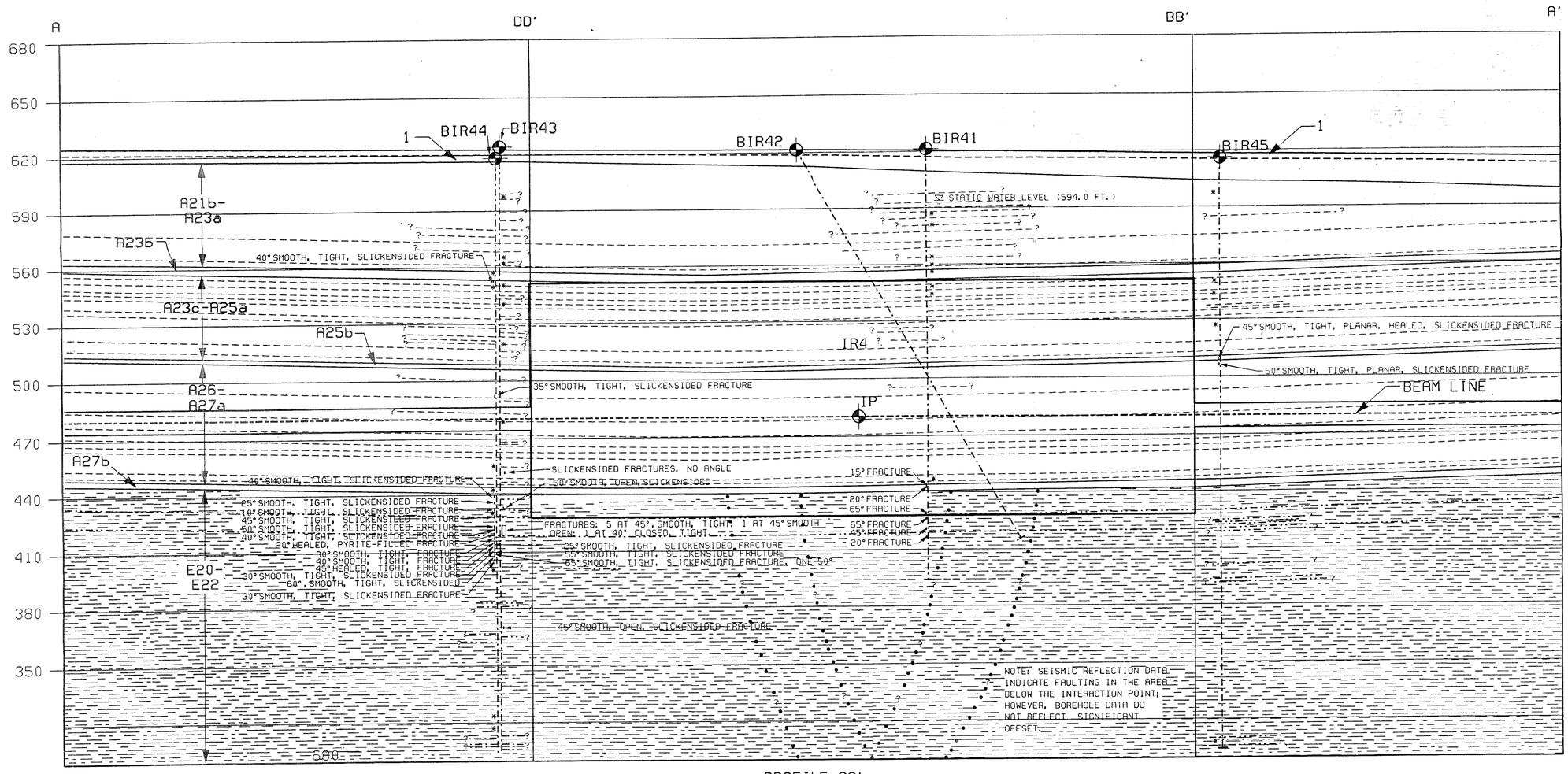
