

APPENDIX E

DETAILED COMPUTER OUTPUT SUMMARY OF THE DYNAMIC CONE PENETROMETER (DCP) INVESTIGATIONS ON THE HVS TEST SECTIONS EVALUATED IN THIS STUDY

NOTE: These figures are self explanatory and the detail identification is given on the top of each figure

SUMMARY OF DCP INVESTIGATION

DATA FILE : DEEP PAVEMENT: ROAD 1932
 REGION : ROOIWAL (N=10)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION :

| | | | |
|---|---|---|---|
| L | X | M | R |
|---|---|---|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAIRED | OVERSTRESSED | SOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|-------|-------|-------|
| RUT. | DEFORM. | PUMP. | CRACKS : | CROCK | LONG. | OTHER |
|------|---------|-------|----------|-------|-------|-------|

 DATE : 860325

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|----------|-----------|
| STRUCTURE NUMBER | 397 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | 27 | 24 | 51-180 |
| DIFFERENCE IN BN100 | 3 | | 181-330 |
| BALANCE CURVE IS WHERE B = | 19 | A = 1398 | 331-480 |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | 481-800 |
| ROAD CATEGORY | C | | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.3 | 0.2 | 1.4 | 251 | 1940 |
| 1.7 | 0.3 | 1.9 | 198 | 1574 |
| 3.2 | 0.7 | 3.8 | 93 | 809 |
| 3.1 | 0.4 | 3.5 | 96 | 832 |
| 4.2 | 1.2 | 5.2 | 66 | 598 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

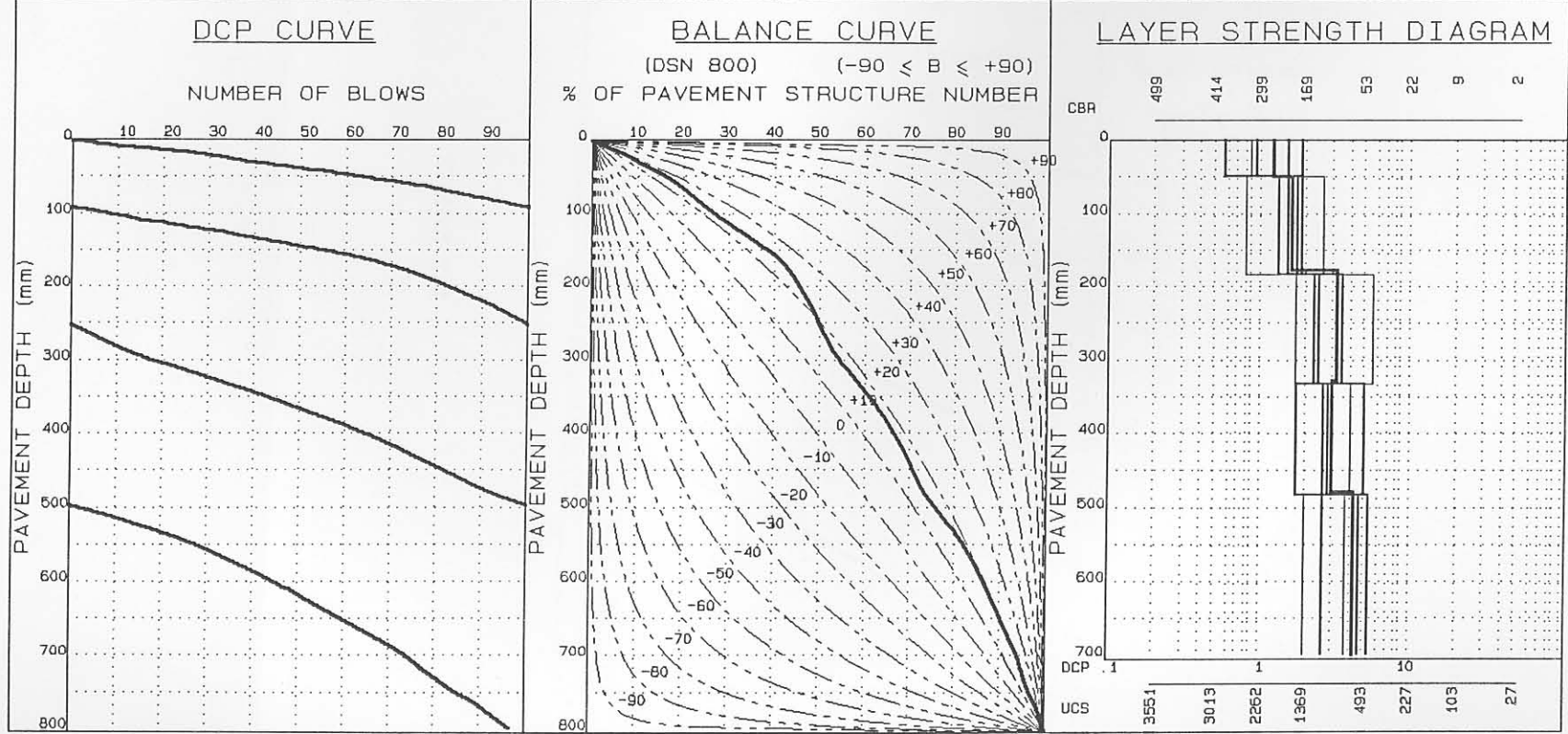


FIGURE E.1

SUMMARY OF DCP INVESTIGATION

DATA FILE :DEEP PAVEMENT: ROAD 1932
 REGION :ROOIWAL (N=10)
 ROAD NUMBER :P1932
 DISTANCE : 2.9
 POSITION :

| | | | |
|---|---|---|---|
| L | X | M | R |
|---|---|---|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAIRED | DVERSTRESSED | SOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|-------|-------|-------|
| RUT. | DEFORM. | PUMP. | CRACKS : | CROCK | LONG. | OTHER |
|------|---------|-------|----------|-------|-------|-------|

 DATE :860325

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|-----------------|---------|-----------|
| STRUCTURE NUMBER | : 397 | | 0- 50 |
| BALANCE NUMBER (BN 100) | : 27 24 | | 51-180 |
| DIFFERENCE IN BN100 | : 3 | | 181-330 |
| BALANCE CURVE IS WHERE B = | 19 A= 1398 | | 331-480 |
| STRUCT. CAP. (E80 X 10 ⁶) | : >10 | | 481-800 |
| ROAD CATEGORY | : C | | |
| TRAFFIC | : LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | E80 P | CBR | UCS |
|-----------------|-----|-------|-----|------|
| 1.3 | 0.2 | 1.4 | 251 | 1940 |
| 1.7 | 0.3 | 1.9 | 198 | 1574 |
| 3.2 | 0.7 | 3.8 | 93 | 809 |
| 3.1 | 0.4 | 3.5 | 96 | 832 |
| 4.2 | 1.2 | 5.2 | 66 | 598 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

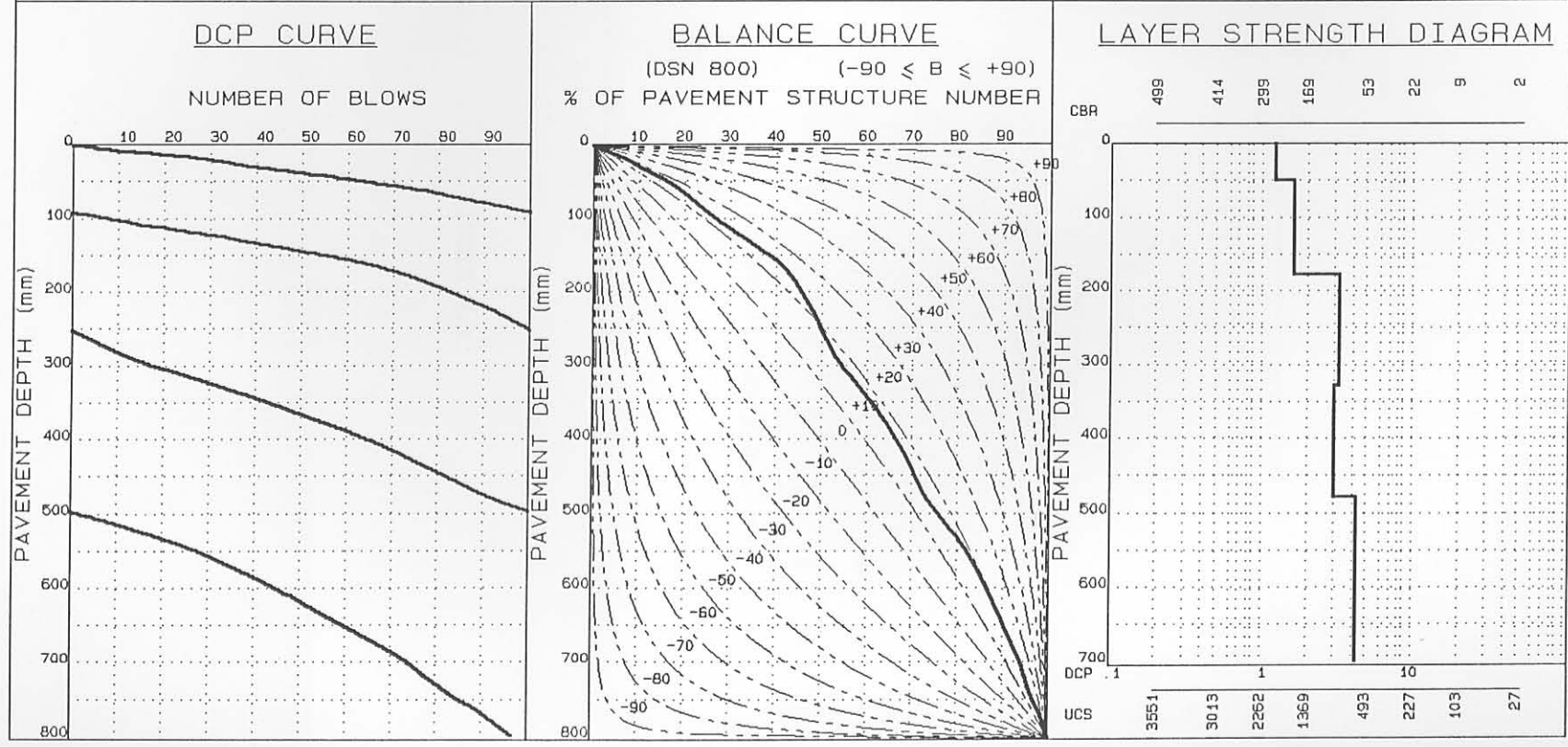


FIGURE E.2

SUMMARY OF DCP INVESTIGATION

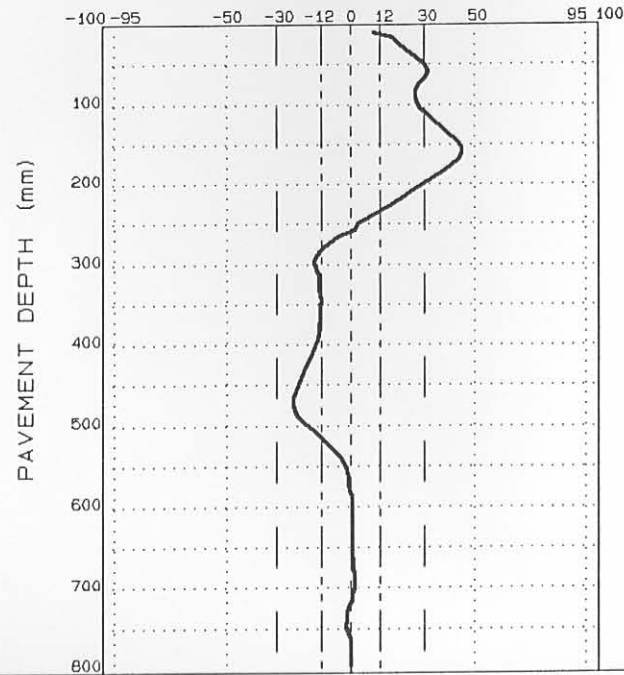
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM -- TO (mm) | AV. PENETRATION (mm/blow) | SD | SDP | CBR% | UCS (kPa) |
|--------------------|------------------------------|-----|-----|------|-----------|
| 0- 56 | 1.3 | 0.2 | 1.4 | 251 | 1940 |
| 57- 88 | 1.7 | 0.2 | 1.9 | 194 | 1546 |
| 89-152 | 1.6 | 0.1 | 1.7 | 211 | 1665 |
| 153-296 | 3.2 | 0.9 | 3.9 | 95 | 825 |
| 297-344 | 2.3 | 0.1 | 2.5 | 138 | 1146 |
| 345-472 | 3.2 | 0.3 | 3.5 | 92 | 802 |
| 473-616 | 3.1 | 0.6 | 3.6 | 97 | 840 |
| 617-640 | 4.1 | 0.1 | 4.1 | 69 | 622 |
| 641-688 | 4.0 | 0.3 | 4.3 | 70 | 630 |
| 689-800 | 5.6 | 0.5 | 6.1 | 46 | 435 |

DATA FILE: DEEP PAVEMENT: ROAD 1932 (ROO)

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

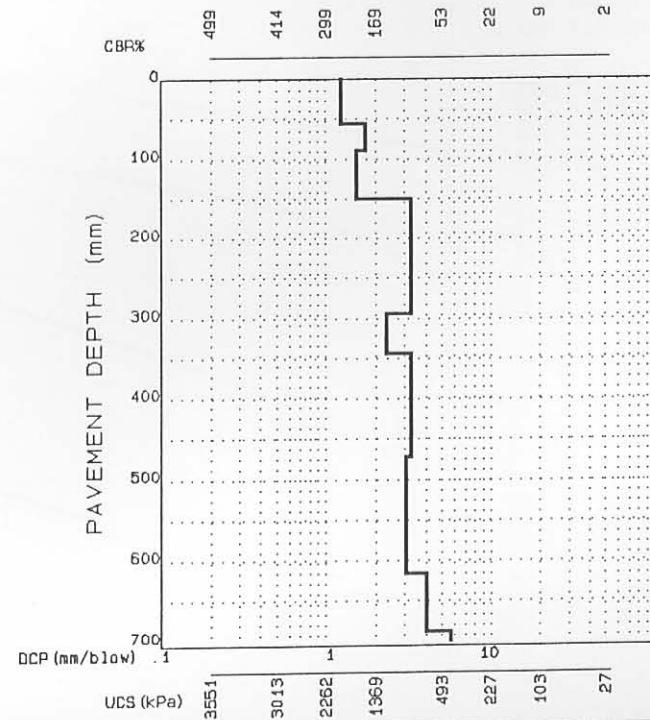


FIGURE E.3

SUMMARY OF DCP INVESTIGATION

DATA FILE :DEEP PAVEMENT: ROAD 1932
 REGION :ROOIWAL (N=10)
 ROAD NUMBER :P1932
 DISTANCE : 2.9
 POSITION :

| | | | |
|---|---|---|---|
| L | X | M | R |
|---|---|---|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FALSED | OVERSTRESSED | SOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|-------|-------|-------|
| RUT. | DEFORM. | PUMP. | CRACKS : | CROCK | LONG. | OTHER |
|------|---------|-------|----------|-------|-------|-------|

 DATE :860325

PAVEMENT CHARACTERISTICS

STRUCTURE NUMBER : 397
 BALANCE NUMBER (BN 100) : 27 24
 DIFFERENCE IN BN100 : 3
 BALANCE CURVE IS WHERE B = 19 A= 1398
 STRUCT. CAP. (E80 X 10⁶) : >10
 ROAD CATEGORY : C
 TRAFFIC : LIGHT TRAFFIC

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.3 | 0.2 | 1.4 | 251 | 1940 |
| 1.7 | 0.3 | 1.9 | 198 | 1574 |
| 3.2 | 0.7 | 3.8 | 93 | 809 |
| 3.1 | 0.4 | 3.5 | 96 | 832 |
| 4.2 | 1.2 | 5.2 | 66 | 598 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

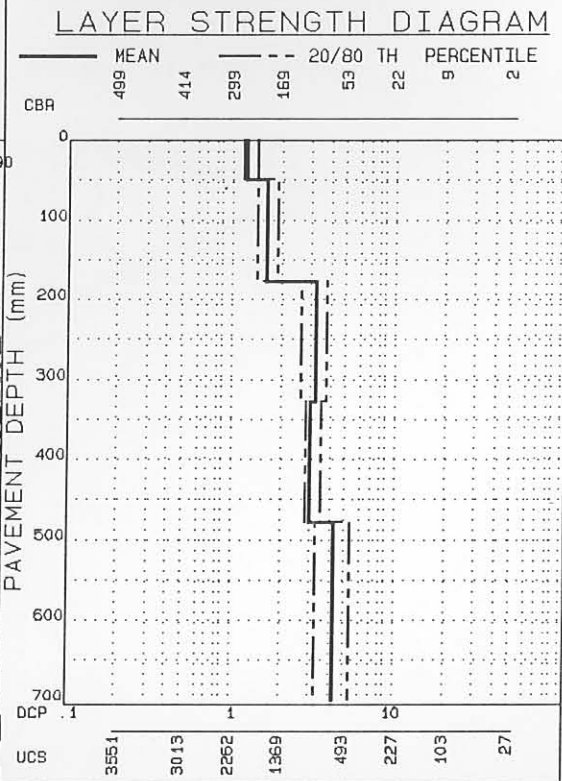
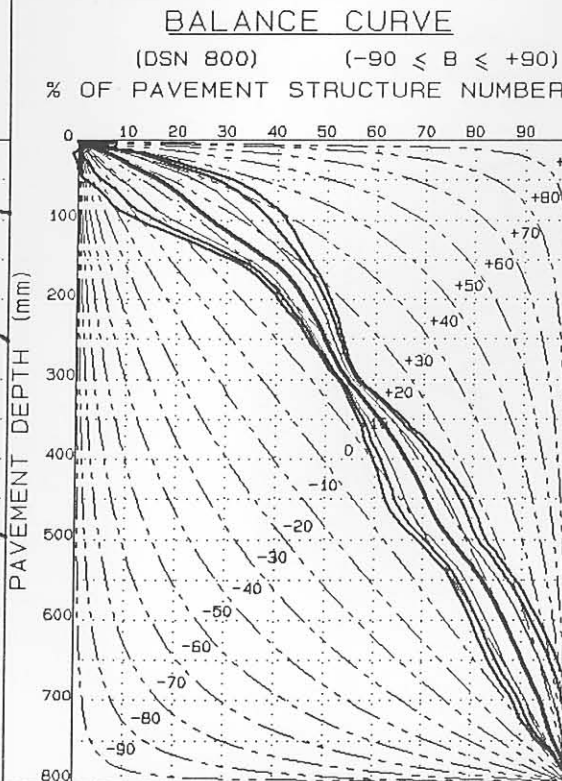
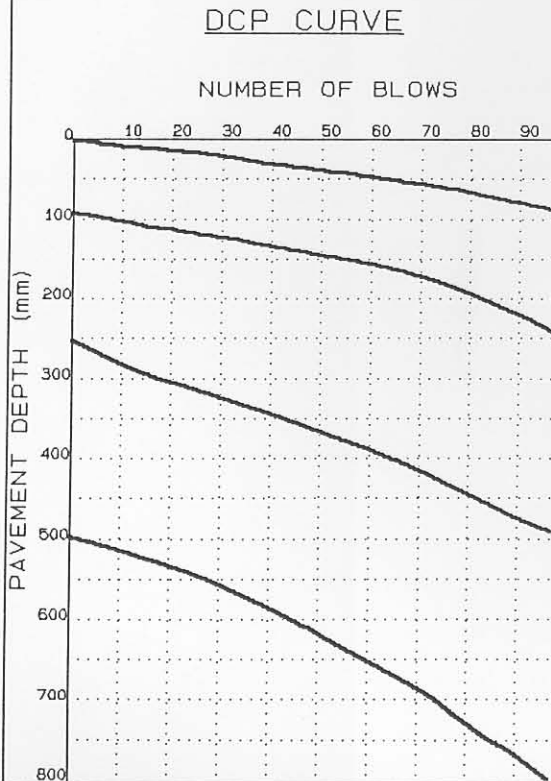


