

ネパール王国テライ地下水開発計画

事前調査報告書

添付資料







ネパール王国  
テライ地下水開発計画  
事前調査報告書

添付資料

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添付資料

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| 国際協力事業団   |            |
| 受入<br>月日  | '87. 1. 23 |
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|           | 116        |
|           | 61.8       |
|           | GRF        |

マイクロ  
フィルム作成





資料 d. シンガポール空港における月間平均気象データ 1976~1984年

STATION JANAKPUR AIRPORT YEAR 1976

| Month | AIR TEMPERATURE °C |      |       |                  |            |                |           | RELATIVE HUMIDITY %<br>Observed at |      | PRECIPITATION mm. |                          |                      |         |           |           |           |         |
|-------|--------------------|------|-------|------------------|------------|----------------|-----------|------------------------------------|------|-------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|---------|
|       | Mean               |      |       | Absolute extreme |            | Number of days |           | 0840                               | 1740 | Total             | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |         |
|       | Max.               | Min. | Daily | Max. date        | Min. date  | Max. ≥ 30°     | Min. ≤ 0° |                                    |      |                   |                          | ≥ 1.0                | 1.0 9.9 | 10.0 24.9 | 25.0 49.9 | 50.0 99.9 | ≥ 100.0 |
| JAN   | 23.2               |      |       | 26.0<br>29       | -          | 0              |           | 85                                 | 66   | 18                | 15 /19                   | 2                    | 1       | 1         | 0         | 0         | 0       |
| FEB   | 25.2               |      |       | 30.0<br>19       | -          | 1              |           | 81                                 | 56   | 11                | 11 /6                    | 1                    | 0       | 1         | 0         | 0         | 0       |
| MAR   | 32.1               | 12.7 | 22.4  | 37.0<br>29       | 7.0<br>1   | 28             | 0         | 62                                 | 30   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| APR   | 35.3               | 19.2 | 27.2  | 38.0<br>15       | 12.0<br>5  | 30             | 0         | 67                                 | 44   | 16                | 11 /29                   | 2                    | 1       | 1         | 0         | 0         | 0       |
| MAY   | 33.4               | 22.5 | 28.0  | 39.0<br>5        | 18.0<br>11 | 31             | 0         | 79                                 | 67   | 130               | 51 /16                   | 7                    | 3       | 2         | 1         | 1         | 0       |
| JUN   | 32.8               | 24.0 | 28.4  | 36.0<br>23       | 20.0<br>12 | 27             | 0         | 83                                 | 78   | 182               | 45 /9                    | 10                   | 4       | 2         | 4         | 0         | 0       |
| JUL   | 32.6               |      |       | 34.0<br>29       |            | 25             |           | 84                                 | 81   | 183               | 58 /16                   | 10                   | 5       | 2         | 2         | 1         | 0       |
| AUG   | 31.3               |      |       | 33.0<br>12       |            | 14             |           | 89                                 |      | 442               | 229 /19                  | 13                   | 5       | 6         | 0         | 0         | 2       |
| SEP   | 31.7               |      |       | 34.0<br>10       |            | 21             |           | 86                                 | 78   | 98                | 30 /27                   | 10                   | 6       | 3         | 1         | 0         | 0       |
| OCT   | 30.8               |      |       | 33.0<br>1        |            | 30             |           | 85                                 | 74   | 10                | 7 /5                     | 2                    | 2       | 0         | 0         | 0         | 0       |
| NOV   | 28.8               |      |       | 32.0<br>3        |            | 10             |           | 84                                 | 68   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| DEC   | 24.2               |      |       | 26.0<br>5        |            | 0              |           | 86                                 | 68   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| Year  |                    |      |       |                  |            |                |           |                                    |      | 1090              | 229<br>Aug               | 57                   | 27      | 18        | 8         | 2         | 2       |