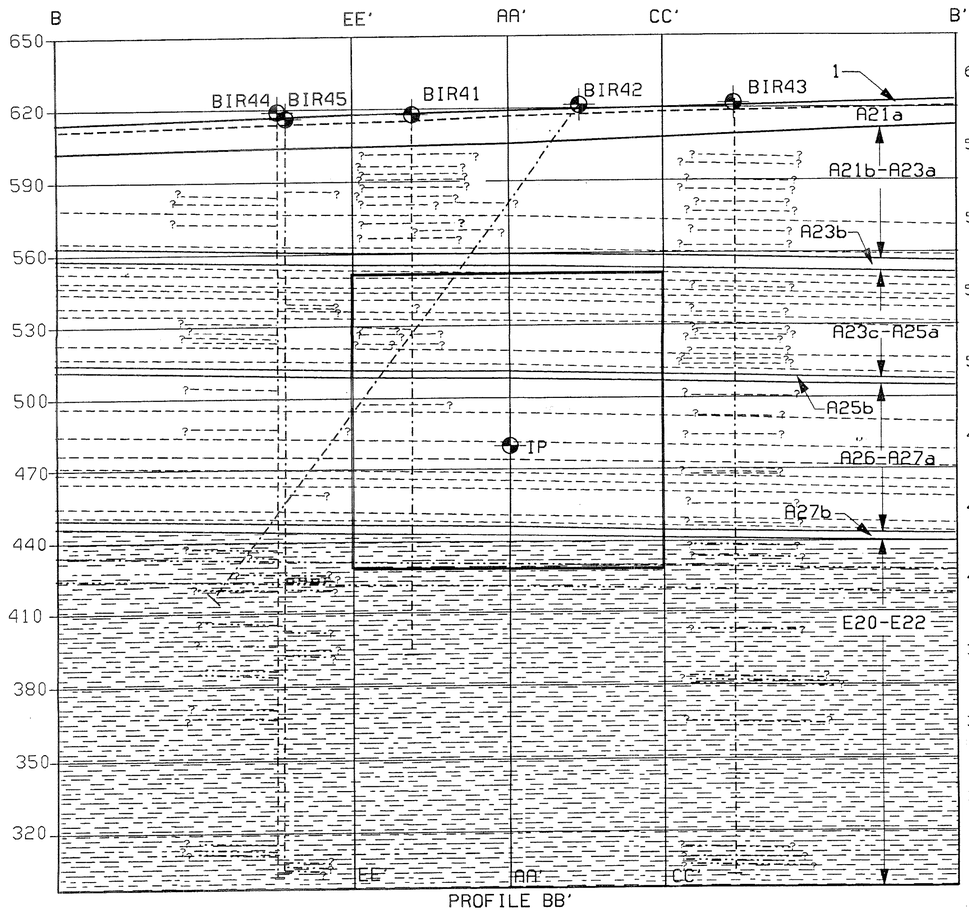