FIGURE E.4

SUMMARY OF DCP INVESTIGATION

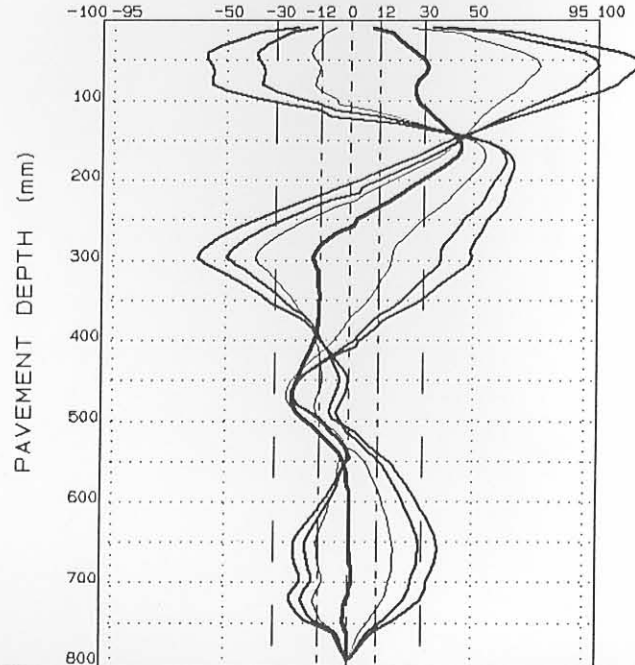
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | ESP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0-56 | 1.3 | 0.2 | 1.4 | 251 | 1940 |
| 57-88 | 1.7 | 0.2 | 1.9 | 194 | 1546 |
| 89-152 | 1.6 | 0.1 | 1.7 | 211 | 1665 |
| 153-296 | 3.2 | 0.9 | 3.9 | 95 | 825 |
| 297-344 | 2.3 | 0.1 | 2.5 | 138 | 1146 |
| 345-472 | 3.2 | 0.3 | 3.5 | 92 | 802 |
| 473-616 | 3.1 | 0.6 | 3.6 | 97 | 840 |
| 617-640 | 4.1 | 0.1 | 4.1 | 69 | 622 |
| 641-688 | 4.0 | 0.3 | 4.3 | 70 | 630 |
| 689-800 | 5.6 | 0.6 | 6.1 | 46 | 435 |

DATA FILE: DEEP PAVEMENT: ROAD 1932

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % . mm



LAYER STRENGTH DIAGRAM (REDEFINED)

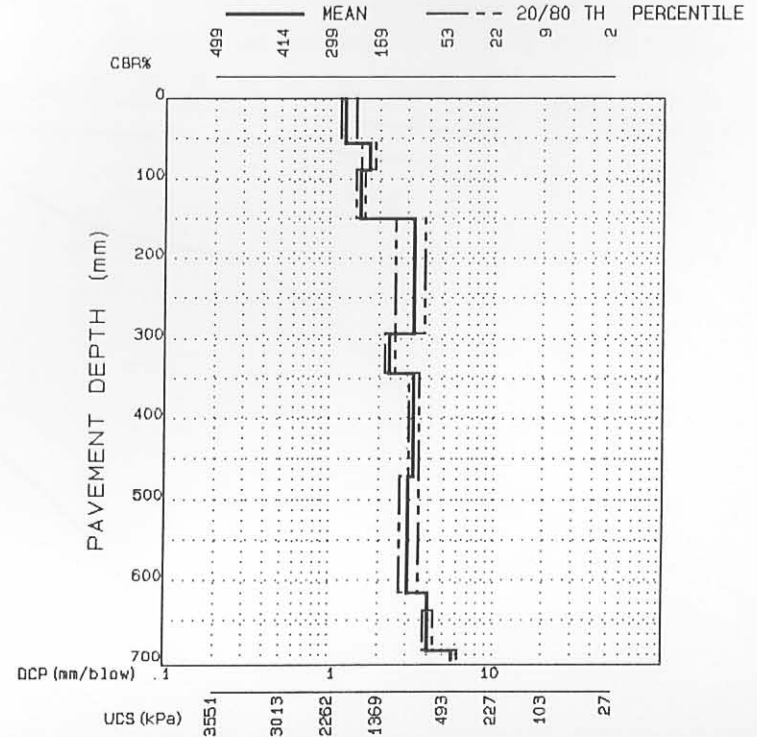


FIGURE E.5

SUMMARY OF DCP INVESTIGATION

DATA FILE : SHALLOW PAVEMENT: ROAD 2212
 REGION : BULTFONTEIN
 ROAD NUMBER : P2212
 DISTANCE : 12.6
 POSITION :

| | | | | | | |
|---|--|--|---|---|--|---|
| L | | | M | X | | R |
|---|--|--|---|---|--|---|

 CONDITION :

| | | |
|-------|--------------|-------|
| FAKED | OVERSTRESSED | SOUND |
|-------|--------------|-------|

| | | | | | | |
|-----|--------|------|--------|-------|------|-------|
| RUT | DEFORM | PUMP | CRACKS | CROCK | LONG | OTHER |
|-----|--------|------|--------|-------|------|-------|

 DATE : 860324

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|----------|-----------|
| STRUCTURE NUMBER | 352 | | 0 - 80 |
| BALANCE NUMBER (BN 100) | 56 | 46 | 81 - 160 |
| DIFFERENCE IN BN100 | 10 | | 161 - 210 |
| BALANCE CURVE IS WHERE B = | 41 | A = 2089 | 211 - 375 |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | 376 - 800 |
| ROAD CATEGORY | C | | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | 80 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 0.8 | 0.3 | 1.1 | 331 | 2474 |
| 3.5 | 0.7 | 4.0 | 85 | 748 |
| 3.3 | 0.4 | 2.6 | 145 | 1197 |
| 5.9 | 1.0 | 6.7 | 43 | 410 |
| 7.7 | 2.0 | 9.4 | 30 | 299 |

CATEGORY II : AVERAGELY BALANCED SHALLOW STRUCTURE (ABS)

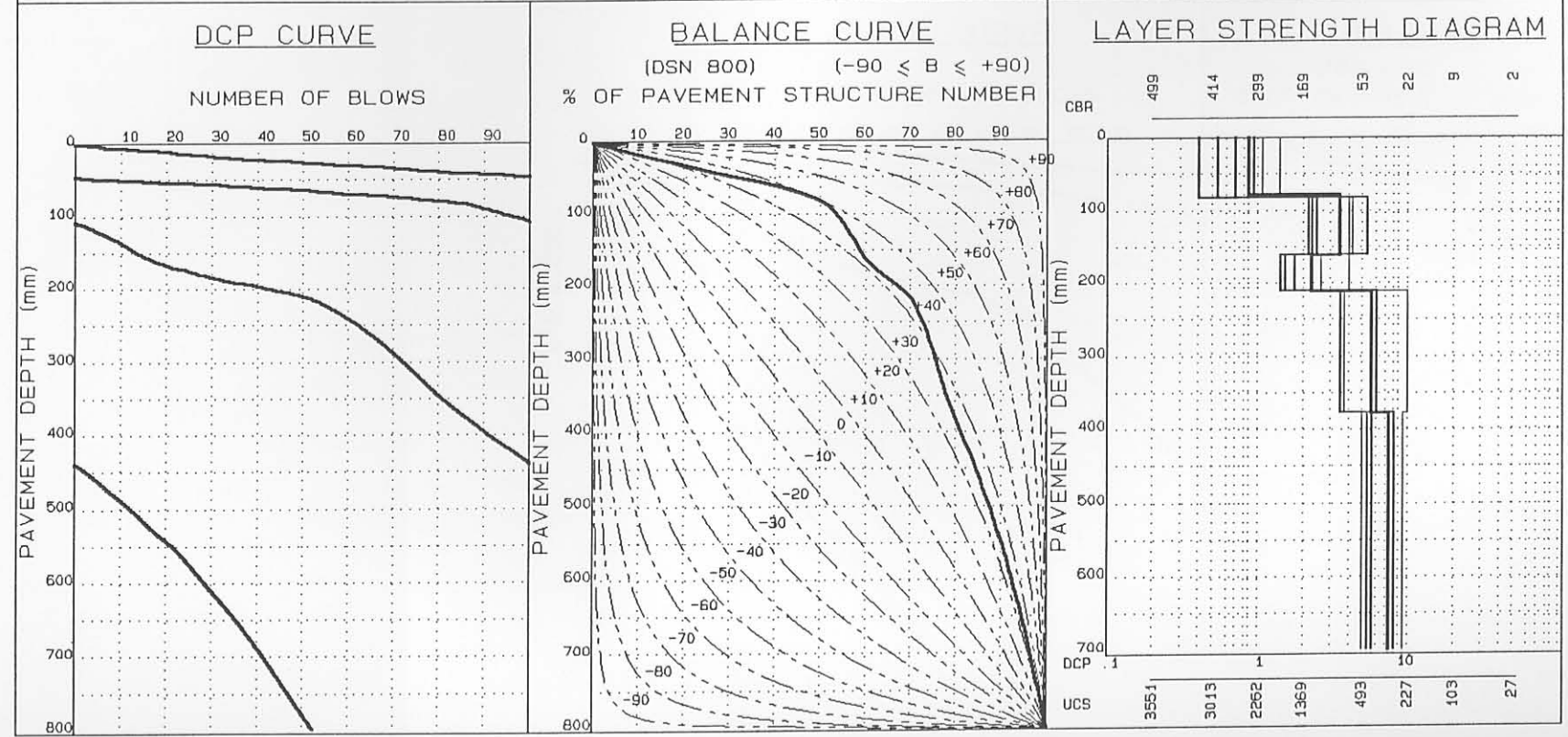


FIGURE E.6

SUMMARY OF DCP INVESTIGATION

DATA FILE :SHALLOW PAVEMENT: ROAD 2212
 REGION :BULTFONTEIN
 ROAD NUMBER :P2212
 DISTANCE : 12.6
 POSITION :

| | | | | |
|---|--|---|---|---|
| L | | M | X | R |
|---|--|---|---|---|

 CONDITION :

| | | |
|-------|--------------|-------|
| FAKED | DVERSTRESSED | SOUND |
|-------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|-------|-------|-------|
| RVT. | DEFORM. | PUMP. | CRACKS : | CROCK | LONG. | OTHER |
|------|---------|-------|----------|-------|-------|-------|

 DATE :860324

PAVEMENT CHARACTERISTICS

| | | | |
|---------------------------------------|-------|---------|-----------|
| | DATA | B/CURVE | FROM - TO |
| STRUCTURE NUMBER | : 352 | | 0- 80 |
| BALANCE NUMBER (BN 100) | : 56 | 46 | 81-160 |
| DIFFERENCE IN BN100 | : 10 | | 161-210 |
| BALANCE CURVE IS WHERE B = | 41 | A= 2089 | 211-375 |
| STRUCT. CAP. (E80 X 10 ⁶) | : >10 | | 376-800 |
| ROAD CATEGORY | : C | | |
| TRAFFIC : LIGHT TRAFFIC | | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 0.8 | 0.3 | 1.1 | 331 | 2474 |
| 3.5 | 0.7 | 4.0 | 85 | 748 |
| 2.3 | 0.4 | 2.6 | 145 | 1197 |
| 5.9 | 1.0 | 6.7 | 43 | 410 |
| 7.7 | 2.0 | 9.4 | 30 | 299 |

CATEGORY II : AVERAGELY BALANCED SHALLOW STRUCTURE (ABS)

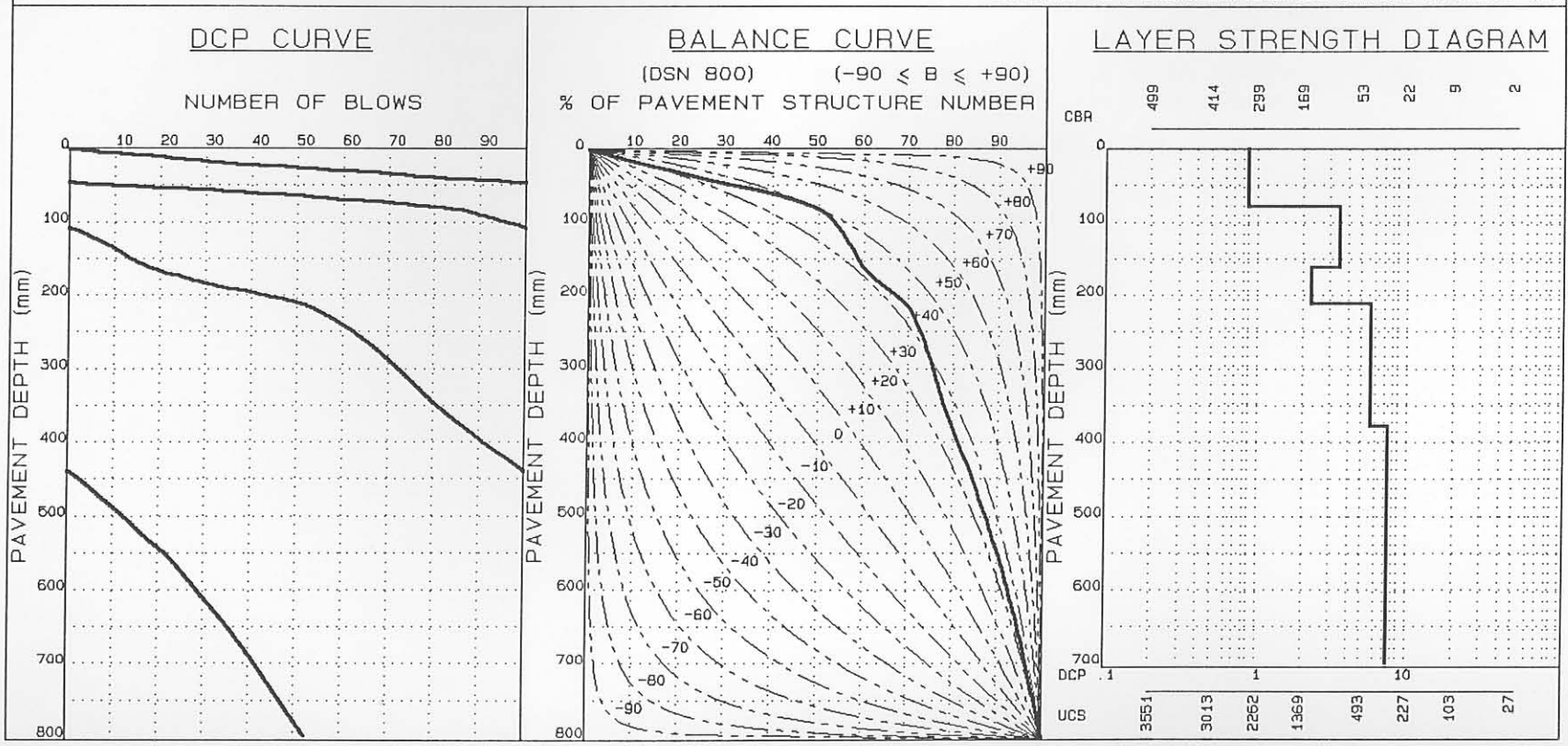


FIGURE E.7

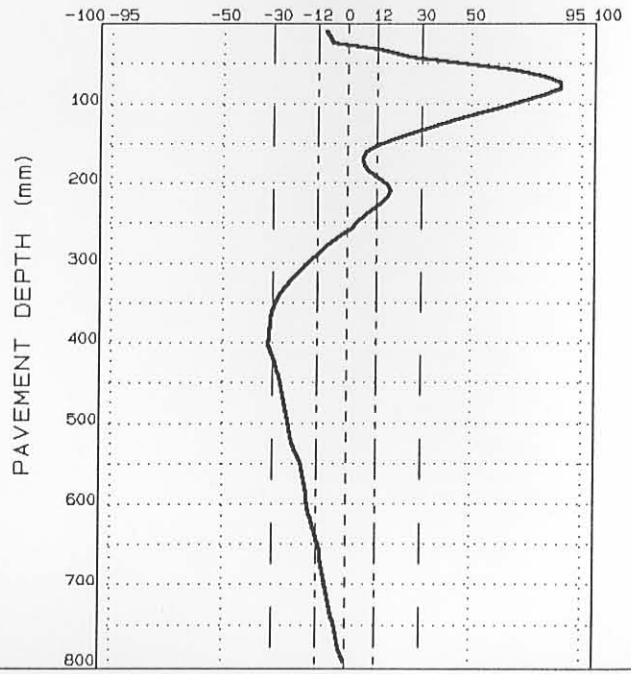
SUMMARY OF DCP INVESTIGATION

AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | QOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 8 | 0.7 | 0.2 | 0.9 | 356 | 2638 |
| 9- 72 | 0.8 | 0.2 | 1.0 | 345 | 2566 |
| 73-168 | 3.3 | 0.8 | 4.0 | 91 | 794 |
| 169-208 | 2.1 | 0.3 | 2.3 | 158 | 1290 |
| 209-400 | 5.8 | 1.0 | 6.6 | 44 | 419 |
| 401-800 | 7.9 | 2.0 | 9.5 | 30 | 299 |

DATA FILE: SHALLOW PAVEMENT: ROAD 2212

NORMALIZED CURVE
DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE (SPBC), % . mm



LAYER STRENGTH DIAGRAM (REDEFINED)

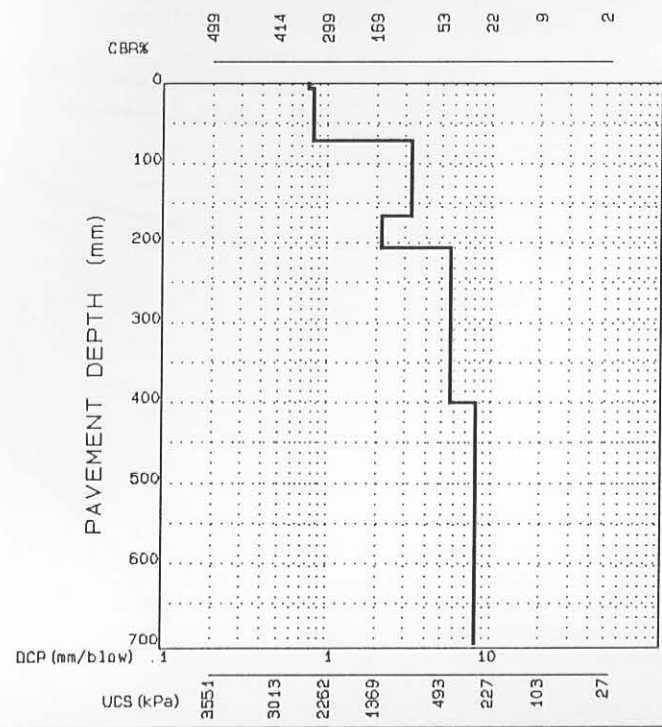


FIGURE E.8

- E.8 -

SUMMARY OF DCP INVESTIGATION

DATA FILE :SHALLOW PAVEMENT: ROAD 2212
 REGION :BULTFONTEIN
 ROAD NUMBER :P2212
 DISTANCE : 12.6
 POSITION :

| | | | | | | |
|---|--|--|---|---|--|---|
| L | | | M | X | | R |
|---|--|--|---|---|--|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAILED | OVERSTRESSED | SOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|-------|-------|-------|
| RUT. | DEFORM. | PUMP. | CRACKS : | CROCK | LONG. | OTHER |
|------|---------|-------|----------|-------|-------|-------|