1976

STATION JANAKPUR AIRPORT YEAR 1977

| Month | AIR TEMPERATURE °C |      |       |                  |            |                |           | RELATIVE HUMIDITY %<br>Observed at |      | PRECIPITATION mm. |                          |                      |         |           |           |           |         |
|-------|--------------------|------|-------|------------------|------------|----------------|-----------|------------------------------------|------|-------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|---------|
|       | Mean               |      |       | Absolute extreme |            | Number of days |           | 0840                               | 1740 | Total             | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |         |
|       | Max.               | Min. | Daily | Max. date        | Min. date  | Max. ≥ 30°     | Min. ≤ 0° |                                    |      |                   |                          | ≥ 1.0                | 1.0 9.9 | 10.0 24.9 | 25.0 49.9 | 50.0 99.9 | ≥ 100.0 |
| JAN   |                    |      |       |                  |            |                |           |                                    |      | 0                 |                          |                      |         |           |           |           |         |
| FEB   |                    |      |       |                  |            |                |           |                                    |      | 2                 | 2 /5                     | 1                    | 1       | 0         | 0         | 0         | 0       |
| MAR   |                    |      |       |                  |            |                |           |                                    |      | 0                 |                          |                      |         |           |           |           |         |
| APR   | 32.6               | 21.9 | 27.2  | 36.0<br>29       | 18.0<br>12 | 27             | 0         |                                    |      | 39                | 14 /12                   | 5                    | 3       | 2         | 0         | 0         | 0       |
| MAY   | 32.9               | 22.4 | 27.6  | 40.0<br>31       | 18.0<br>5  | 23             | 0         |                                    |      | 159               | 52 /5                    | 8                    | 4       | 1         | 2         | 1         | 0       |
| JUN   | 33.3               | 25.1 | 29.2  | 36.0<br>30       | 21.0<br>7  | 27             | 0         | 88                                 | 83   | 51                | 22 /8                    | 5                    | 3       | 2         | 0         | 0         | 0       |
| JUL   | 32.4               | 26.5 | 29.4  | 35.0<br>1        | 25.0<br>15 | 31             | 0         | 91                                 | 86   | 321               | 98 /20                   | 19                   | 13      | 1         | 3         | 2         | 0       |
| AUG   | 32.6               | 26.3 | 29.4  | 35.0<br>20       | 24.0<br>14 | 28             | 0         | 89                                 | 84   | 287               | 79 /28                   | 16                   | 10      | 2         | 2         | 2         | 0       |
| SEP   | 32.9               | 26.0 | 29.4  | 35.0<br>11       | 24.0<br>23 | 26             | 0         | 91                                 | 85   | 58                | 21 /23                   | 5                    | 3       | 2         | 0         | 0         | 0       |
| OCT   | 29.2               | 21.6 | 25.4  | 31.0<br>31       | 19.0<br>16 | 16             | 0         | 92                                 | 89   | 170               | 64 /5                    | 6                    | 1       | 2         | 2         | 1         | 0       |
| NOV   | 27.4               | 18.0 | 22.7  | 30.0<br>3        | 14.0<br>28 | 3              | 0         | 88                                 | 84   | 17                | 11 /5                    | 2                    | 1       | 1         | 0         | 0         | 0       |
| DEC   | 24.0               | 11.4 | 17.7  | 27.0<br>2        | 8.0<br>24  | 0              | 0         | 87                                 | 76   | 44                | 26 /27                   | 3                    | 1       | 1         | 1         | 0         | 0       |
| Year  |                    |      |       |                  |            |                |           |                                    |      | 1148              | 98<br>Jul                |                      |         |           |           |           |         |