PROFILE AA'

PROFILE LOCATION

GRAPHIC SCALE

100 0 100 200 300 400

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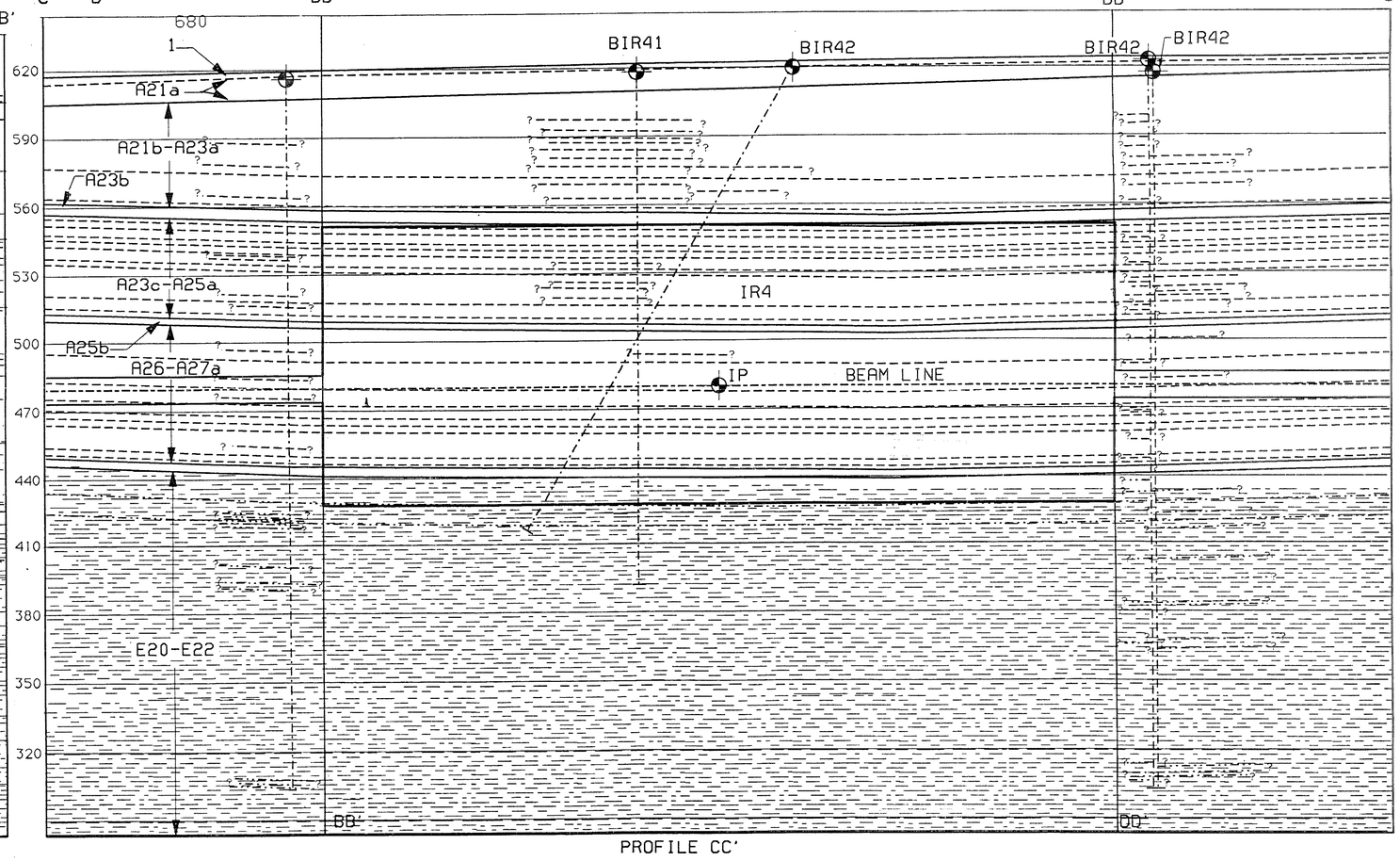
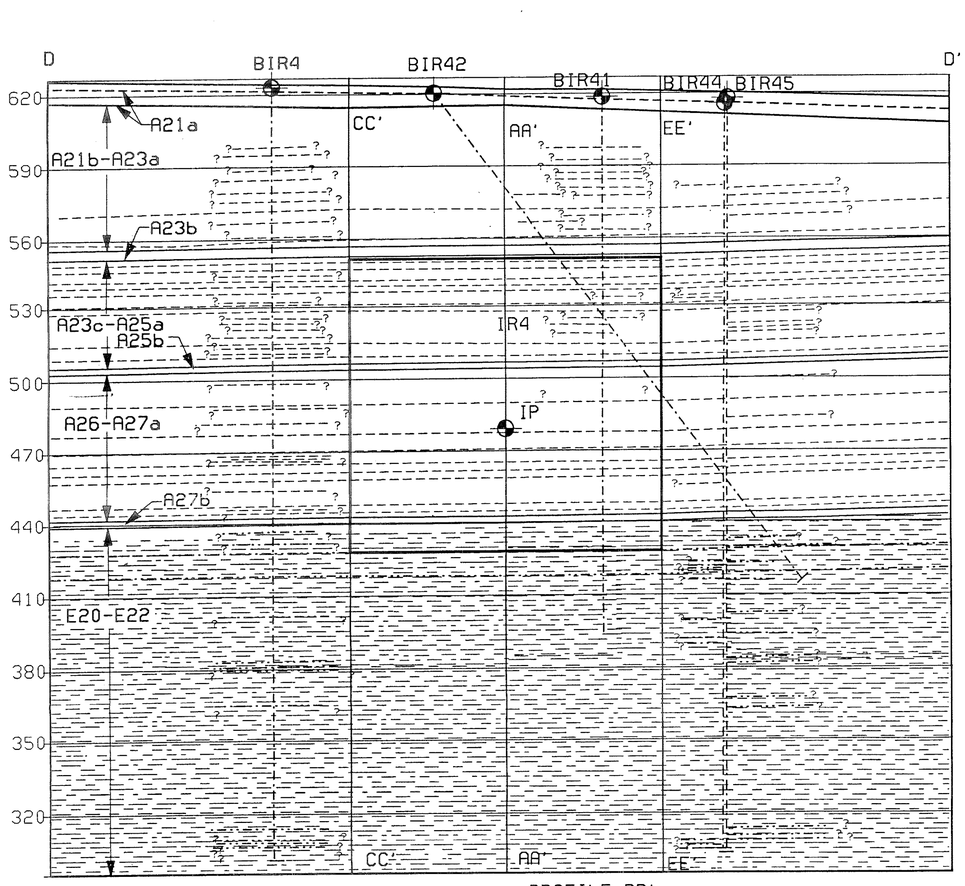
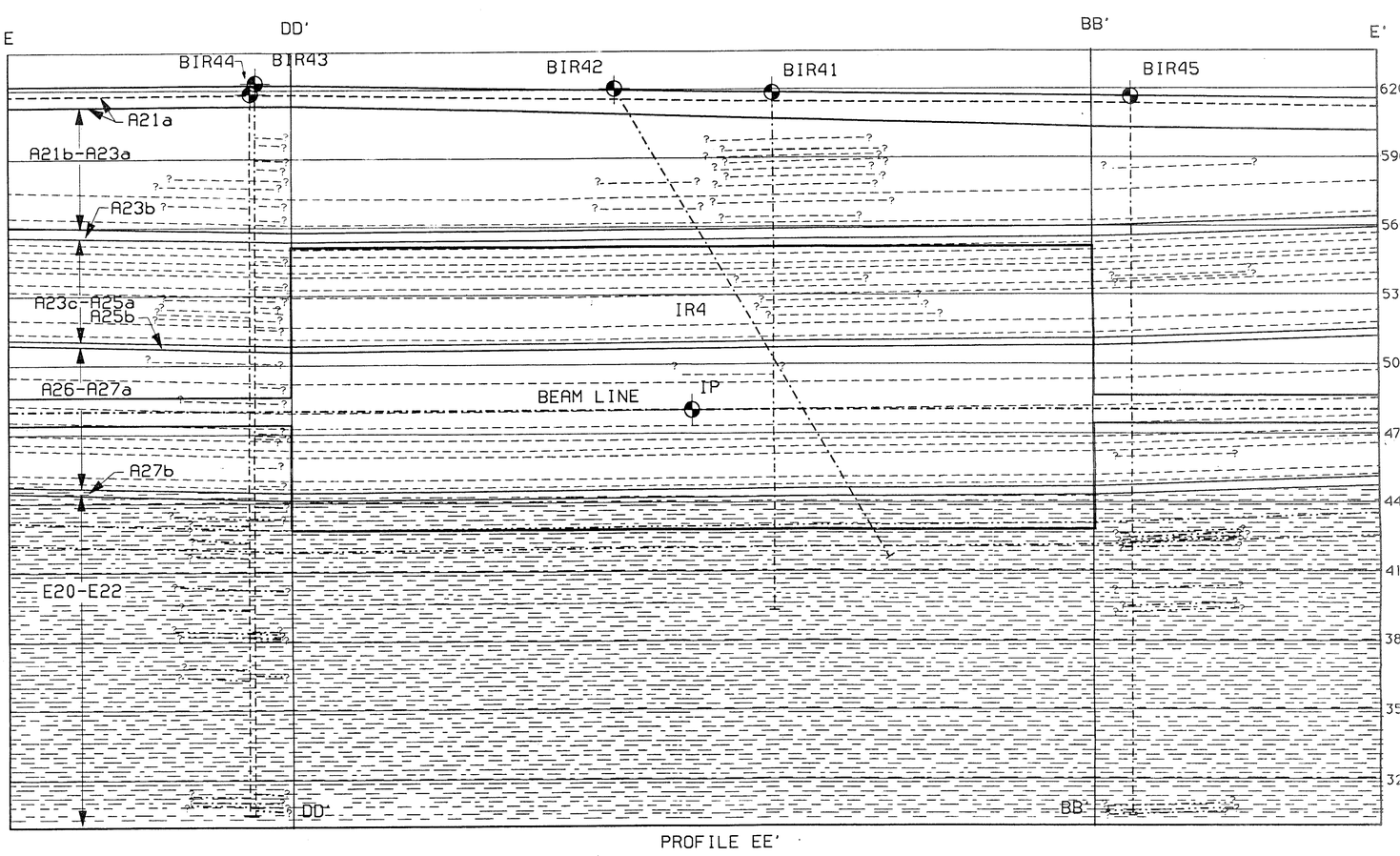