 DATE :860324

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|----------|-----------|
| STRUCTURE NUMBER | 352 | | 0- 80 |
| BALANCE NUMBER (BN 100) | 56 | 46 | 81-160 |
| DIFFERENCE IN BN100 | 10 | | 161-210 |
| BALANCE CURVE IS WHERE B = | 41 | A = 2089 | 211-375 |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | 376-800 |
| ROAD CATEGORY | C | | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | 80 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 0.8 | 0.3 | 1.1 | 331 | 2474 |
| 3.5 | 0.7 | 4.0 | 85 | 748 |
| 2.3 | 0.4 | 2.6 | 145 | 1197 |
| 5.9 | 1.0 | 6.7 | 43 | 410 |
| 7.7 | 2.0 | 9.4 | 30 | 299 |

CATEGORY II : AVERAGELY BALANCED SHALLOW STRUCTURE (ABS)

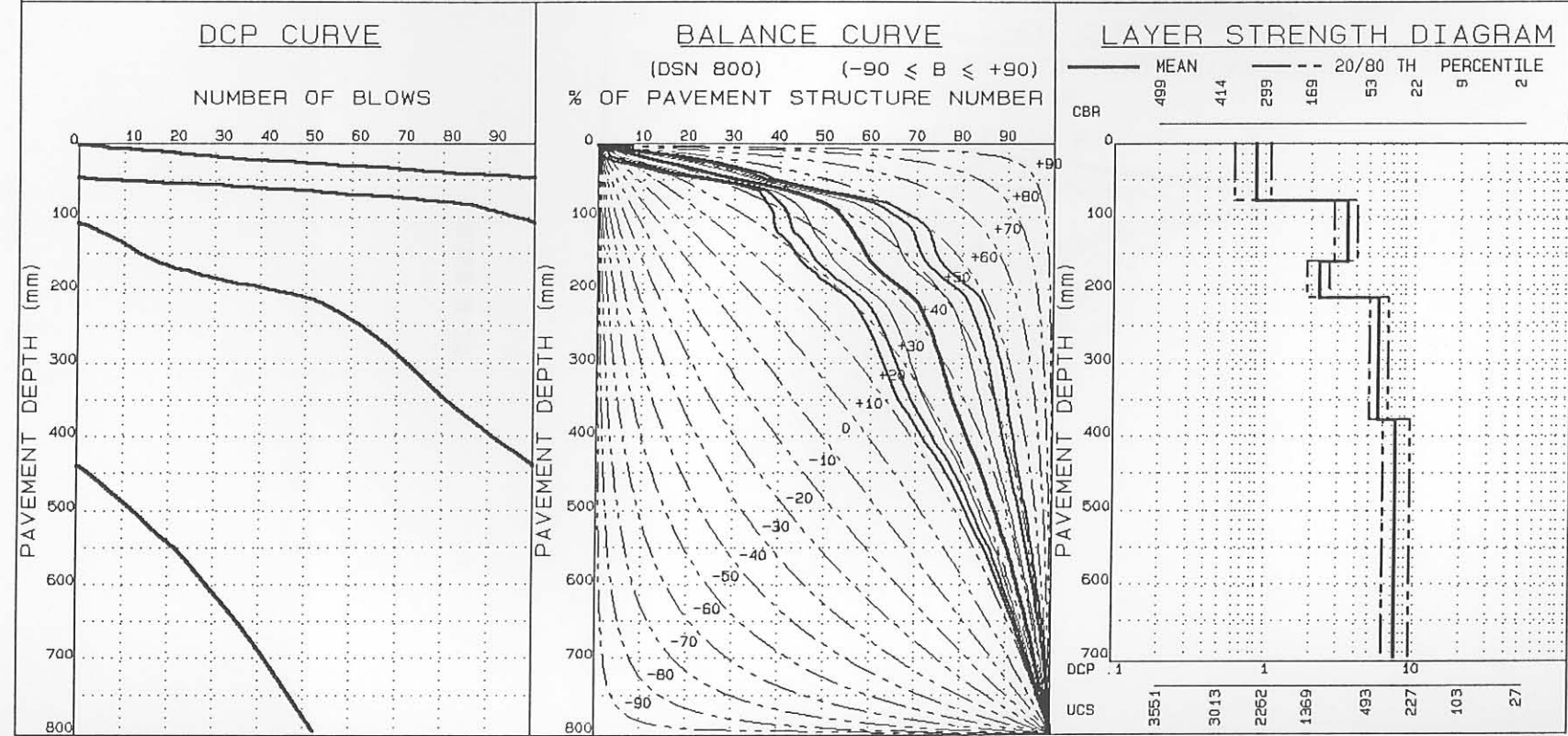


FIGURE E.9

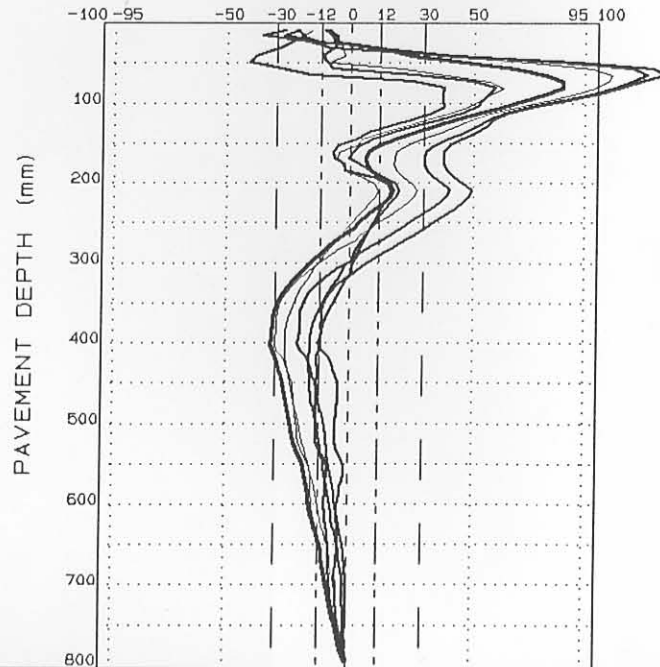
SUMMARY OF DCP INVESTIGATION

AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | QOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 8 | 0.7 | 0.2 | 0.9 | 356 | 2638 |
| 9- 72 | 0.8 | 0.2 | 1.0 | 345 | 2566 |
| 73-168 | 3.3 | 0.8 | 4.0 | 91 | 794 |
| 169-208 | 2.1 | 0.3 | 2.3 | 158 | 1290 |
| 209-400 | 5.8 | 1.0 | 6.6 | 44 | 419 |
| 401-800 | 7.9 | 2.0 | 9.5 | 30 | 299 |

DATA FILE: SHALLOW PAVEMENT: ROAD 2212

NORMALIZED CURVE DEVIATION (A_1) FROM STANDARD PAVEMENT BALANCE CURVE (SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

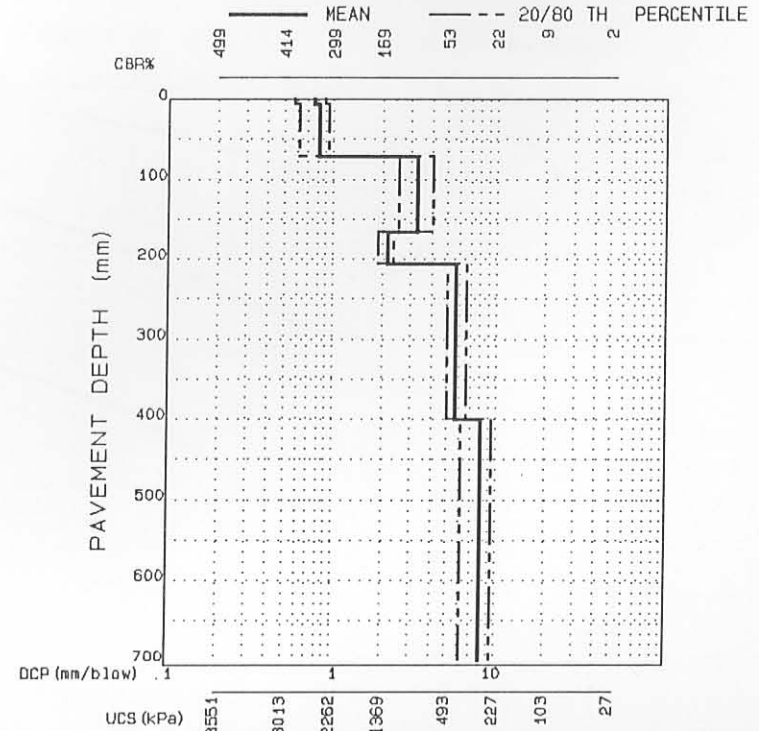


FIGURE E.10

SUMMARY OF DCP INVESTIGATION

DATA FILE : 275A4, 3CL, 13CL; N=10
 REGION : ROOIWAL (N=10)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION :

| | | | | | | | | | |
|---|--|--|--|---|--|--|--|--|---|
| L | | | | X | | | | | R |
|---|--|--|--|---|--|--|--|--|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAILED | DVERSTRESSED | BOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|--------|-------|-------|
| RJT. | DEFORM. | PUMP. | CRACKS : | CROCK. | LONG. | OTHER |
|------|---------|-------|----------|--------|-------|-------|

 DATE : 85/06/06

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|---------|-----------|
| STRUCTURE NUMBER | 352 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | 24 | 25 | 51 - 180 |
| DIFFERENCE IN BN100 | -1 | | 181 - 330 |
| BALANCE CURVE IS WHERE B = | 20 | A = 956 | 331 - 480 |
| STRUCT. CAP. (EBO X 10 ⁶) | >10 | | 481 - 800 |
| ROAD CATEGORY | | C | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | 80 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.2 | 0.3 | 1.5 | 261 | 2007 |
| 1.8 | 0.4 | 2.2 | 183 | 1469 |
| 2.4 | 0.4 | 2.7 | 137 | 1138 |
| 2.8 | 0.8 | 3.4 | 113 | 961 |
| 5.4 | 1.5 | 6.7 | 48 | 452 |

CATEGORY IV : WELL-BALANCED DEEP STRUCTURE (WBD)

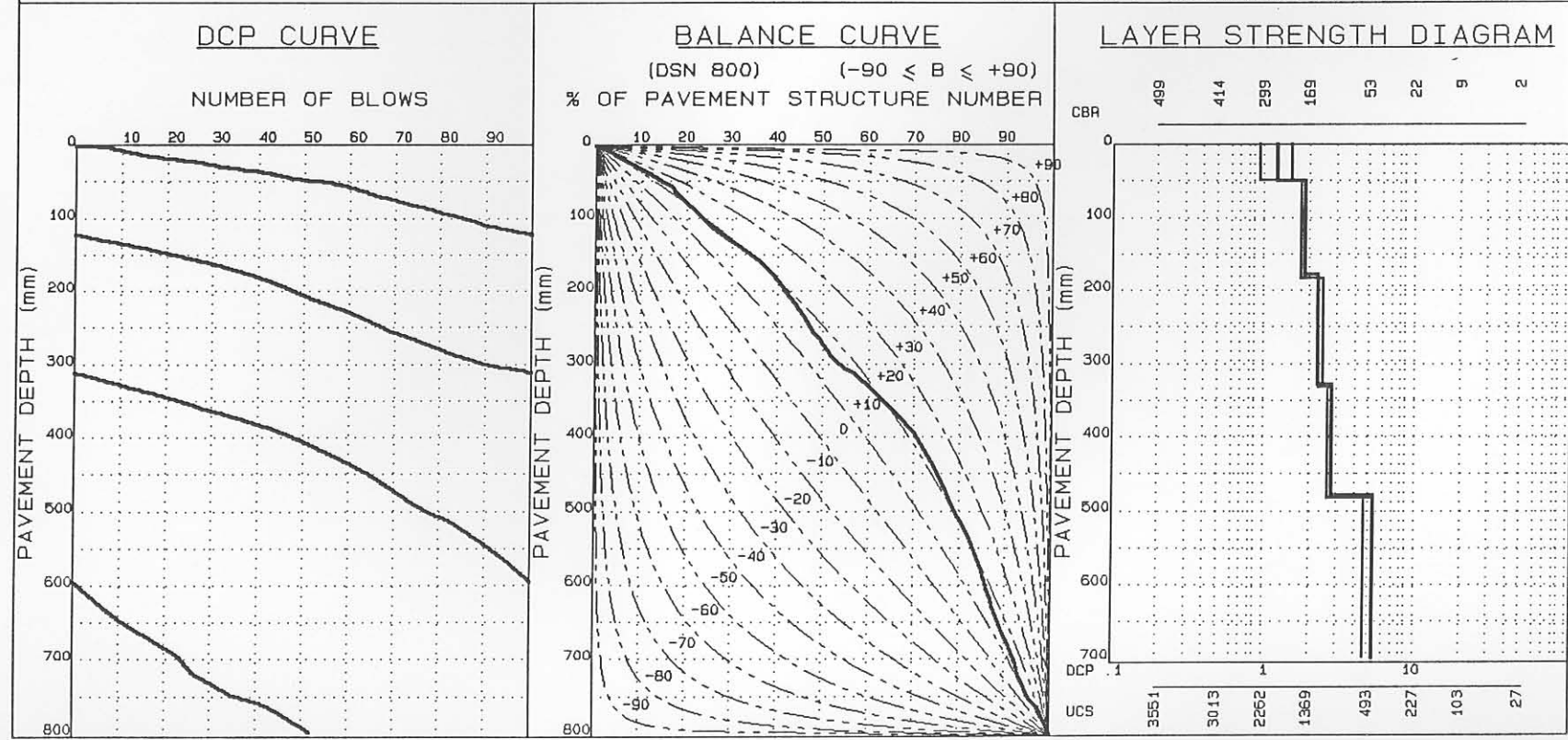


FIGURE E.11

SUMMARY OF DCP INVESTIGATION

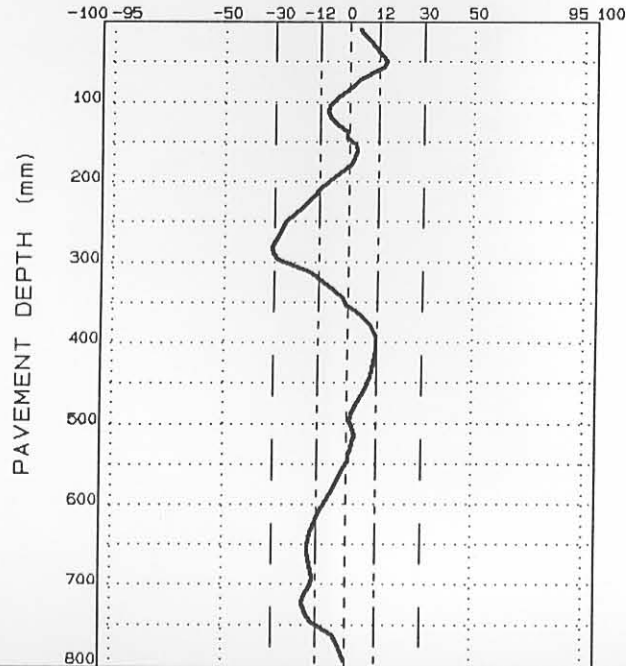
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | QDP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0-48 | 1.2 | 0.3 | 1.5 | 257 | 1980 |
| 49-112 | 2.0 | 0.5 | 2.4 | 170 | 1376 |
| 113-160 | 1.5 | 0.2 | 1.7 | 214 | 1685 |
| 161-280 | 2.5 | 0.4 | 2.8 | 130 | 1087 |
| 281-400 | 2.0 | 0.4 | 2.3 | 171 | 1383 |
| 401-496 | 3.5 | 0.5 | 4.0 | 83 | 732 |
| 497-512 | 3.3 | 0.3 | 3.5 | 91 | 794 |
| 513-648 | 4.9 | 0.6 | 5.5 | 54 | 501 |
| 649-688 | 5.0 | 0.7 | 5.6 | 53 | 493 |
| 689-800 | 6.6 | 1.8 | 8.1 | 37 | 359 |

DATA FILE: 275A4, 3CL, 13CL; N=10

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

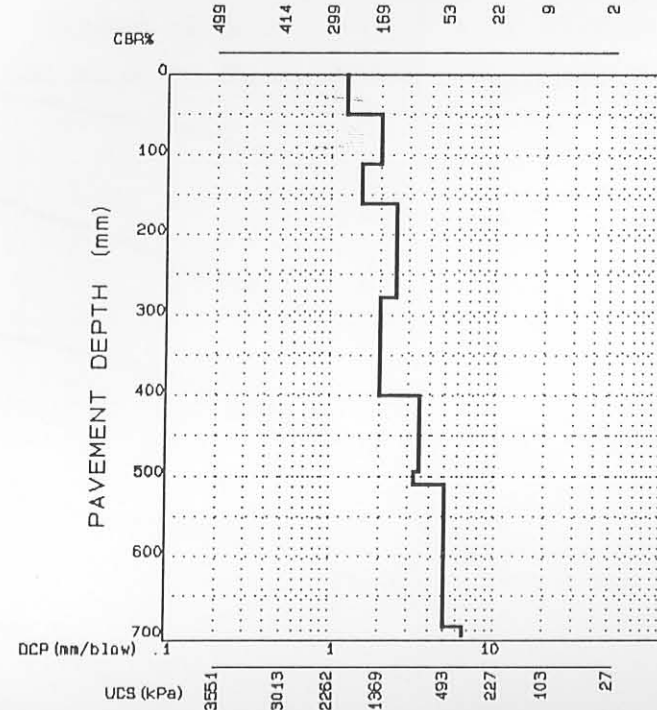


FIGURE E.12

ATT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE : 275A4, 5CL, 10CL; N= 1000000
 REGION : ROOIWAL (N=1005069)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION :

| | | | | | | |
|---|--|--|---|--|--|---|
| L | | | X | | | R |
|---|--|--|---|--|--|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAILED | OVERSTRESSED | BOUND |
|--------|--------------|-------|

| | | | | | |
|-----|--------|------|----------------|------|-------|
| RUT | DEFORM | PUMP | CRACKS : CROCK | LONG | OTHER |
|-----|--------|------|----------------|------|-------|

 DATE : 85/05/05

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|----------|-----------|
| STRUCTURE NUMBER | 456 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | 16 | 17 | 51 - 180 |
| DIFFERENCE IN BN100 | -1 | | 181 - 330 |
| BALANCE CURVE IS WHERE B = | 9 | A = 1109 | 331 - 480 |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | 481 - 800 |
| ROAD CATEGORY | C | | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.3 | 0.3 | 1.5 | 242 | 1878 |
| 1.8 | 0.5 | 2.2 | 182 | 1462 |
| 2.4 | 1.0 | 3.2 | 137 | 1138 |
| 2.5 | 0.6 | 3.0 | 128 | 1072 |
| 2.8 | 0.8 | 3.5 | 110 | 938 |

CATEGORY IV : WELL-BALANCED DEEP STRUCTURE (WBD)