1977

STATION JANAKPUR AIR PORT YEAR 1978

| Month | AIR TEMPERATURE °C |      |       |                  |                |                |           | RELATIVE HUMIDITY %<br>Observed at |      | PRECIPITATION mm. |                          |                      |         |           |           |           |         |
|-------|--------------------|------|-------|------------------|----------------|----------------|-----------|------------------------------------|------|-------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|---------|
|       | Mean               |      |       | Absolute extreme |                | Number of days |           | 0840                               | 1740 | Total             | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |         |
|       | Max.               | Min. | Daily | Max. date        | Min. date      | Max. ≥ 30°     | Min. ≤ 0° |                                    |      |                   |                          | ≥ 1.0                | 1.0 9.9 | 10.0 24.9 | 25.0 49.9 | 50.0 99.9 | ≥ 100.0 |
| JAN   | 21.6               | 8.9  | 15.2  | 26.0<br>31       | 6.0<br>6       | 0              | 0         | 91                                 | 81   | 10                | 10 /22                   | 1                    | 0       | 1         | 0         | 0         | 0       |
| FEB   | 24.0               | 10.3 | 17.2  | 30.0<br>27       | 6.0<br>21      | 1              | 0         | 91                                 | 88   | 7                 | 5 /17                    | 2                    | 2       | 0         | 0         | 0         | 0       |
| MAR   | 29.6               | 14.0 | 21.8  | 34.0<br>29       | 10.0<br>7      | 15             | 0         | 88                                 | 68   | 33                | 16 /12                   | 3                    | 1       | 2         | 0         | 0         | 0       |
| APR   | 34.2               | 20.8 | 27.5  | 37.0<br>10       | 13.0<br>2      | 30             | 0         | 72                                 | 69   | 15                | 9 /18                    | 2                    | 2       | 0         | 0         | 0         | 0       |
| MAY   | 33.4               | 24.6 | 29.0  | 40.0<br>19       | 20.0<br>12     | 29             | 0         | 75                                 | 90   | 98                | 35 /4                    | 7                    | 3       | 3         | 1         | 0         | 0       |
| JUN   | 33.4               | 29.7 | 30.0  | 36.0<br>7        | 22.0<br>2      | 29             | 0         | 87                                 | 83   | 146               | 41 /9                    | 11                   | 6       | 2         | 3         | 0         | 0       |
| JUL   | 32.4               | 25.7 | 29.0  | 35.0<br>3        | 24.0<br>4      | 27             | 0         | 90                                 | 79   | 461               | 168 /16                  | 13                   | 7       | 1         | 2         | 2         | 1       |
| AUG   | 32.6               | 27.4 | 30.0  | 37.0<br>14       | 24.0<br>15     | 31             | 0         | 95                                 | 90   | 185               | 43 /12                   | 16                   | 9       | 4         | 3         | 0         | 0       |
| SEP   | 30.7               | 24.1 | 27.4  | 34.0<br>5        | 22.0<br>14     | 28             | 0         | 90                                 | 87   | 125               | 41 /14                   | 9                    | 4       | 3         | 2         | 0         | 0       |
| OCT   | 30.7               | 21.9 | 26.3  | 35.0<br>3        | 18.0<br>30     | 27             | 0         | 87                                 | 85   | 107               | 50 /7                    | 4                    | 1       | 1         | 1         | 1         | 0       |
| NOV   | 27.1               | 16.7 | 21.9  | 31.0<br>1        | 10.0<br>30     | 1              | 0         | 90                                 | 76   | 15                | 8 /15                    | 3                    | 3       | 0         | 0         | 0         | 0       |
| DEC   | 24.9               | 10.6 | 17.8  | 28.0<br>12       | 9.0<br>18      | 0              | 0         | 85                                 | 79   | 1                 | 1 /2                     | 1                    | 1       | 0         | 0         | 0         | 0       |
| Year  | 29.6               | 19.2 | 24.4  | 40.0<br>May      | 6.0<br>Jan/Feb | 218            | 0         | 87                                 | 81   | 1203              | 168<br>Jul               | 74                   | 39      | 12        | 12        | 12        | 12      |