PROFILE CC'




PROFILE DD'




PROFILE EE'

| SYMBOL | LITHOLOGY |
|---|---|
| 1 | SOIL, MOTTLED BROWN TO GRAY TO DARK BROWN, SILTY CLAY, MEDIUM TO HIGH PLASTICITY, 1.5 TO 4.0 FEET THICK. |
| A21a | WEATHERED LIMESTONE (AUSTIN CHALK), MODERATELY TO SEVERELY WEATHERED, WHITE TO TAN, SOFT TO MEDIUM HARD, MODERATELY FRACTURED, LIMESTONE INTERBEDDED WITH DARK BROWN TO GRAY ARGILLACEOUS BEDS. 0.1 TO 1.3 FEET THICK. WEATHERED ZONE RANGES FROM 7.5 TO 12 FEET THICK. INCLUDES WIRE-LINE UNIT A21. |
| A21b-A23a | LIMESTONE (AUSTIN CHALK); MEDIUM HARD, SLIGHTLY FOSSILIFEROUS, LIGHT GRAY TO DARK GRAY, CHALK INTERBEDDED WITH MODERATELY TO VERY ARGILLACEOUS LIMESTONE BEDS 0.2 TO 1.7 FEET THICK WITH THE MAJORITY OF THE ARGILLACEOUS BEDS APPROXIMATELY 0.8 FOOT THICK. CHALK BEDS RANGE FROM 0.8 TO 5.2 FEET THICK WITH THE MAJORITY OF THE BEDS GREATER THAN 2.2 FEET THICK. THE ARGILLACEOUS BEDS AND OCCASIONAL BENTONITE BEDS ARE MORE COMMON TOWARD THE BASE. INCLUDES WIRELINE UNITS A21 TO A23. |
| A23b | SHALE (INTERBED OF AUSTIN CHALK), SOFT, SLIGHTLY FOSSILIFEROUS, DARK GRAY, 1.5 TO 5.7 FEET THICK. INCLUDES WIRELINE UNIT A23 (TOP). |
| A23c-A25a | LIMESTONE (AUSTIN CHALK), MEDIUM HARD, SLIGHTLY FOSSILIFEROUS, LIGHT GRAY TO DARK GRAY CHALK, INTERBEDDED WITH MODERATELY TO VERY ARGILLACEOUS LIMESTONE BEDS 0.2 TO 2.2 FEET THICK WITH THE MAJORITY OF THE ARGILLACEOUS BEDS AVERAGING 0.9 FOOT THICK. CHALK BEDS RANGE FROM 0.2 TO 4.9 FEET THICK WITH THE MAJORITY OF THE BEDS GREATER THAN 1.5 FEET THICK. IN GENERAL, THIS UNIT IS LESS ARGILLACEOUS THAN THE LIMESTONE UNITS ABOVE AND BELOW. INCLUDES WIRELINE UNITS A23 TO A25. |
| A25b | BENTONITE (MARKER BED IN AUSTIN CHALK); SOFT TO VERY SOFT, GRAY TO BLUISH-GRAY, WAXY, NON-LAMINATED, SLIGHTLY PYRITIC, 0.7 TO 1.0 FOOT THICK. INCLUDES WIRELINE UNIT A25(BOTTOM). |
| A26-A27a | LIMESTONE (AUSTIN CHALK), MEDIUM HARD, SLIGHTLY FOSSILIFEROUS, LIGHT GRAY TO DARK GRAY, CHALK WITH INTERBEDDED ARGILLACEOUS LIMESTONE BEDS 0.1 TO 2.6 FEET THICK WITH THE MAJORITY OF THE ARGILLACEOUS BEDS APPROXIMATELY 0.9 FOOT THICK. CHALK BEDS RANGE FROM 0.5 TO 4.9 FEET THICK WITH THE MAJORITY OF THE INTERBEDS 1.3 FEET THICK. ARGILLACEOUS BEDS ARE MORE COMMON TOWARD THE BASE. IN GENERAL, THIS UNIT IS MORE ARGILLACEOUS THAN UNIT 5. INCLUDES WIRELINE UNITS A26 AND A27. |
| A27b | TRANSITION ZONE (AUSTIN CHALK), VERY ARGILLACEOUS TO VERY ARENACEOUS LIMESTONE, MEDIUM HARD," HIGHLY FOSSILIFEROUS (FISH BONES, FISH TEETH, AND OTHER FOSSIL DEBRIS), MEDIUM TO DARK GRAY WITH OCCASIONAL PYRITE NODULES. THICKNESS RANGES FROM 0.5 TO 0.8 FOOT. INCLUDES WIRELINE UNIT A27. |
| E20-E22 | SHALE (EAGLE FORD), SOFT TO MEDIUM HARD, SLIGHTLY CALCAREOUS, SLIGHTLY FOSSILIFEROUS. DARK GRAY TO BLACK, OCCASIONAL PYRITE NODULES AND CALCAREOUS CONCRETIONS. OCCASIONAL THIN CLAYSTONE BEDS 0.1 TO 0.4 FOOT THICK 15 TO 40 FEET BELOW THE CHALK/EAGLE FORD SHALE CONTACT. SHALE BECOMES NON-CALCAREOUS BELOW ABOUT 430 FEET (ABOVE MEAN SEA LEVEL). INCLUDES WIRE-LINE UNITS E20-E22. |