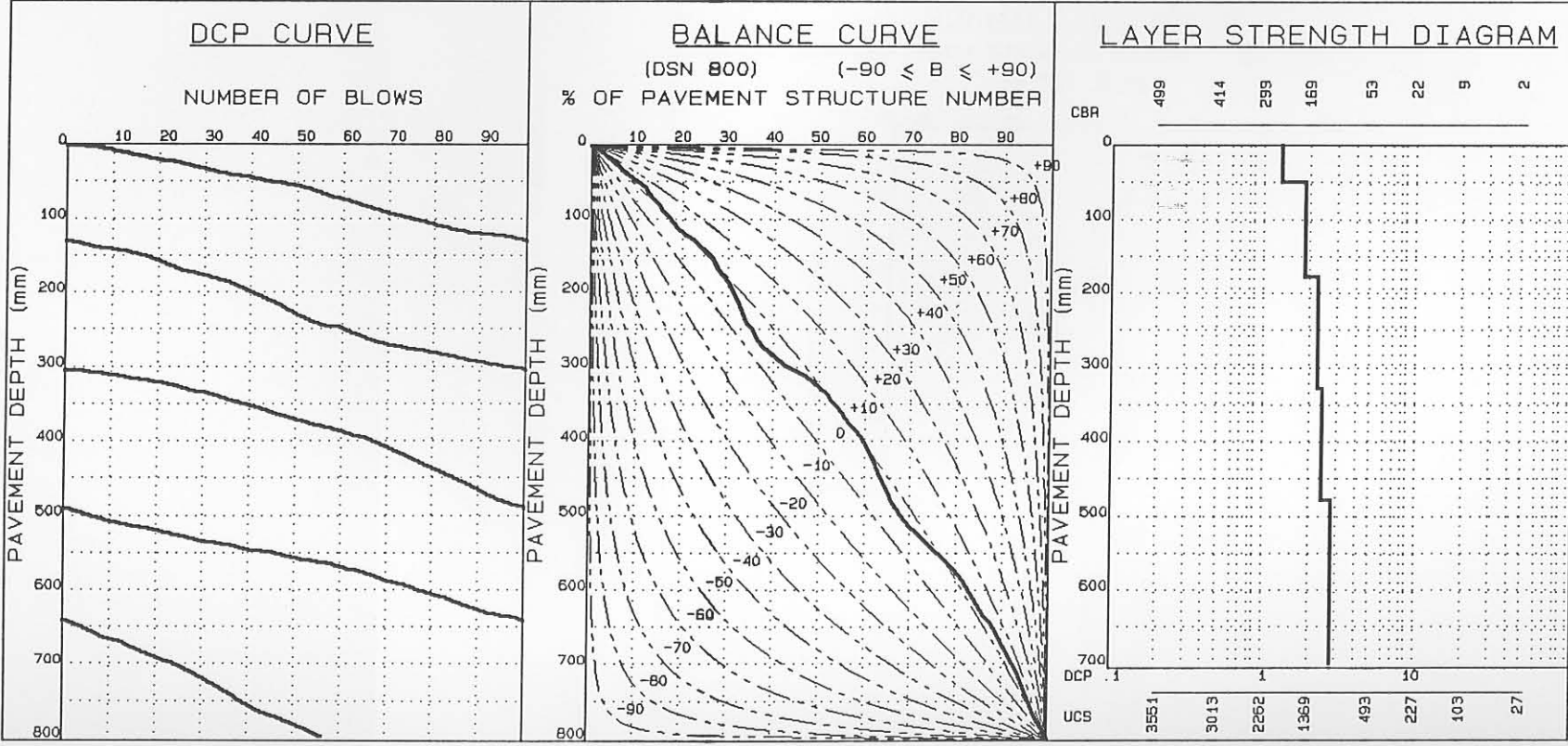


FIGURE E.13

SUMMARY OF DCP INVESTIGATION

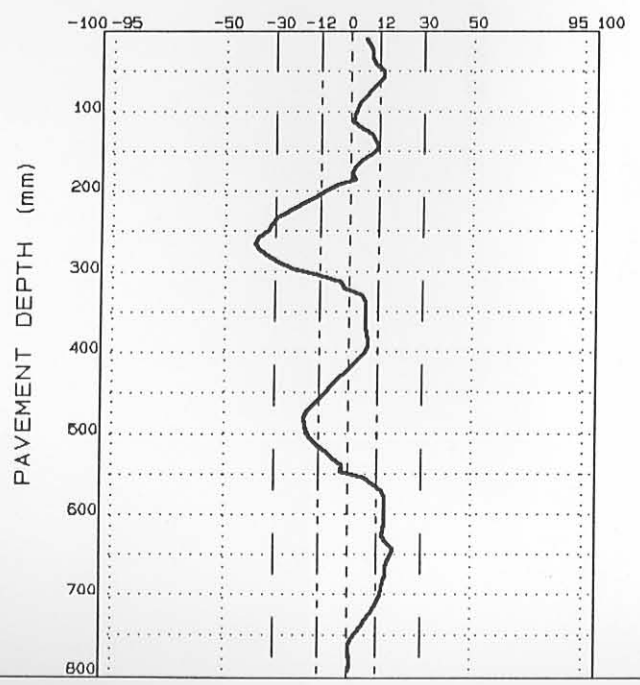
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | BOF | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0-56 | 1.3 | 0.3 | 1.5 | 245 | 1899 |
| 57-112 | 1.8 | 0.3 | 2.1 | 181 | 1454 |
| 113-144 | 1.4 | 0.2 | 1.5 | 237 | 1844 |
| 145-264 | 2.9 | 0.6 | 3.4 | 104 | 893 |
| 265-352 | 1.4 | 0.4 | 1.8 | 227 | 1775 |
| 353-368 | 1.9 | 0.1 | 2.0 | 176 | 1419 |
| 369-384 | 1.7 | 0.2 | 1.8 | 193 | 1539 |
| 385-480 | 2.9 | 0.4 | 3.2 | 106 | 902 |
| 481-592 | 2.0 | 0.4 | 2.3 | 170 | 1376 |
| 593-800 | 3.2 | 0.6 | 3.7 | 92 | 802 |

DATA FILE: 275A4, 5CL, 10CL; N=1000000

NORMALIZED CURVE

DEVIATION (A_j) FROM STANDARD PAVEMENT BALANCE CURVE (SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

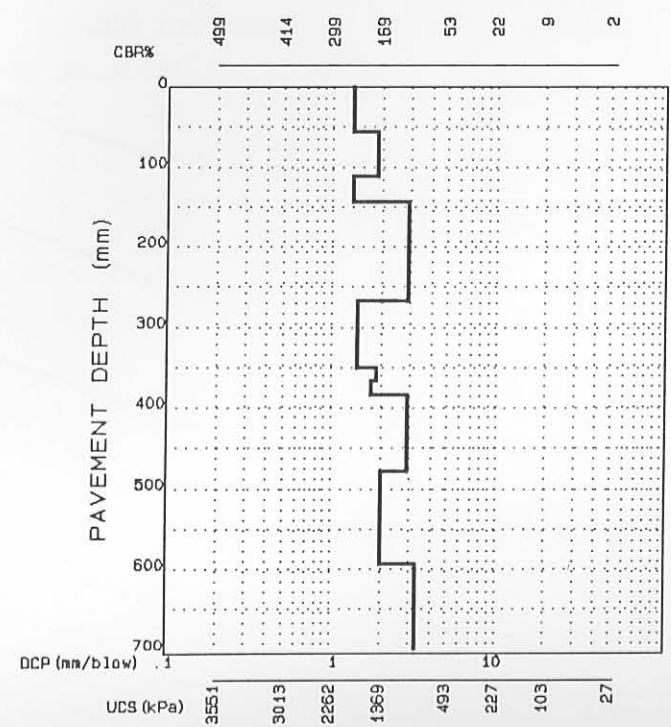


FIGURE E.14

RTT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE : 275A4, 1, 3, 5, 6, 7 (IN); N=2105910
 REGION : ROOIWAL (N=2105910)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION : L M R
 CONDITION : FAILED OVERSTRESSED SOUND
 RUT. DEFORM. PUMP. CRACKS : CROCK LONG. OTHER
 DATE : 85/10/24

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|----------|-----------|
| STRUCTURE NUMBER | 390 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | 13 | 18 | 51-180 |
| DIFFERENCE IN BN100 | -5 | | 181-330 |
| BALANCE CURVE IS WHERE B = | 11 | A = 1413 | 331-480 |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | 481-600 |
| ROAD CATEGORY | C | | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | B0 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 2.2 | 0.5 | 2.6 | 148 | 1219 |
| 1.8 | 0.4 | 2.2 | 184 | 1476 |
| 2.1 | 0.5 | 2.5 | 162 | 1319 |
| 2.3 | 0.3 | 2.5 | 144 | 1189 |
| 3.5 | 1.1 | 4.4 | 83 | 732 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

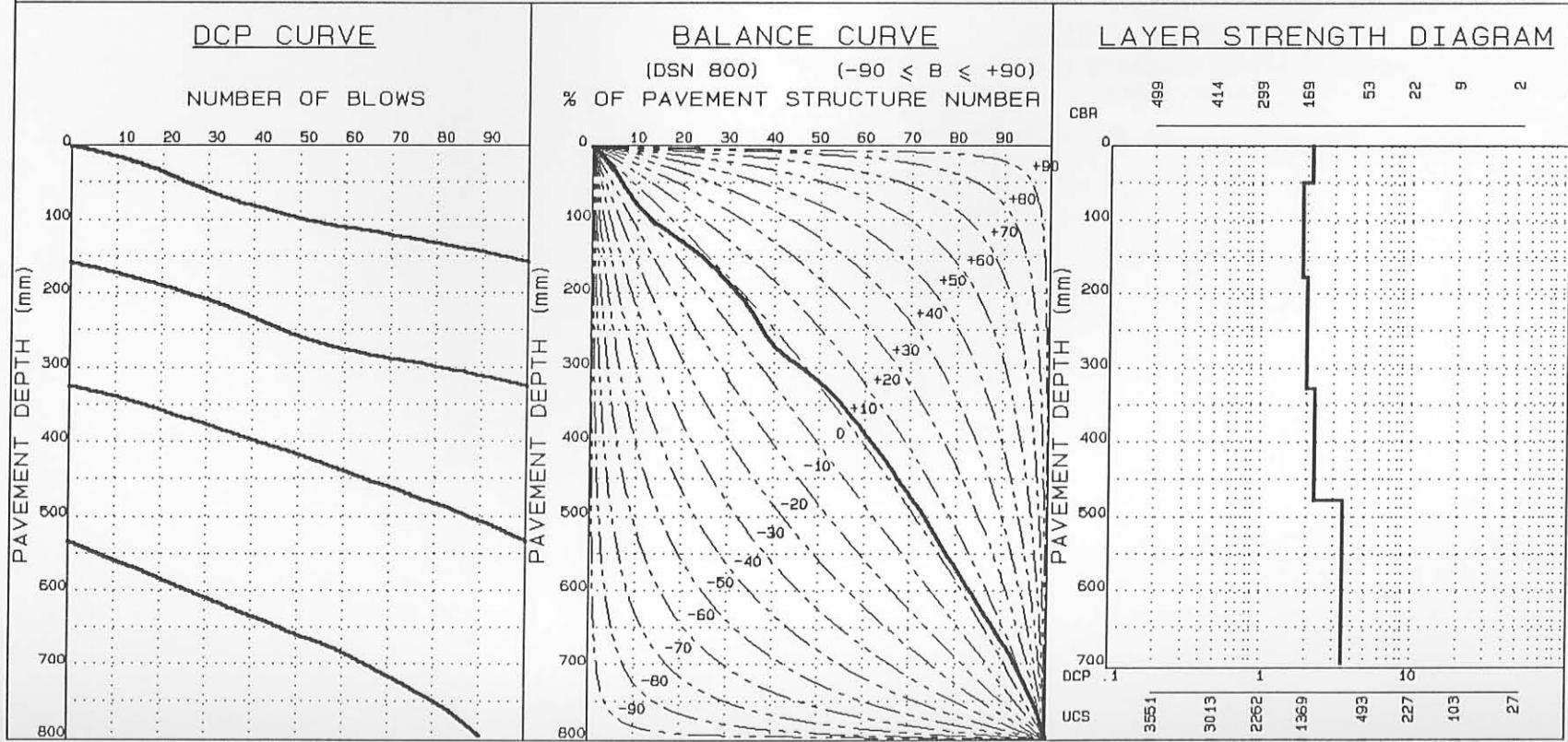


FIGURE E.15

ATT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

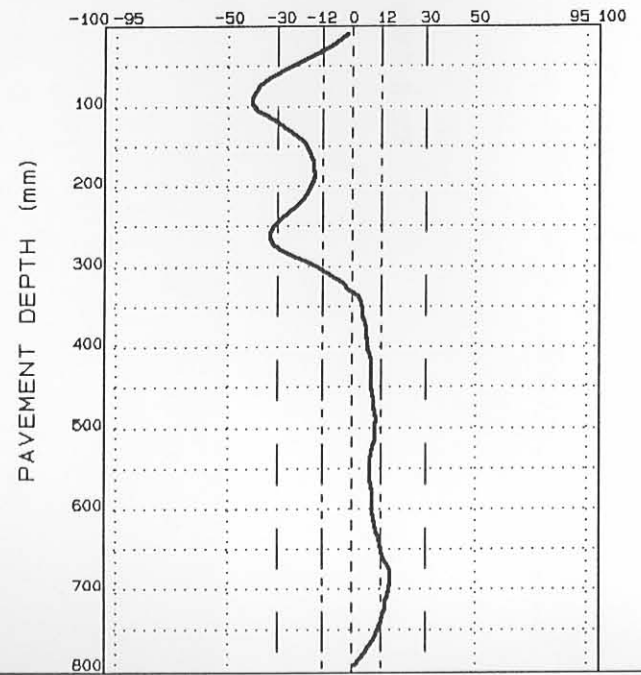
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | BOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 96 | 2.3 | 0.4 | 2.6 | 145 | 1197 |
| 97-184 | 1.6 | 0.3 | 1.8 | 210 | 1658 |
| 185-264 | 2.5 | 0.3 | 2.7 | 128 | 1072 |
| 265-424 | 1.9 | 0.4 | 2.2 | 176 | 1419 |
| 425-448 | 2.4 | 0.1 | 2.4 | 135 | 1124 |
| 449-488 | 2.5 | 0.2 | 2.7 | 128 | 1072 |
| 489-552 | 2.9 | 0.3 | 3.2 | 105 | 901 |
| 553-680 | 2.9 | 0.1 | 3.0 | 108 | 923 |
| 681-800 | 4.6 | 1.0 | 5.4 | 59 | 542 |

DATA FILE: 275A4, 1, 3, 5, 6, 7 (IN); N=2105910

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE (SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

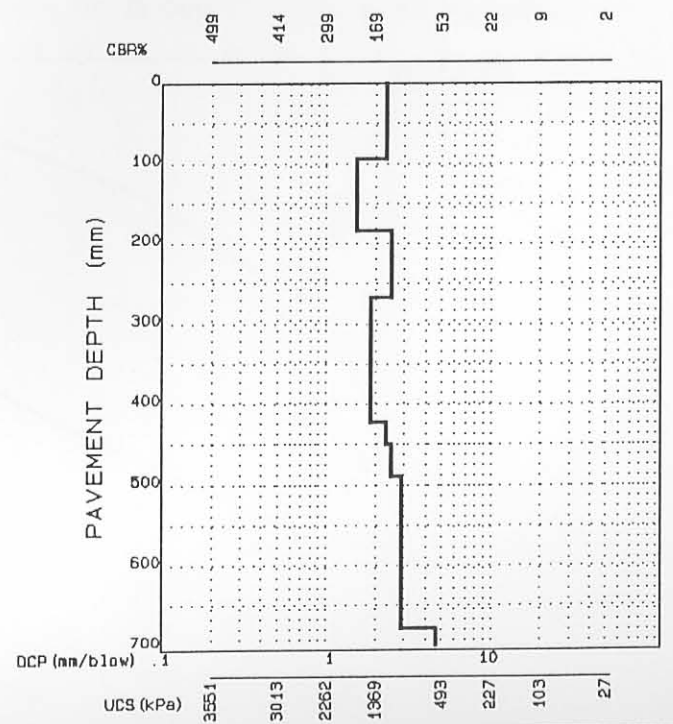


FIGURE E.16

ATT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE : 275A4, 8, 9, 10, 12, 13, 15 (IN); WET
 REGION : ROOIWAL (N=2105910)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION : L M R
 CONDITION : FAILED OVERSTRESSED SOUND
 RUT DEFORM PUMP CRACKS : CROCK LONG OTHER
 DATE : 85/10/24

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|------|---------------|-----------|
| STRUCTURE NUMBER | 246 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | 14 | 15 | 51 - 180 |
| | | | 181 - 330 |
| DIFFERENCE IN BN100 | -1 | | 331 - 480 |
| | | | 481 - 800 |
| BALANCE CURVE IS WHERE B = | 5 | A = 956 | |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | |
| ROAD CATEGORY | | C | |
| TRAFFIC | | LIGHT TRAFFIC | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|-----|
| 3.2 | 0.3 | 3.5 | 94 | 817 |
| 2.9 | 0.4 | 3.3 | 104 | 893 |
| 3.5 | 0.6 | 4.0 | 83 | 732 |
| 3.5 | 0.5 | 3.9 | 82 | 724 |
| 4.1 | 1.0 | 5.0 | 67 | 606 |

CATEGORY IV : WELL-BALANCED DEEP STRUCTURE (WBD)

