIDATION DATA $P_o$ T/SQ FT | $P_c$ T/SQ FT | $C_c$ | $t_{50}$* | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6ST-62-11 | S | 0.0 | | | | | | | | | | | Water | | | | | | | | | | | | | | | | | | | | |
| | | 23.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6370 | | SM | 3 | 70 | 27 | | | 0.0 | | 43.3 | | Black | | Silty Sand (SM) | | | | | | | | | | | | | | | | | | |
| | | 28.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6371 | | Same as 6373 | | SM | | | | | | 33.0 | | Gray | | Silty Sand (SM) Dense | | | | | | | | | | | | | | | | | | 12/28.0'-29.0' |
| | | 30.0 | | | | | | | | | | | Washed | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 32.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6372 | | Same as 6373 | | SM | | | | | | 31.6 | | Gray | | Silt Sand (SM) Dense | | | | | | | | | | | | | | | | | | 16/32.0-33.0 |
| | | 34.0 | | | | | | | | | (32) | | Washed | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 36.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6373 | | SM | 0 | 76 | 24 | | | 0.0 | | 31.8 | | Gray | | Silty Sand (SM) | | | | | | | | | | | | | | | | | | |
| | | 38.0 | | | | | | | | | | | Washed | | | | | | | | | | | | | | | | | | | | |
| | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 40.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6374 | | CL | 0 | 13 | 87 | 1.25 | 26.7 | 7.0 | | 30.1 | 84.1 | Gray | | Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 42.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6375 | | Same as 6374 | | CL | | 1.5 | | | | 25.6 | 99.8 | Gray | | Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 44.0 | | | | | | | | | (26) | | | | | | | | | | | | | | | | | | | | | | |
| | 6376 | | Same as 6374 | | CL | | 4.25 | | | | 24.4 | 97.5 | Gray | | Clay (CL) Hard | | | | | | | | 23 | | 90 | | | | | | | | |
| | | 46.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6377 | | CH | 0 | 0 | 100 | 1.25 | 63.4 | 21.0 | | 31.6 | 88.3 | Gray | | Clay (CH) Stiff | | | | | | | | | | | | | | | | | | |
| | | 48.0 | | | | | | | | | (32) | | | | | | | | | | | | | | | | | | | | | | |
| | 6378 | | Same as 6377 | | CH | | 0.0 | | | | 32.4 | 84.0 | Gray | | Clay (CH) v/Stiff | | | | | | | | | | | | | | | | | | |
| | | 50.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6379 | | CL | 0 | 0 | 100 | 1.0 | 41.9 | 16.0 | | 37.4 | 81.1 | Tan | | Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 52.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6380 | | CH | 0 | 4 | 96 | 0.75 | 53.0 | 15.0 | | 49.8 | 73.7 | Dark Gray | | Clay (CH) Medium | | | | | | | | 38 | | | | | | | | | | |
| | | 54.0 | | | | | | | | | (43) | | | | soft to Medium | | | | | | | | | | | | | | | | | | |
| | 6381 | | Same as 6380 | | CH | | 0.25 | | | | 36.8 | 78.4 | Gray | | Clay (CH) Soft | | | | | | | | | | | | | | | | | | |
| | | 56.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6382 | | CL-ML | 0 | 15 | 85 | 0.75 | 27.5 | 4.0 | | 27.1 | 95.3 | Gray | | Sandy Silty Clay (CL-ML) Medium | | | | | | | | | | | | | | | | | | |
| | | 58.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6383 | | CL | 0 | 27 | 73 | 1.25 | 33.2 | 11.0 | | 22.1 | 103.9 | Gray | | Sandy Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 60.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6384 | | Same as 6383 | | CL | | 3.0 | | | | 20.1 | 107.9 | Gray | | Sandy Clay (CL) v/Stiff | | | | | | | | | | | | | | | | | | |
| | | 62.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6385 | | Same a #6383 | | CL | | 3.0 | | | | 20.1 | 108 | Gray | | Sandy Clay (CL) v/Stiff | | | | | | | | | | | | | | | | | | |
| | | 64.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6386 | | CL | 0 | 32 | 68 | 1.0 | 31.1 | 10.0 | | 25.3 | 99.5 | Gray | | Sandy Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 66.0 | | | | | | | | | (25) | | | | | | | | | | | | | | | | | | | | | | |
| | 6387 | | Same as 6386 | | CL | | 0.5 | | | | 27.0 | 99.7 | Gray | | Sandy Clay (CL) Medium | | | | | | | | 25 | | 100 | | | | | | | | |
| | | 68.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6388 | | CL | 0 | 46 | 54 | 2.0 | 26.2 | 8.0 | | 27.6 | 91.5 | Gray | | Sandy Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 70.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6389 | | Same as 6388 | | CL | | 2.0 | | | | 27.3 | 98.4 | Gray | | Sandy Clay (CL) Stiff | | | | | | | | | | | | | | | | | | |
| | | 72.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* Values at Pressure T/SQ FT

TX - Triaxial Compression
UC - Unconfined Compression
DS - Direct Shear
UU - Unconsolidated Undrained
D - Consolidated Drained
CU - Consolidated Undrained

Brazos Island Harbor Jetty

# TEST DATA SUMMARY

Sheet ____ of ____

FEATURE Log of Soil Boring

| BORING NO. | SAMPLE NO. | DEPTH OR ELEV OF SAMPLE | LABORATORY CLASSIFICATION | MECHANICAL ANALYSIS GRAVEL % | SAND % | FINES % | $D_{50}$ * | ATTERBERG LIMITS LL | PL * | SPECIFIC GRAVITY G | NATURAL WATER CONTENT % | NATURAL DRY DENSITY LBS CU FT | COMPACTION DATA OPTIMUM WATER % | MAXIMUM DRY DENSITY LBS CU FT | SHEAR DATA INITIAL e | DRY DENSITY LBS CU FT | $W_i$ % | $W_F$ % | $S_i$ % | TYPE TEST | SPECIMEN SIZE INCHES | TEST | $\sigma_{III}$ T/SQ FT | $\sigma_I$ T/SQ FT | C T/SQ FT | Ø DEGREES | PERMEABILITY e | K FT/MIN | CONSOLIDATION DATA $P_o$ T/SQ FT | $P_c$ T/SQ FT | $C_c$ | $t_{50}$ * | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GST 11 | -62 6390 | 72.0 74.0 | Same as | 6388 | 0 | | 1.0 | | | 125 | 30.5 | 95.9 | Gray Sandy Clay (CL) Stiff | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Bottomed in Above. | | | | | | | | | | | | | | | | | | | | |

* Values at Pressure T/SQ FT

TX - Triaxial Compression
UC - Unconfined Compression

DS - Direct Shear
UU - Unconsolidated Undrained

D - Consolidated Drained
CU - Consolidated Undrained

ENG FORM 2086