GEOMECHANICAL CHARACTERISTICS

| IR4 | MOIST. CONT. % | DRY DEN. (PCF) | SPEC GRAV. | ATTERBERG LIMITS LL | ATTERBERG LIMITS PI | $CaCO_3$ CONTENT | UNIAXIAL COMP. STRNGTH. (PSI) | TANGENT MODULUS E 50 (PSI)×10E5 * | POISSON'S RATIO * | BRAZIL TENSILE STRENGTH (PSI) | SLAKE DURB. INDEX (%) | TABER ABRAS. HARD. INDEX | SWELL PRES. INDEX (PSI) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MINIMUM | 20.0 | | | 49 | 30 | | | | | | | | |
| AVERAGE | 25.1 | | | 59 | 37 | | | | | | | | |
| MAXIMUM | 34.6 | | | 73 | 45 | | | | | | | | |
| MINIMUM | 11.7 | 119.5 | | | | | 1135 | 3.30 | 0.18 | | | | |
| AVERAGE | 13.1 | 121.8 | | | | | 1633 | 6.60 | 0.19 | 204 | | | |
| MAXIMUM | 14.2 | 124.6 | | | | | 2268 | 12.00 | 0.19 | | | | |
| MINIMUM | 8.4 | 110.4 | | | | | 1703 | 1.22 | 0.26 | 175 | | | |
| AVERAGE | 13.4 | 121.5 | | | | | 2329 | 5.62 | 0.37 | 228 | 98.0** | 0.372 | |
| MAXIMUM | 18.7 | 131.1 | | | | | 2975 | 14.40 | 0.48 | 331 | | | |
| MINIMUM | 11.5 | 122.2 | | | | | 390 | 0.29 | | | | | |
| AVERAGE | 12.5 | 122.5 | | | | | 439 | 0.89 | | | | | |
| MAXIMUM | 13.8 | 122.6 | | | | | 487 | 2.08 | | | | | |
| MINIMUM | 11.4 | 110.8 | 2.65 | | | | 1286 | 0.17 | 0.23 | 166 | | | |
| AVERAGE | 14.0 | 122.6 | 2.67 | | | | 1861 | 4.44 | 0.48 | 228 | 95.3 | | |
| MAXIMUM | 18.7 | 143.5 | 2.69 | | | | 2619 | 9.78 | 0.73 | 289 | | | |
| | 20.8 | 76.6 | | 62 | 35 | | | | | | | | |
| | 36.0 | 87.5 | | 88 | 48 | | | | | | | | 5.3 |
| | 41.8 | 111.0 | | 106 | 62 | | | | | | | | |
| MINIMUM | 9.7 | 115.4 | 2.66 | | | | 1698 | 2.04 | 0.01 | 213 | | | |
| AVERAGE | 12.8 | 123.2 | 2.67 | | | | 2507 | 5.64 | 0.09 | 260 | 96.9 | 0.475 | |
| MAXIMUM | 16.7 | 131.2 | 2.69 | | | | 3300 | 11.22 | 0.16 | 286 | | | |
| | 8.6 | 126.6 | | | | | | | | | | | |
| | 10.2 | 133.6 | | | | | | | | 116 | | | |
| | 11.7 | 140.6 | | | | | | | | | | | |
| MINIMUM | 9.1 | 104.8 | 2.69 | 39 | 21 | 4.4 | 111 | 0.03 | 0.02 | | 15.4 | | 7.7 |
| AVERAGE | 15.2 | 119.2 | 2.73 | 80 | 50 | 9.3 | 304 | 0.86 | 0.16 | 336 | 25.7 | | 31.6 |
| MAXIMUM | 18.3 | 131.3 | 2.80 | 101 | 66 | 29.3 | 445 | 1.89 | 0.29 | | 35.6 | | 57.8 |