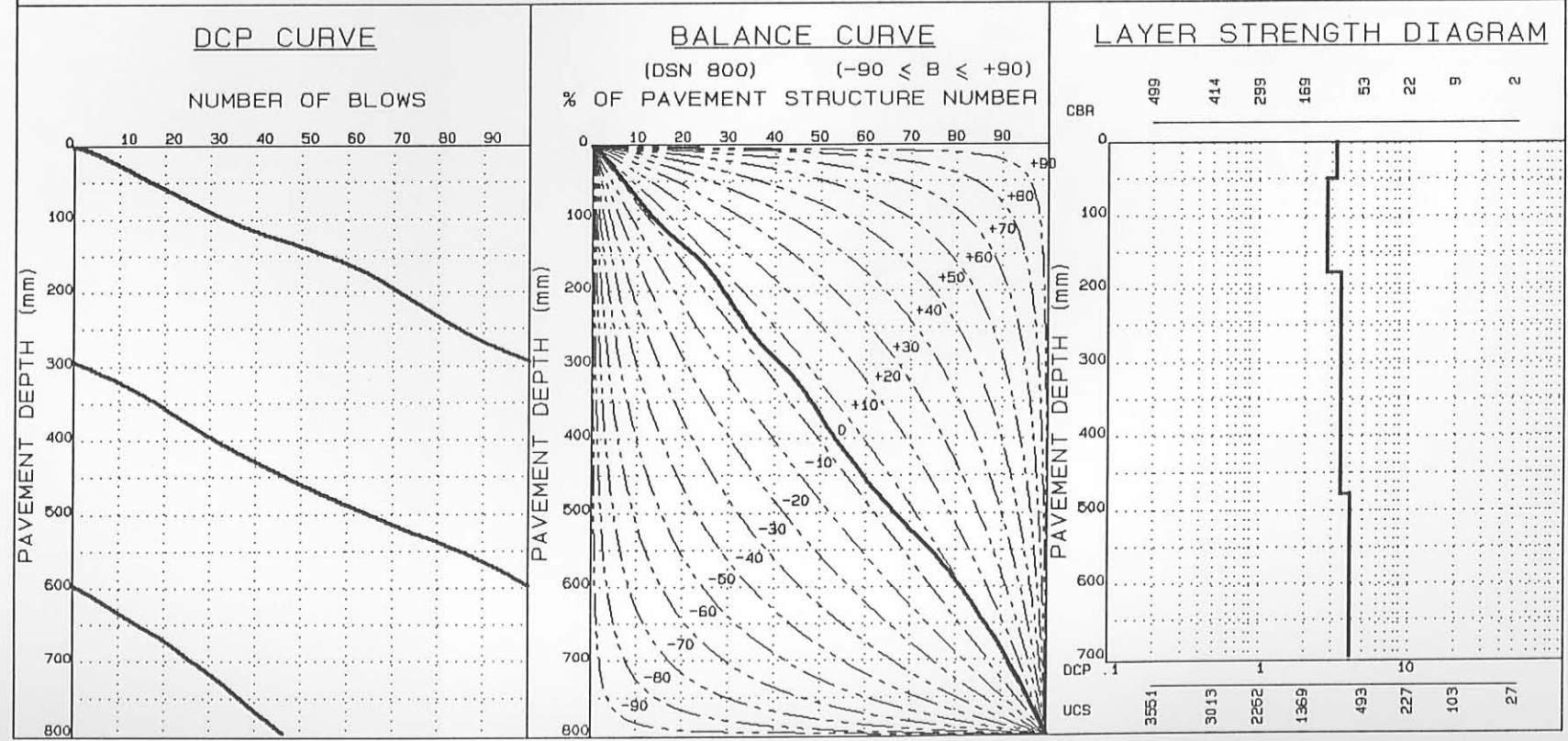


FIGURE E.17

SUMMARY OF DCP INVESTIGATION

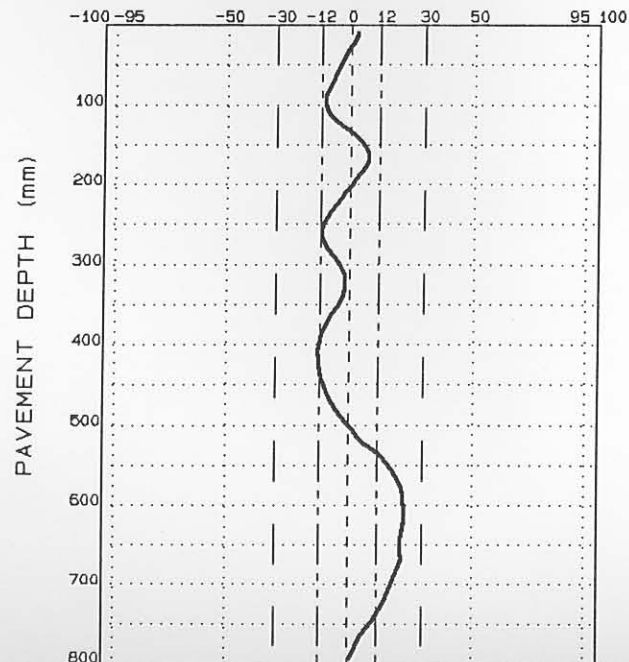
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | θOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 8 | 2.5 | 0.2 | 2.7 | 128 | 1072 |
| 9- 96 | 3.3 | 0.2 | 3.4 | 89 | 779 |
| 97-160 | 2.5 | 0.2 | 2.7 | 124 | 1043 |
| 161-256 | 3.9 | 0.3 | 4.1 | 74 | 662 |
| 257-320 | 2.9 | 0.3 | 3.2 | 105 | 901 |
| 321-408 | 3.9 | 0.3 | 4.1 | 74 | 662 |
| 409-508 | 3.1 | 0.4 | 3.4 | 96 | 832 |
| 509-800 | 4.8 | 0.6 | 5.3 | 56 | 518 |

DATA FILE: 275A4, 8, 9, 10, 12, 15 (IN) ; WET N=2

NORMALIZED CURVE

DEVIATION (A_1) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

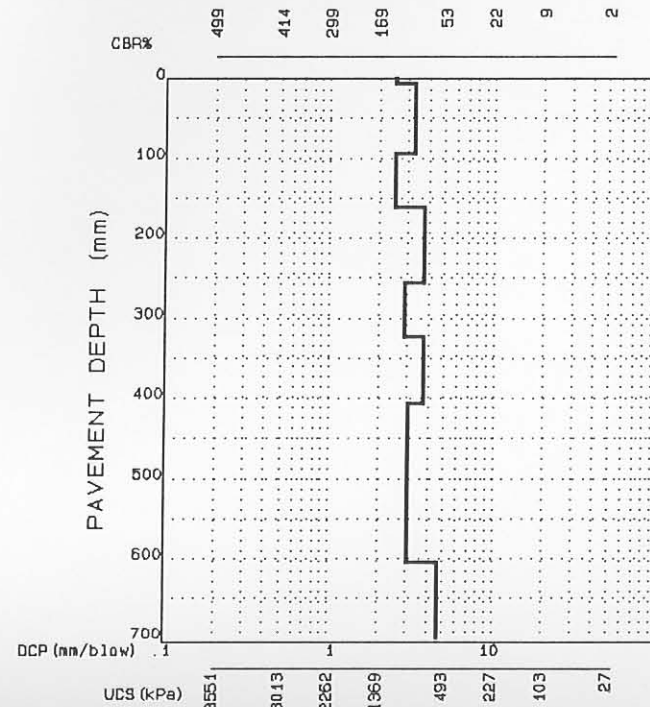


FIGURE E.18

RTT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE : 289A4, 2CL, 130C; N=10
 REGION : ROOIWAL (N=10)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION :

| | | | | | | | | |
|---|---|--|--|---|--|--|--|---|
| L | X | | | M | | | | R |
|---|---|--|--|---|--|--|--|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAILED | OVERSTRESSED | BOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|-------|-------|-------|
| RUT. | DEFORM. | PUMP. | CRACKS : | CROCK | LONG. | OTHER |
|------|---------|-------|----------|-------|-------|-------|

 DATE : 29/10/85

PAVEMENT CHARACTERISTICS

| | | | | |
|---------------------------------------|---|---------------|----------|-----------|
| | | DATA | B/CURVE | FROM - TO |
| STRUCTURE NUMBER | : | 437 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | : | 20 | 23 | 51 - 180 |
| DIFFERENCE IN BN100 | : | -3 | | 181 - 330 |
| BALANCE CURVE IS WHERE B = | : | 18 | A = 2285 | 331 - 480 |
| STRUCT. CAP. (E80 X 10 ⁹) | : | >10 | | 481 - 800 |
| ROAD CATEGORY | : | C | | |
| TRAFFIC | : | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.9 | 0.4 | 2.2 | 178 | 1433 |
| 1.1 | 0.3 | 1.4 | 267 | 2182 |
| 2.6 | 0.4 | 3.0 | 121 | 1020 |
| 3.8 | 0.8 | 4.5 | 74 | 662 |
| 3.5 | 1.8 | 5.0 | 84 | 740 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

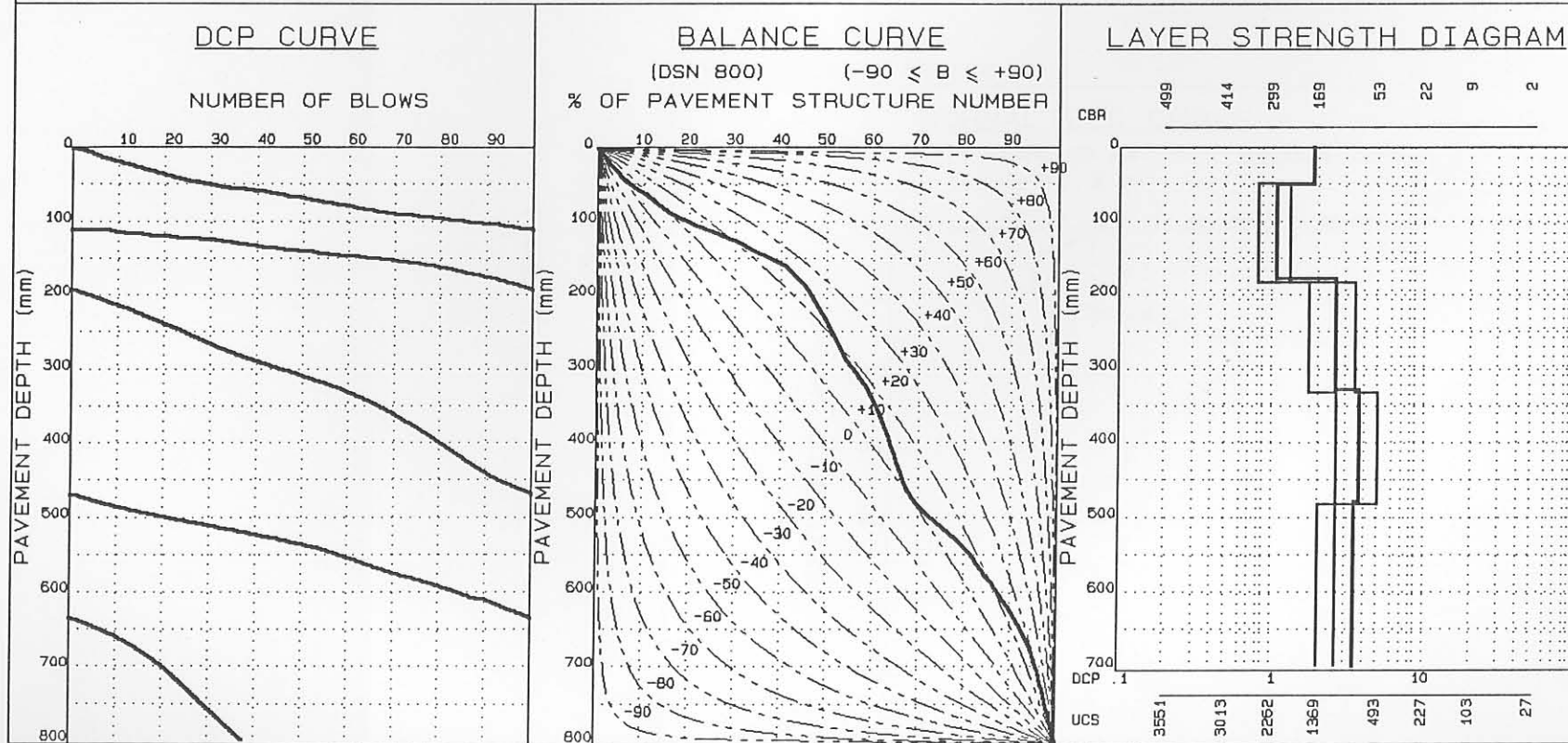


FIGURE E.19

SUMMARY OF DCP INVESTIGATION

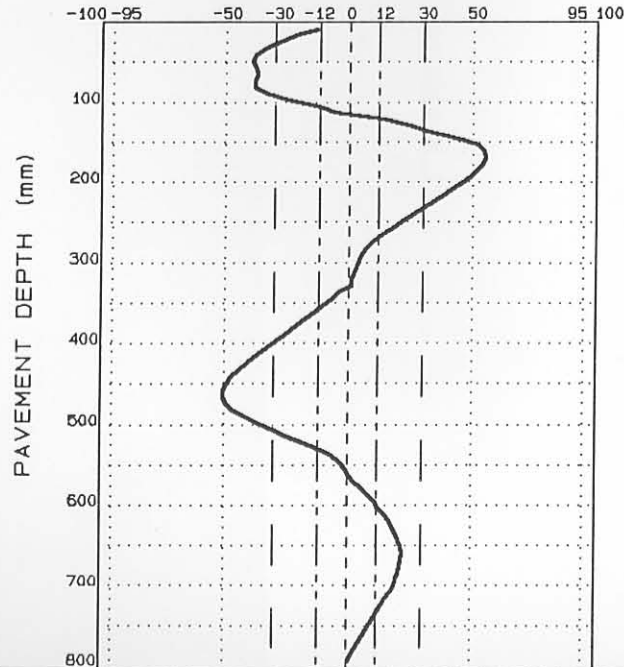
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | BOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0-48 | 1.9 | 0.4 | 2.3 | 176 | 1419 |
| 49-168 | 1.0 | 0.3 | 1.3 | 294 | 2229 |
| 169-464 | 3.2 | 0.9 | 4.0 | 93 | 809 |
| 465-656 | 2.0 | 0.6 | 2.5 | 168 | 1362 |
| 657-800 | 5.3 | 1.0 | 6.1 | 49 | 460 |

DATA FILE: 289A4, 2CL, 130C, N=10

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

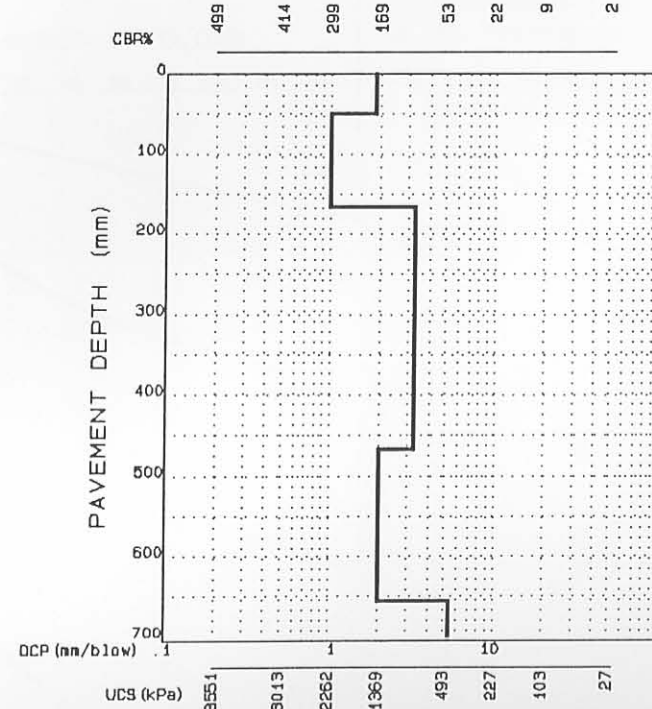


FIGURE E.20

ATT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE : 289A4, 5CL, 11CL, N=1022611
 REGION : ROOIWAL (N=10022811)
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION : M R
 CONDITION : FALTED OVERSTRESSED SOUND
 RUT. DEFORM. PUMP. CRACKS : CROCK. LONG. OTHER
 DATE : 860113

PAVEMENT CHARACTERISTICS

STRUCTURE NUMBER : 347
 BALANCE NUMBER (BN 100) : 15 17
 DIFFERENCE IN BN100 : -2
 BALANCE CURVE IS WHERE B = B A = 1772
 STRUCT. CAP. (E80 X 10⁵) : >10
 ROAD CATEGORY : C
 TRAFFIC : LIGHT TRAFFIC

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | B0 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 2.7 | 0.5 | 3.1 | 116 | 983 |
| 1.7 | 0.4 | 2.0 | 195 | 1553 |
| 2.9 | 0.7 | 3.4 | 105 | 908 |
| 3.0 | 0.7 | 3.6 | 101 | 870 |
| 3.7 | 1.7 | 5.1 | 78 | 693 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

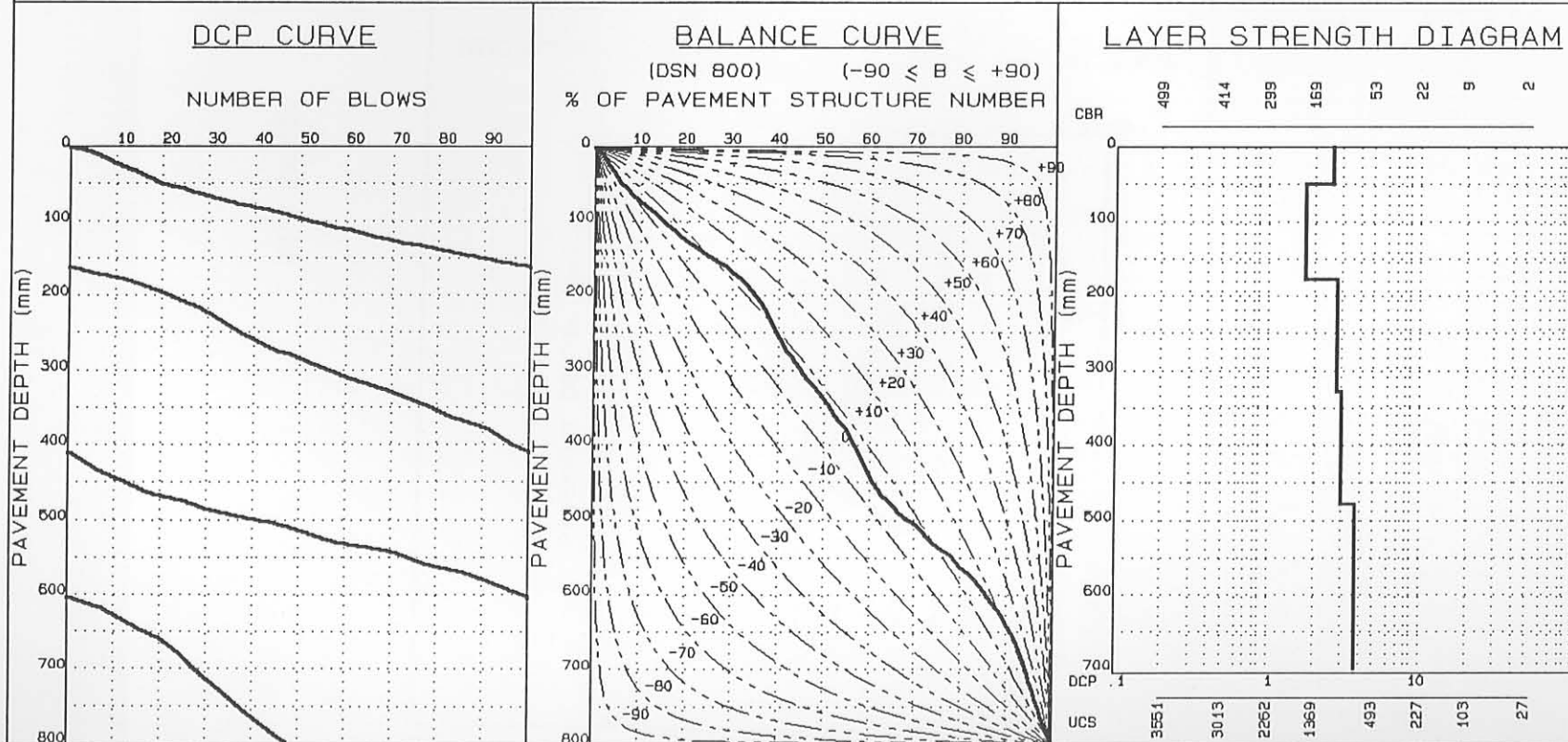


FIGURE E.21

SUMMARY OF DCP INVESTIGATION

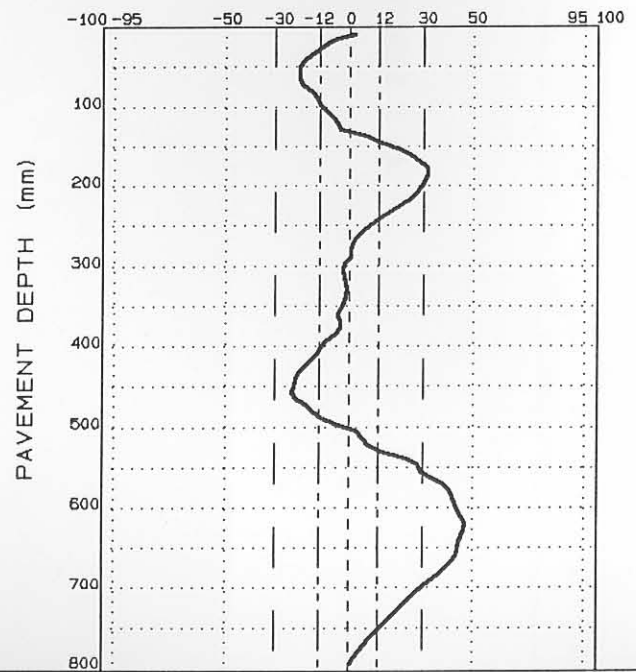
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | SDP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0 - 8 | 1.9 | 0.5 | 2.3 | 178 | 1433 |
| 9 - 64 | 2.6 | 0.5 | 3.0 | 122 | 1028 |
| 65 - 184 | 1.7 | 0.4 | 2.0 | 195 | 1553 |
| 185 - 304 | 3.1 | 0.6 | 3.6 | 98 | 847 |
| 305 - 328 | 2.1 | 0.2 | 2.3 | 156 | 1276 |
| 329 - 456 | 3.1 | 0.7 | 3.7 | 96 | 832 |
| 457 - 616 | 2.0 | 0.6 | 2.4 | 167 | 1355 |
| 617 - 800 | 4.9 | 1.1 | 5.8 | 54 | 501 |

DATA FILE: 289A4, 5CL, 11CL; N=1022611

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

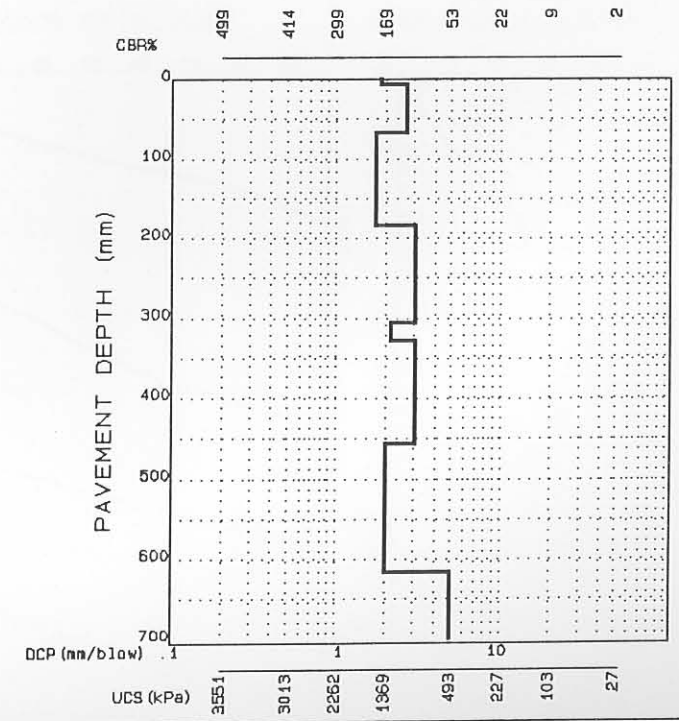


FIGURE E.22

RTT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

| PAVEMENT CHARACTERISTICS | | AVERAGE EQUIVALENT STRENGTH | | | | | | | |
|--------------------------|---|---|--------------|-----------|-----------------|-----|------|-----|------|
| | | DATA | B/CURVE | FROM - TO | AV. PENETRATION | SD | BO P | CBR | UCS |
| DATA FILE | :289A4, 1B, 2, 4, 6; N=1894826 | STRUCTURE NUMBER | : 415 | 0- 50 | 2.6 | 0.3 | 2.9 | 119 | 1005 |
| REGION | :ROOIWAL (N=1000 000) | BALANCE NUMBER (BN 100) | : 12 11 | 51-180 | 2.2 | 0.5 | 2.7 | 147 | 1211 |
| ROAD NUMBER | :P1932 | DIFFERENCE IN BN100 | : 1 | 181-330 | 3.3 | 0.5 | 2.7 | 90 | 785 |
| DISTANCE | : 2.9 | BALANCE CURVE IS WHERE B = | : -3 A= 1226 | 331-480 | 2.4 | 0.7 | 2.9 | 135 | 1124 |
| POSITION | : <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> M <input type="checkbox"/> <input type="checkbox"/> R | STRUCT. CAP. (E80 X 10 ⁶) | : >10 | 481-800 | 2.9 | 0.8 | 3.6 | 107 | 916 |
| CONDITION | : <input type="checkbox"/> FAILED <input type="checkbox"/> OVERSTRESSED <input type="checkbox"/> SOUND | ROAD CATEGORY | : C | | | | | | |
| CRACKS | : <input type="checkbox"/> RUT. <input type="checkbox"/> DEFORM. <input type="checkbox"/> PUMP. <input type="checkbox"/> CRACKS : <input type="checkbox"/> CROCK. <input type="checkbox"/> LONG. <input type="checkbox"/> OTHER | TRAFFIC : LIGHT TRAFFIC | | | | | | | |
| DATE | :86/04/25 | CATEGORY VII : WELL-BALANCED INVERTED STRUCTURE (WBI) | | | | | | | |

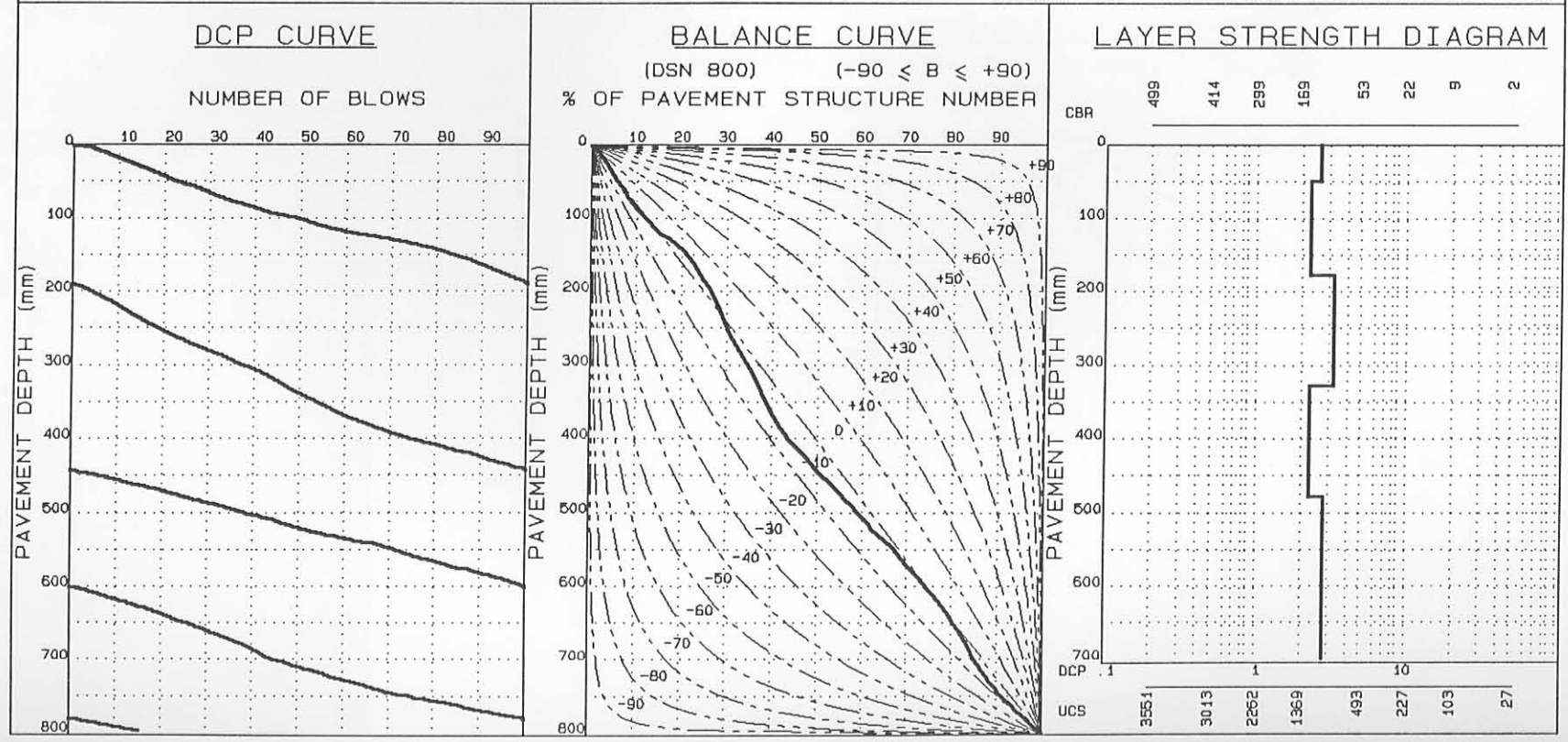


FIGURE E.23

SUMMARY OF DCP INVESTIGATION

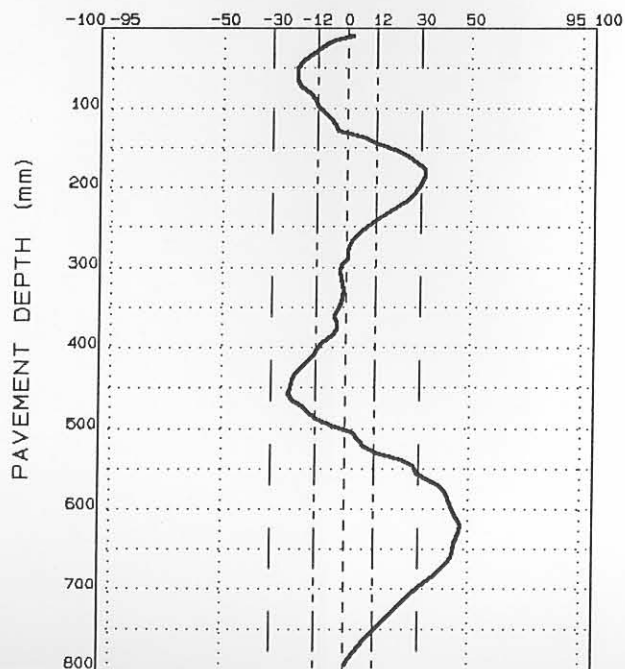
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | BOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 8 | 1.9 | 0.5 | 2.3 | 178 | 1433 |
| 9- 64 | 2.6 | 0.5 | 3.0 | 122 | 1028 |
| 65-184 | 1.7 | 0.4 | 2.0 | 195 | 1553 |
| 185-304 | 3.1 | 0.6 | 3.6 | 98 | 847 |
| 305-328 | 2.1 | 0.2 | 2.3 | 156 | 1276 |
| 329-456 | 3.1 | 0.7 | 3.7 | 96 | 832 |
| 457-516 | 2.0 | 0.6 | 2.4 | 167 | 1365 |
| 517-800 | 4.9 | 1.1 | 5.8 | 54 | 501 |

DATA FILE: 289A4, 5CL, 11CL; N=1022611

NORMALIZED CURVE

DEVIATION (A_1) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

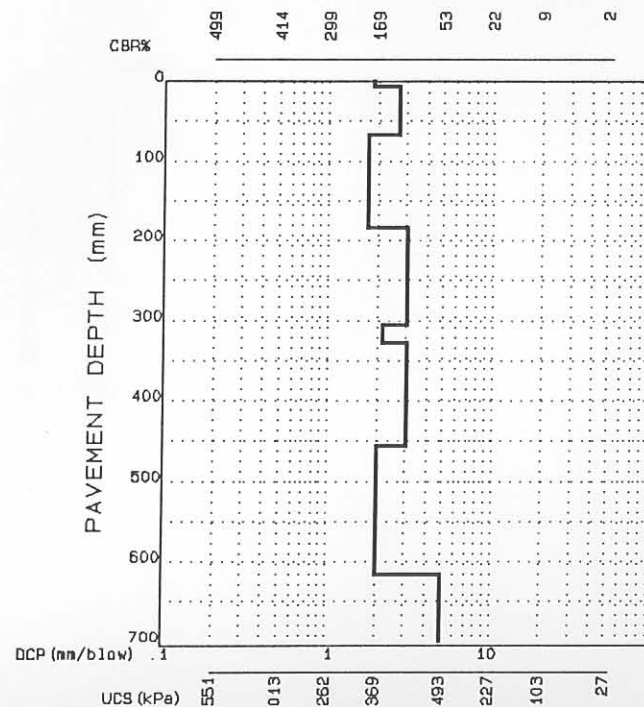


FIGURE E.22

SUMMARY OF DCP INVESTIGATION

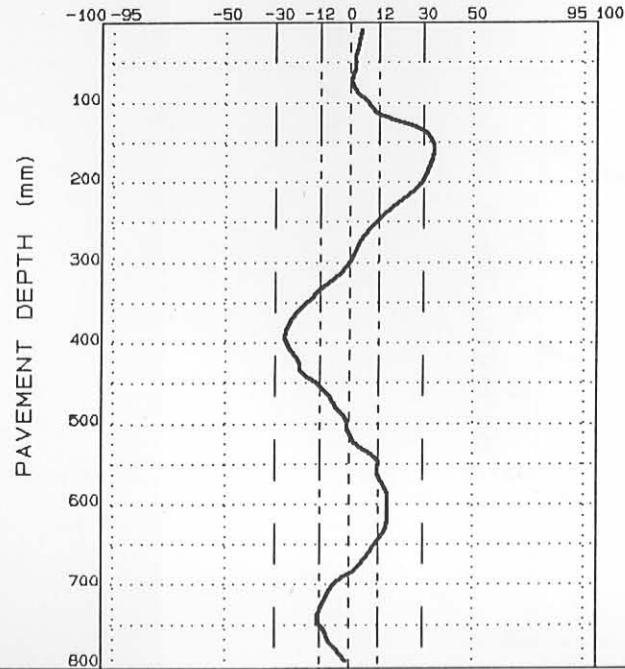
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | θOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 8 | 2.4 | 0.6 | 2.9 | 136 | 1131 |
| 9- 72 | 2.7 | 0.3 | 2.9 | 117 | 991 |
| 73-160 | 2.0 | 0.4 | 2.4 | 168 | 1362 |
| 161-392 | 3.2 | 0.5 | 3.6 | 95 | 825 |
| 393-584 | 1.9 | 0.3 | 2.2 | 174 | 1405 |
| 585-736 | 3.1 | 0.6 | 3.6 | 98 | 847 |
| 737-800 | 3.9 | 0.3 | 4.1 | 74 | 652 |

DATA FILE: 289A4, 1B, 2, 4, 6; N=1894826

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

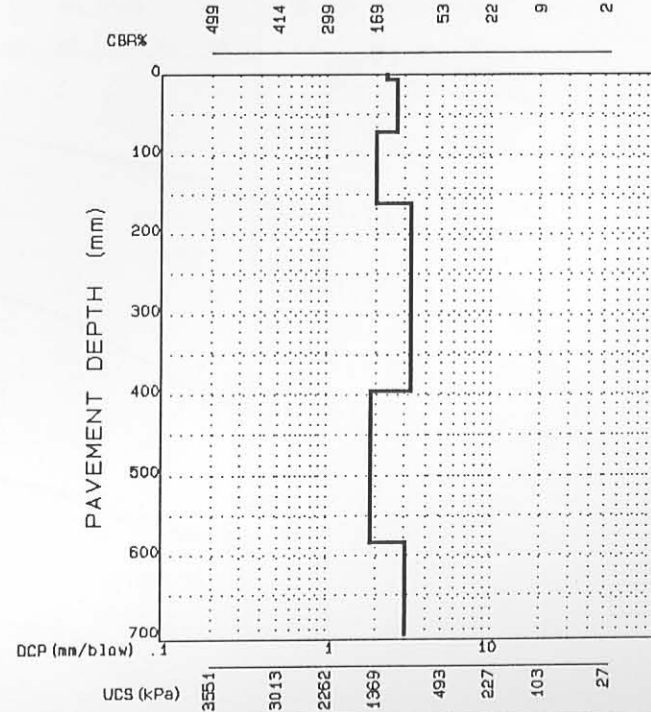


FIGURE E.24

SUMMARY OF DCP INVESTIGATION

DATA FILE :289A4,8,11; N=1894826
 REGION :ROOIWAL (N=1 894 826)
 ROAD NUMBER :P1932
 DISTANCE : 2.9
 POSITION :

| | | | | | | |
|-------------------------------------|--|--|---|--|--|---|
| <input checked="" type="checkbox"/> | | | M | | | R |
|-------------------------------------|--|--|---|--|--|---|

 CONDITION :

| | | | | | | |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| FAILED | DVERSTRESSED | SOUND | | | | |

| | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RUT. | DEFORM. | PUMP. | CRACKS | CROCK | LONG. | OTHER |

 DATE :86/06/13

PAVEMENT CHARACTERISTICS

| | | | | |
|---------------------------------------|---|------|---------|-----------|
| | | DATA | B/CURVE | FROM - TO |
| STRUCTURE NUMBER | : | 384 | | 0- 50 |
| BALANCE NUMBER (BN 100) | : | 12 | 13 | 51-180 |
| DIFFERENCE IN BN100 | : | -1 | | 181-330 |
| BALANCE CURVE IS WHERE B = | : | 1 | A= 1224 | 331-480 |
| STRUCT. CAP. (E80 X 10 ⁶) | : | >10 | | 481-800 |
| ROAD CATEGORY | : | C | | |
| TRAFFIC : LIGHT TRAFFIC | | | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | 80 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 2.2 | 0.3 | 2.5 | 146 | 1204 |
| 2.0 | 0.6 | 2.5 | 165 | 1341 |
| 2.5 | 0.4 | 2.8 | 126 | 1057 |
| 2.9 | 0.6 | 3.5 | 104 | 893 |
| 2.4 | 0.9 | 3.2 | 131 | 1094 |

CATEGORY IV : WELL-BALANCED DEEP STRUCTURE (WBD)