THESE DATA ARE AVERAGES FROM THE BORINGS BIR 41, BIR 42, BIR 43, BIR 44, AND BIR 45.

PRELIMINARY

* : DOES NOT INCLUDE INCLINED BOREHOLES

** : THIS INTERVAL WAS NOT SAMPLED FOR THIS TEST IN ANY IR4 BORINGS. HOWEVER, THIS INTERVAL WAS SAMPLED IN IR3 BORINGS 400 TO 800 FEET NORTH.

ASSUMED STATE PLANE CENTER COORDINATES (NAD 27):

Y(N)- 252,561.3010
X(E)- 2,213,072.3336

STRIKE: N 13.70° E (GRID NORTH)

TILT: 0.17°

OBLIQUITY: N 18°.77'W (GRID NORTH)

LEGEND

- ARGILLACEOUS BEDS 0.1 TO 0.4 FEET THICK
- LIMESTONE AND CALCAREOUS SHALE UNITS IDENTIFIED IN THE EAGLE FORD SHALE
- * FOSSILIFEROUS ZONES IDENTIFIED IN INDIVIDUAL BORINGS
- ' SHEARS AND FRACTURES NOTED IN BORING LOGS. THESE ARE PROJECTED THROUGH TO CROSS SECTION ON THE BORING.
- o?oooo?oooooo PROBABLE FAULT IDENTIFIED IN SEISMIC REFLECTION PROFILE; HOWEVER BORING DATA DID NOT IDENTIFY SIGNIFICANT OFFSET.

GRAPHIC SCALE (FEET)

30 0 30 60 90 120

| NO | DATE | REVISION | BY | APP | APP |
|---|---|---|---|---|---|
| 2 | 7/31/90 | GENERAL REVISION | DK | | |
| 1 | 5/4/90 | GENERAL REVISION | | | |

U.S. DEPARTMENT OF ENERGY
SUPERCONDUCTING SUPER COLLIDER

GEOLOGIC PROFILES
IR4-L*

Keller Engineers Inc.
Tudor Engineering Company
Keller & Gannaway Inc.

CONTRACT DE-AC02-88ER40230 PROJECT 85122

DRAWING GS-6 DATE 2/27/90 REV. 2 DATE 7/31/90 SHEET

GEOPROIR4.DGN 01-AUG-1990 12:17

SSCL-SR-1093 (2)