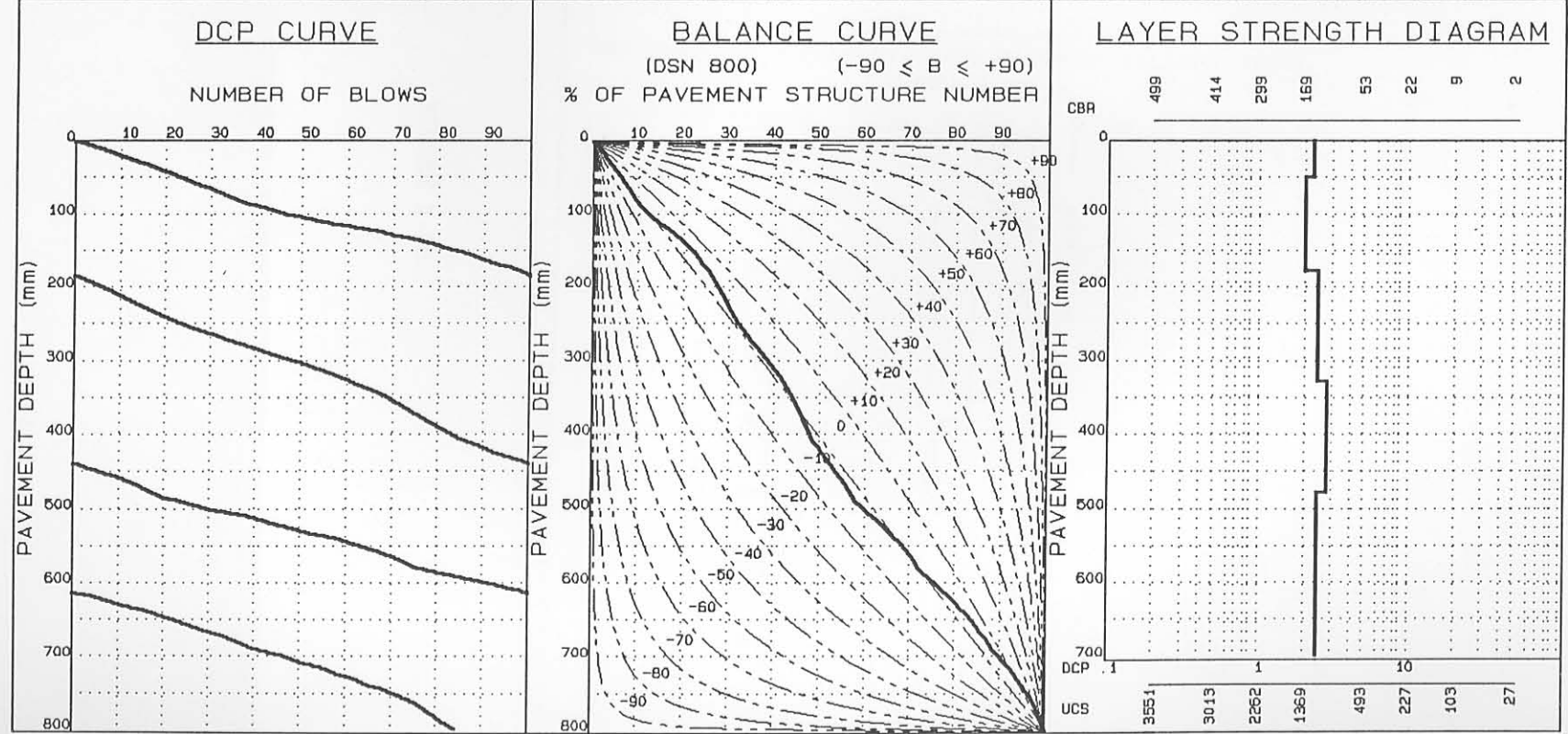


FIGURE E.25

SUMMARY OF DCP INVESTIGATION

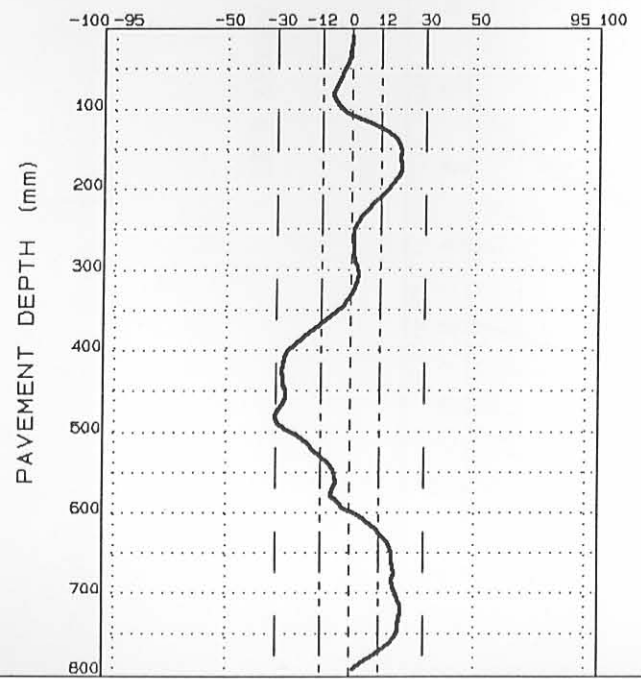
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | θOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 8 | 1.9 | 0.0 | 1.9 | 176 | 1419 |
| 9- 80 | 2.5 | 0.3 | 2.8 | 128 | 1072 |
| 81-152 | 1.7 | 0.5 | 2.0 | 199 | 1581 |
| 153-272 | 2.6 | 0.4 | 2.9 | 122 | 1028 |
| 273-304 | 2.1 | 0.3 | 2.3 | 161 | 1312 |
| 305-424 | 3.1 | 0.5 | 3.6 | 97 | 840 |
| 425-456 | 2.0 | 0.2 | 2.2 | 168 | 1362 |
| 457-480 | 2.8 | 0.3 | 3.0 | 112 | 953 |
| 481-720 | 2.0 | 0.5 | 2.4 | 166 | 1348 |
| 721-800 | 3.7 | 0.9 | 4.4 | 78 | 693 |

DATA FILE: 289A4, 8, 11; N=1894826

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE (SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

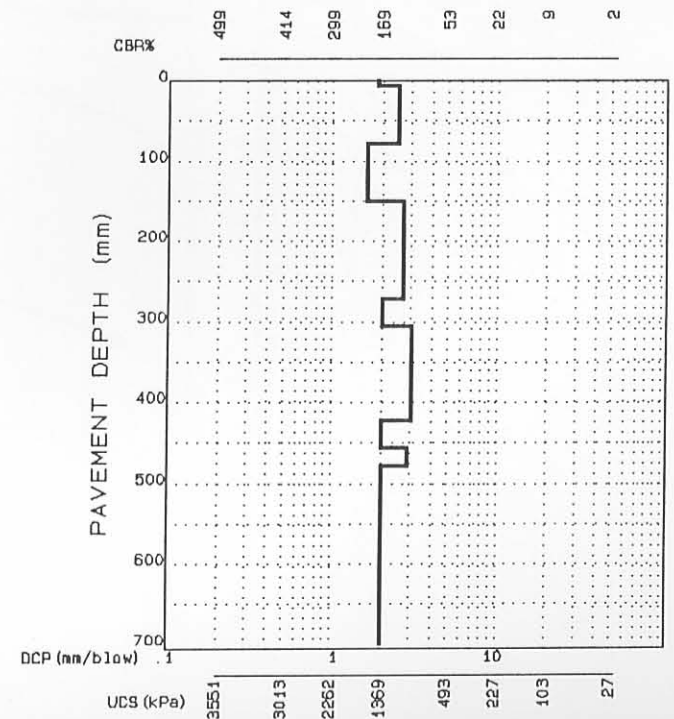


FIGURE E.26

RTT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE : 294A4, 3N10, 11; N=10
 REGION : ROOIWAL (N=10) [B13]
 ROAD NUMBER : P1932
 DISTANCE : 2.9
 POSITION :

| | | | | |
|---|---|---|--|---|
| L | X | M | | R |
|---|---|---|--|---|

 CONDITION :

| | | |
|--------|--------------|-------|
| FAILED | OVERSTRESSED | SOUND |
|--------|--------------|-------|

| | | | | | | |
|------|---------|-------|----------|--------|-------|-------|
| RUT. | DEFORM. | PUMP. | CRACKS : | CROCK. | LONG. | OTHER |
|------|---------|-------|----------|--------|-------|-------|

 DATE : 860325

PAVEMENT CHARACTERISTICS

| | DATA | B/CURVE | FROM - TO |
|---------------------------------------|---------------|----------|-----------|
| STRUCTURE NUMBER | 400 | | 0 - 50 |
| BALANCE NUMBER (BN 100) | 38 | 23 | 51 - 180 |
| DIFFERENCE IN BN100 | 15 | | 181 - 330 |
| BALANCE CURVE IS WHERE B = | 18 | A = 3134 | 331 - 480 |
| STRUCT. CAP. (E80 X 10 ⁶) | >10 | | 481 - 800 |
| ROAD CATEGORY | C | | |
| TRAFFIC | LIGHT TRAFFIC | | |

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | 80 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 0.7 | 0.3 | 0.9 | 361 | 2671 |
| 2.1 | 0.6 | 2.6 | 158 | 1290 |
| 4.7 | 1.6 | 6.0 | 58 | 534 |
| 2.8 | 0.4 | 3.1 | 108 | 923 |
| 3.7 | 0.9 | 4.4 | 78 | 693 |

CATEGORY VI : POORLY BALANCED DEEP STRUCTURE (PBD)

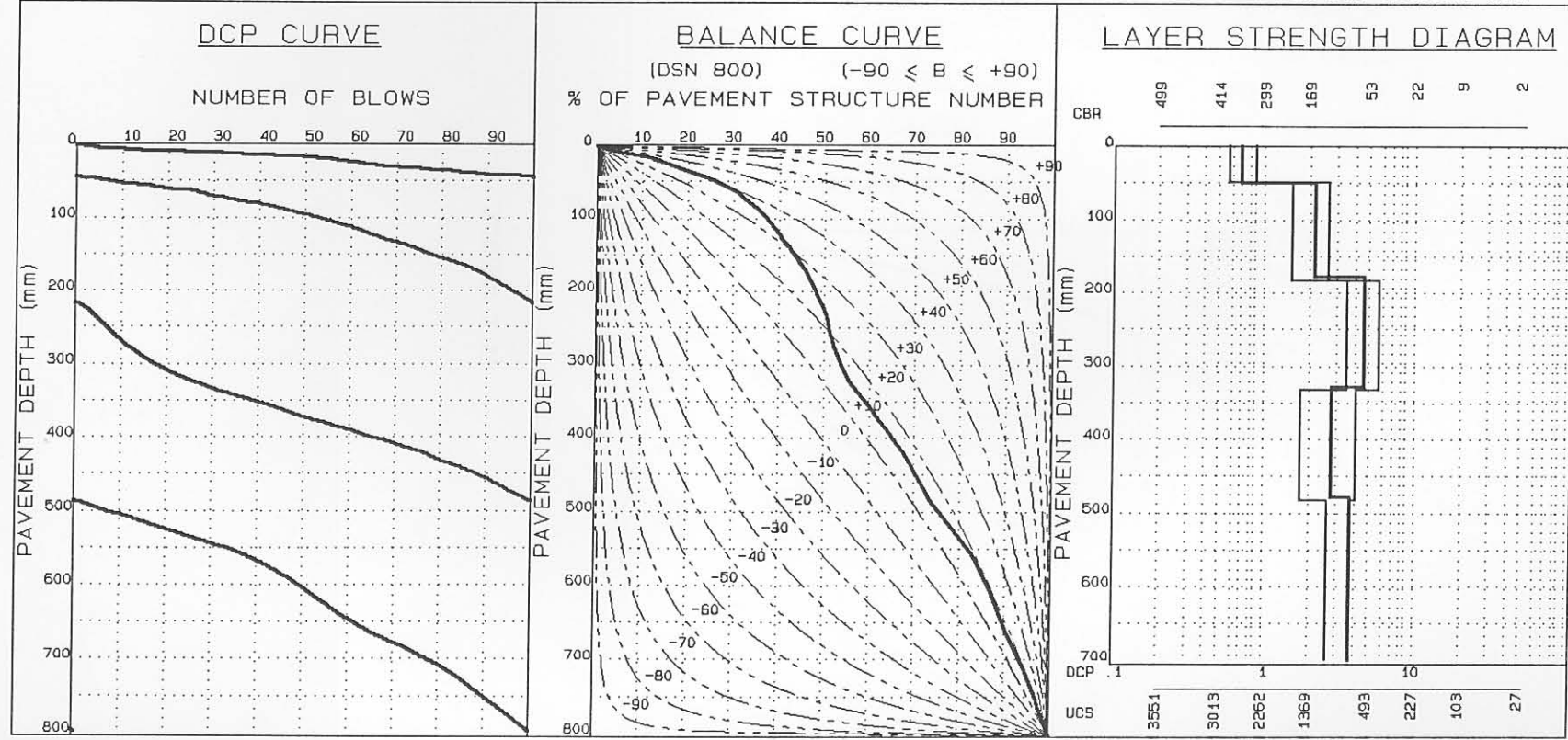


FIGURE E.27

RTT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

DATA FILE :294A4,5-5,10-8; N=1 000 000
 REGION :ROOIWAL (N=1000 00D)
 ROAD NUMBER :P1932
 DISTANCE : 2.9
 POSITION : L M R
 CONDITION : FADED OVERSTRESSED SOUND
 RUT. DEFORM. PUMP. CRACKS : CROCK LONG. OTHER
 DATE :86/06/03

PAVEMENT CHARACTERISTICS

DATA B/CURVE FROM - TO
 STRUCTURE NUMBER : 312 0- 50
 BALANCE NUMBER (BN 100) : 26 17 51-180
 DIFFERENCE IN BN100 : 9 181-330
 BALANCE CURVE IS WHERE B = 9 A= 2790 331-480
 STRUCT. CAP. (E80 X 10⁶) : >10 481-800
 ROAD CATEGORY : C
 TRAFFIC : LIGHT TRAFFIC

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | 80 P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.2 | 0.2 | 1.4 | 266 | 2041 |
| 2.6 | 1.0 | 3.4 | 123 | 1035 |
| 4.6 | 0.9 | 5.3 | 60 | 550 |
| 3.3 | 0.4 | 3.6 | 91 | 794 |
| 3.2 | 0.9 | 3.9 | 94 | 817 |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

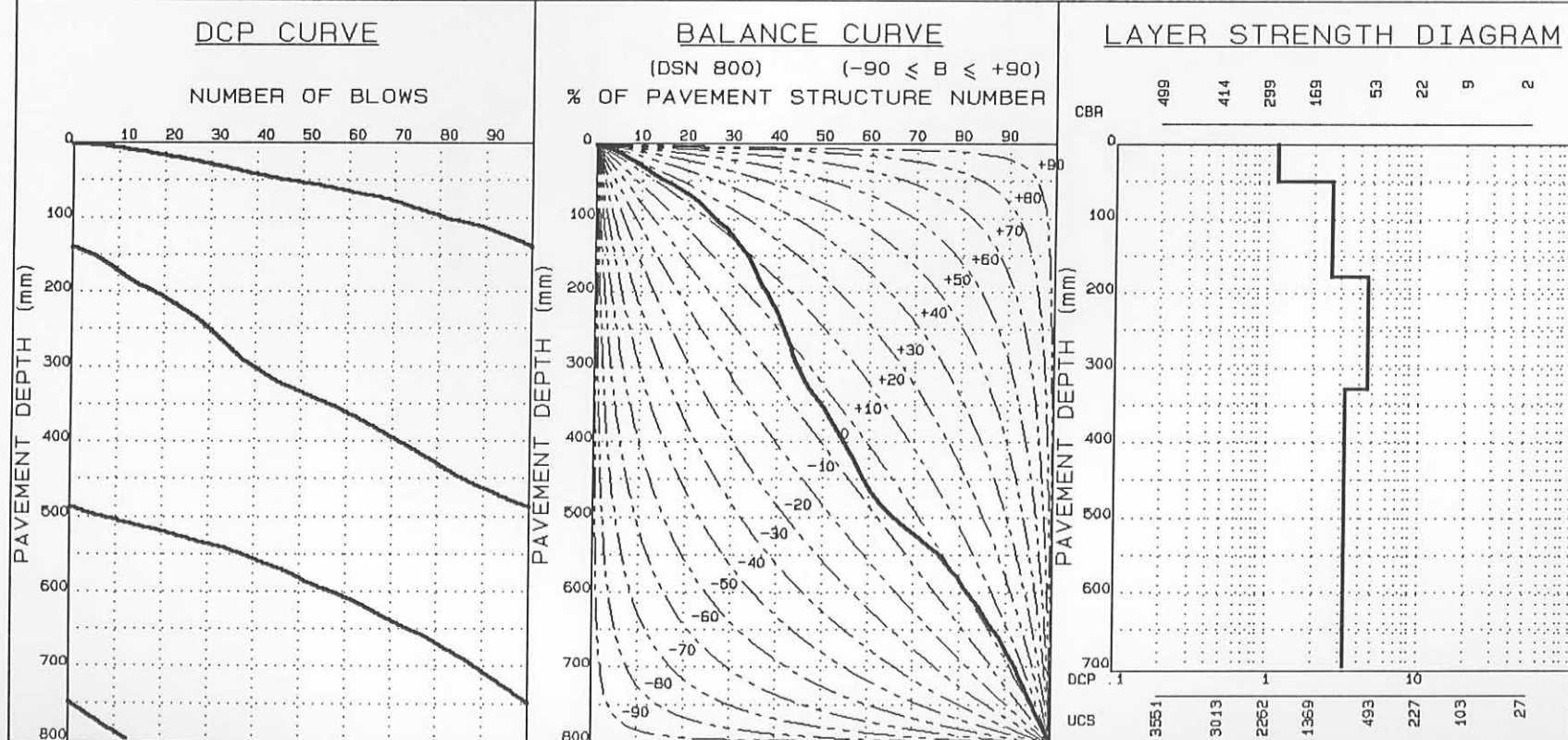


FIGURE E.28

SUMMARY OF DCP INVESTIGATION

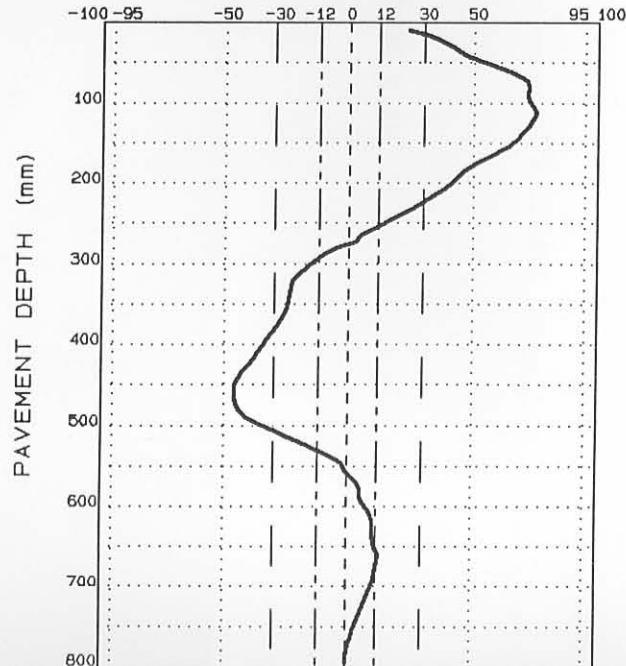
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | SDP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0-112 | 1.5 | 0.5 | 1.9 | 218 | 1713 |
| 113-456 | 3.8 | 1.0 | 4.6 | 74 | 662 |
| 457-656 | 2.5 | 0.6 | 3.0 | 128 | 1072 |
| 657-800 | 4.1 | 0.3 | 4.3 | 69 | 622 |

DATA FILE: 294A4, 5-5, 10-8; N=1 000 000

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), %.mm



LAYER STRENGTH DIAGRAM (REDEFINED)

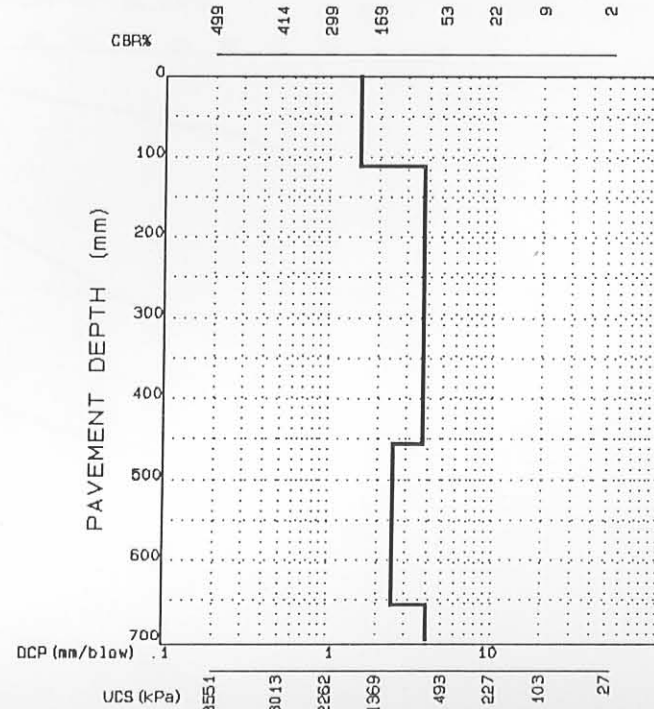


FIGURE E.29

SUMMARY OF DCP INVESTIGATION

DATA FILE :294A4,2,5,7; N=1 798 642
 REGION :ROOIWAL
 ROAD NUMBER :1932
 DISTANCE : 2.9
 POSITION : L M R
 CONDITION : FALTED OVERSTRESSED SOUND
 DEF. DEFORM. PUMP. CRACKS : CROCK LONG. OTHER
 DATE :86/08/19

PAVEMENT CHARACTERISTICS
 STRUCTURE NUMBER : 485
 BALANCE NUMBER (BN 100) : 17 11
 DIFFERENCE IN BN100 : 6
 BALANCE CURVE IS WHERE B = -3 A= 2077
 STRUCT. CAP. (E80 X 10⁶) : >10
 ROAD CATEGORY : C
 TRAFFIC : LIGHT TRAFFIC

AVERAGE EQUIVALENT STRENGTH

| AV. PENETRATION | SD | BO P | CBR | UCS |
|-----------------|-----|------|-----|------|
| 1.8 | 0.6 | 2.3 | 187 | 1497 |
| 2.5 | 0.5 | 2.9 | 129 | 1079 |
| 3.1 | 0.4 | 3.5 | 95 | 832 |
| 2.1 | 0.4 | 2.5 | 157 | 1283 |
| 2.3 | 1.0 | 3.2 | 139 | 1153 |

CATEGORY VIII : AVERAGELY BALANCED INVERTED STRUCTURE (ABI)

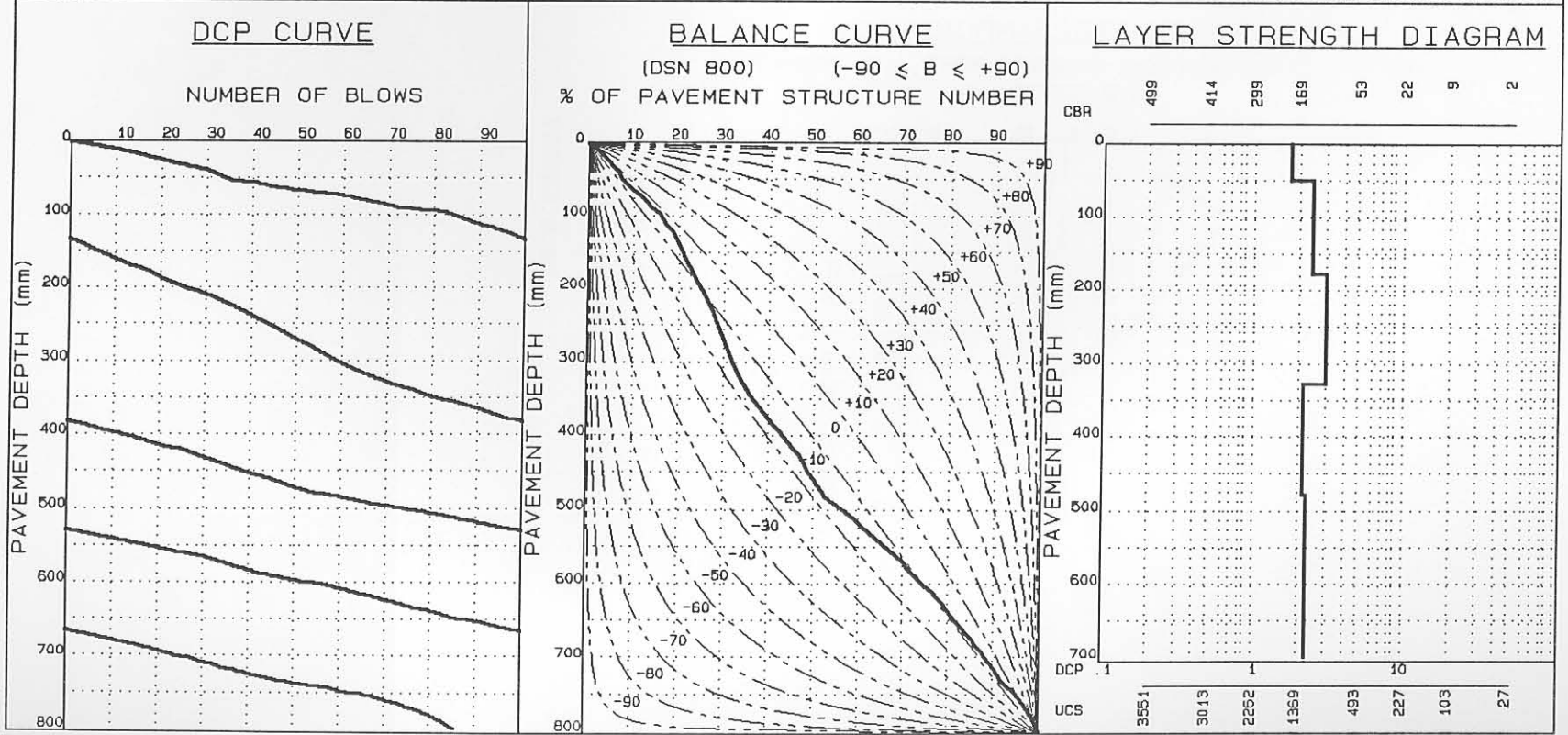


FIGURE E.30

SUMMARY OF DCP INVESTIGATION

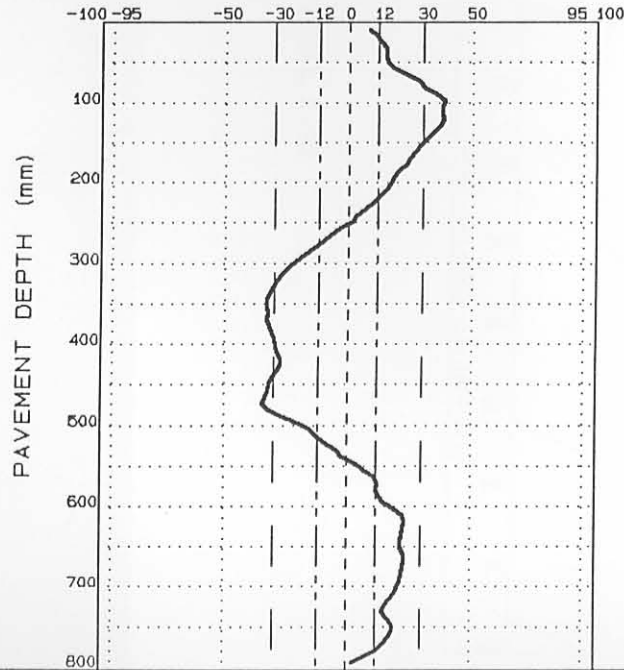
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | QOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 96 | 1.9 | 0.5 | 2.4 | 175 | 1412 |
| 97-352 | 2.9 | 0.5 | 3.3 | 105 | 901 |
| 353-424 | 1.9 | 0.4 | 2.2 | 178 | 1433 |
| 425-472 | 2.4 | 0.4 | 2.7 | 134 | 1116 |
| 473-616 | 1.5 | 0.3 | 1.7 | 222 | 1741 |
| 617-640 | 2.0 | 0.3 | 2.2 | 170 | 1376 |
| 641-656 | 2.0 | 0.2 | 2.2 | 172 | 1391 |
| 657-728 | 2.9 | 0.6 | 3.3 | 108 | 923 |
| 729-752 | 3.0 | 0.2 | 3.1 | 103 | 885 |
| 753-800 | 4.0 | 0.6 | 4.5 | 70 | 630 |

DATA FILE: 294A4, 2, 5, 7; N=1 798 642

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

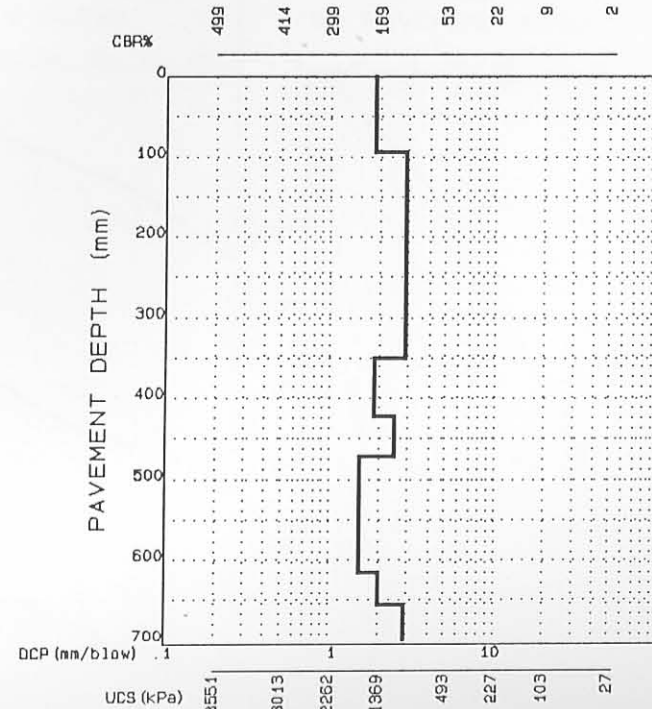


FIGURE E.31

ATT, CSIR, SA

SUMMARY OF DCP INVESTIGATION

| PAVEMENT CHARACTERISTICS | | AVERAGE EQUIVALENT STRENGTH | | | | | | |
|--|---|-----------------------------|-----------------|-----|-----|---|-----|------|
| DATA | B/CURVE | FROM - TO | AV. PENETRATION | SD | BO | P | CBR | UCS |
| DATA FILE : 294A4, 9, 11, 13, 15; N-1 79B 642 | STRUCTURE NUMBER : 314 | 0 - 50 | 2.2 | 0.8 | 2.9 | | 154 | 1262 |
| REGION : ROOIWAL | BALANCE NUMBER (BN 100) : 18 13 | 51-180 | 3.3 | 1.4 | 4.0 | | 89 | 779 |
| ROAD NUMBER : 1932 | DIFFERENCE IN BN100 : 5 | 181-330 | 4.2 | 0.8 | 4.9 | | 65 | 590 |
| DISTANCE : 2.9 | BALANCE CURVE IS WHERE B = 1 A = 1637 | 331-480 | 3.1 | 0.6 | 3.7 | | 95 | 825 |
| POSITION : <input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> R | STRUCT. CAP. (E80 X 10 ⁶) : >10 | 481-800 | 3.5 | 0.9 | 4.3 | | 82 | 724 |
| CONDITION : <input checked="" type="checkbox"/> FALSED <input checked="" type="checkbox"/> OVERSTRESSED <input type="checkbox"/> SOUND | ROAD CATEGORY : C | | | | | | | |
| <input checked="" type="checkbox"/> CRACKS : <input checked="" type="checkbox"/> CROCK <input type="checkbox"/> LONG. <input type="checkbox"/> OTHER | TRAFFIC : LIGHT TRAFFIC | | | | | | | |
| DATE : 86/08/19 | | | | | | | | |

CATEGORY V : AVERAGELY BALANCED DEEP STRUCTURE (ABD)

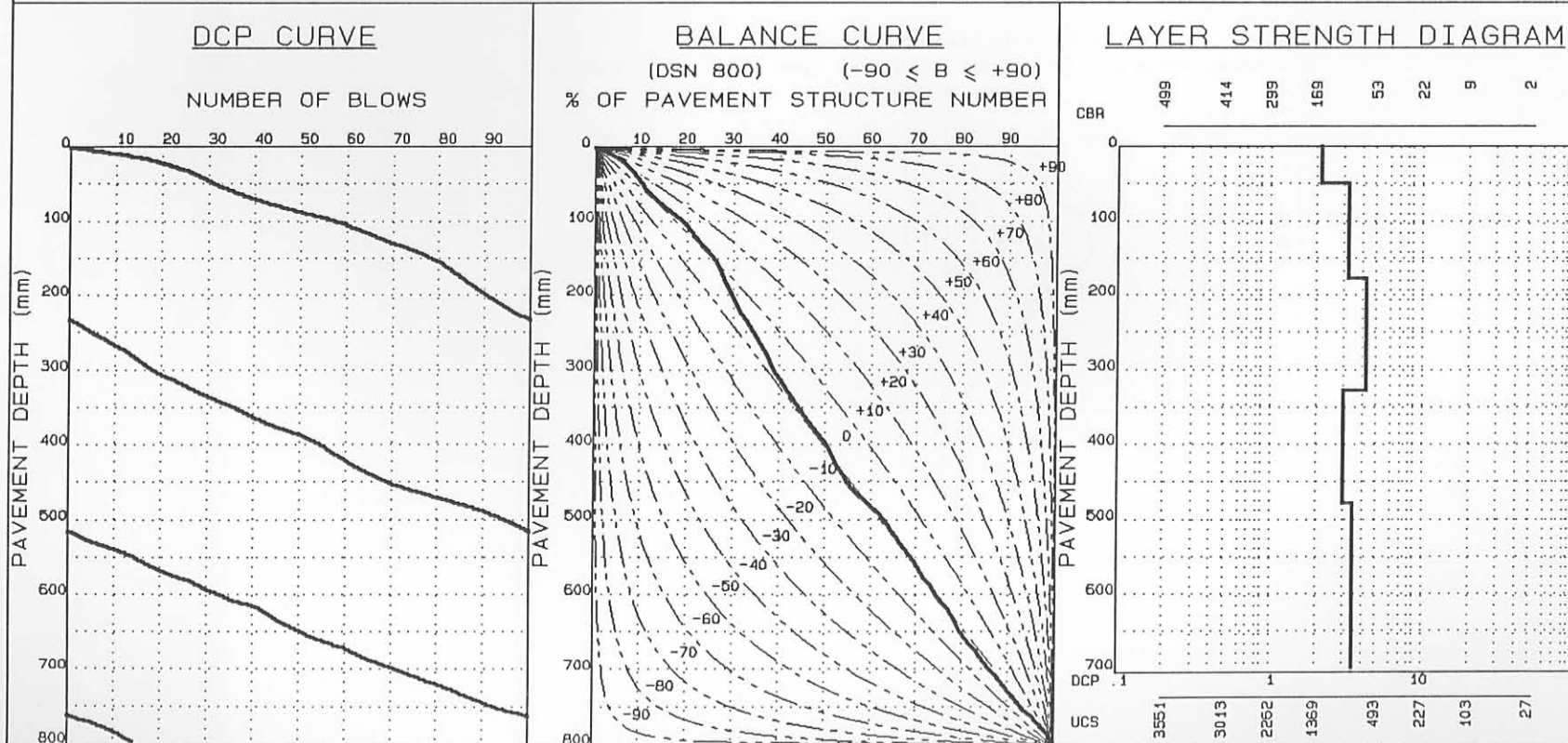


FIGURE E.32

SUMMARY OF DCP INVESTIGATION

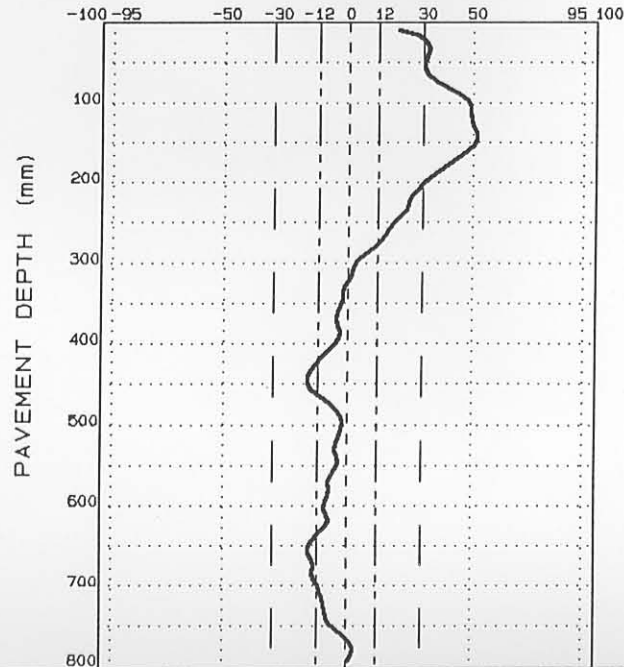
AVERAGE EQUIVALENT STRENGTH (REDEFINED)

| FROM - TO (mm) | AV. PENETRATION (mm/blow) | SD | QOP | CBR% | UCS (kPa) |
|-------------------|------------------------------|-----|-----|------|-----------|
| 0- 32 | 1.6 | 0.5 | 2.0 | 204 | 1616 |
| 33- 48 | 3.1 | 0.2 | 3.3 | 97 | 840 |
| 49-136 | 2.5 | 0.4 | 2.8 | 126 | 1057 |
| 137-368 | 4.2 | 1.0 | 5.0 | 67 | 606 |
| 369-384 | 2.7 | 0.2 | 2.9 | 114 | 968 |
| 385-448 | 3.7 | 0.5 | 4.1 | 78 | 693 |
| 449-496 | 2.4 | 0.2 | 2.6 | 133 | 1109 |
| 497-528 | 3.4 | 0.4 | 3.8 | 86 | 755 |
| 529-544 | 3.1 | 0.2 | 3.3 | 95 | 825 |
| 545-800 | 3.6 | 0.9 | 4.4 | 79 | 701 |

DATA FILE: 294A4, 9, 11, 13, 15; N=1 798 642

NORMALIZED CURVE

DEVIATION (A_i) FROM STANDARD PAVEMENT BALANCE CURVE
(SPBC), % .mm



LAYER STRENGTH DIAGRAM (REDEFINED)

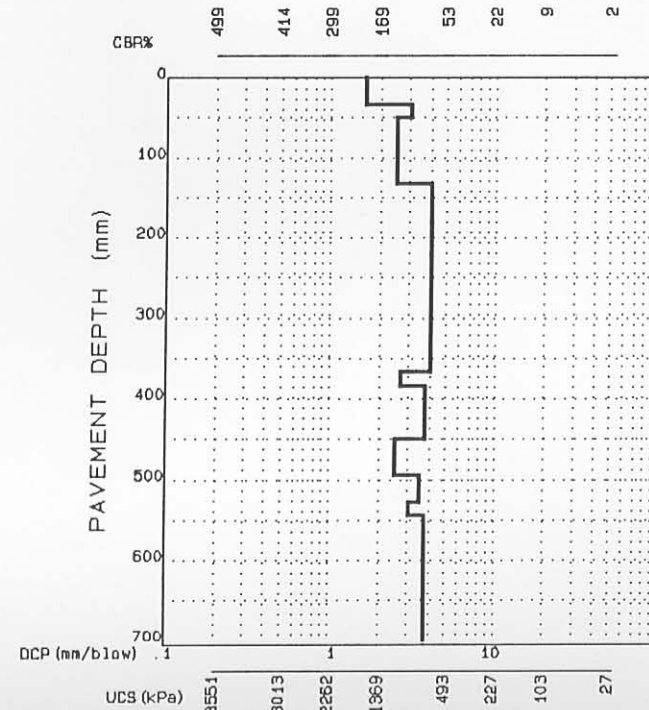


FIGURE E.33