1978



STATION JANAKPUR AIRPORT

YEAR 1979

| Month | AIR TEMPERATURE °C |      |       |                  |            |                |           | RELATIVE HUMIDITY %<br>Observed at |      | PRECIPITATION mm. |                          |                      |         |           |           |           |         |
|-------|--------------------|------|-------|------------------|------------|----------------|-----------|------------------------------------|------|-------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|---------|
|       | Mean               |      |       | Absolute extreme |            | Number of days |           | 0840                               | 1740 | Total             | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |         |
|       | Max.               | Min. | Daily | Max. date        | Min. date  | Max. ≥ 30°     | Min. ≤ 0° |                                    |      |                   |                          | ≥ 1.0                | 1.0-9.9 | 10.0-24.9 | 25.0-49.9 | 50.0-99.9 | ≥ 100.0 |
| JAN   | 24.0               | 8.8  | 16.4  | 25.0<br>28.      | 6.0<br>18  | 0              | 0         | 92                                 | 90   | 8                 | 5 / 29                   | 2                    | 2       | 0         | 0         | 0         | 0       |
| FEB   | 24.8               | 10.0 | 17.4  | 29.6<br>21       | 6.0<br>4   | 0              | 0         | 87                                 | 75   | 18                | 14 / 8                   | 2                    | 1       | 1         | 0         | 0         | 0       |
| MAR   | 32.0               | 13.7 | 22.8  | 38.0<br>27       | 6.0<br>10  | 22             | 0         | 75                                 | 71   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| APR   | 37.6               | 21.0 | 29.3  | 40.0<br>4        | 16.5<br>6  | 16             | 0         | 75                                 | 66   | 1                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| MAY   | 39.3               | 22.1 | 30.7  | 41.0<br>18       | 19.0<br>10 | 31             | 0         | 70                                 | 59   | 1                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| JUN   | 36.3               | 24.8 | 30.6  | 41.8<br>6        | 21.0<br>8  | 30             | 0         | 82                                 | 74   | 130               | 68 / 21                  | 6                    | 2       | 3         | 0         | 1         | 0       |
| JUL   | 34.5               | 25.4 | 29.9  | 37.0<br>7        | 22.0<br>15 | 31             | 0         | 92                                 | 90   | 389               | 43 / 20                  | 21                   | 7       | 7         | 7         | 0         | 0       |
| AUG   | 33.4               | 26.0 | 29.7  | 36.2<br>8        | 23.5<br>22 | 30             | 0         | 88                                 | 80   | 160               | 52 / 14                  | 9                    | 5       | 1         | 2         | 1         | 0       |
| SEP   | 33.0               | 24.1 | 28.5  | 35.4<br>25       | 20.8<br>30 | 30             | 0         | 92                                 | 91   | 175               | 42 / 4                   | 11                   | 5       | 3         | 3         | 0         | 0       |
| OCT   | 30.7               | 20.7 | 25.7  | 31.6<br>21       | 18.5<br>28 | 28             | 0         | 88                                 | 88   | 87                | 40 / 1                   | 5                    | 3       | 0         | 2         | 0         | 0       |
| NOV   | 29.0               | 17.4 | 23.2  | 32.2<br>7        | 12.0<br>21 | 12             | 0         | 88                                 | 91   | 12                | 8 / 29                   | 3                    | 3       | 0         | 0         | 0         | 0       |
| DEC   | 24.2               | 11.0 | 17.6  | 29.0<br>1        | 6.5<br>22  | 0              | 0         | 91                                 | 86   | 30                | 13 / 1                   | 5                    | 4       | 1         | 0         | 0         | 0       |
| Year  | 31.6               | 18.8 | 25.2  | 41.8<br>Jun      | 6.0<br>Feb | 230            | 0         | 85                                 | 80   | 1011              | 68<br>Jun                | 64                   | 32      | 16        | 14        | 2         | 0       |

1979

STATION JANAKPUR (AIRPORT)

YEAR 1980

| Month | AIR TEMPERATURE °C |      |       |                  |            |                |           | RELATIVE HUMIDITY %<br>Observed at |      | PRECIPITATION mm. |                          |                      |         |           |           |           |         |
|-------|--------------------|------|-------|------------------|------------|----------------|-----------|------------------------------------|------|-------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|---------|
|       | Mean               |      |       | Absolute extreme |            | Number of days |           | 0840                               | 1740 | Total             | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |         |
|       | Max.               | Min. | Daily | Max. date        | Min. date  | Max. ≥ 30°     | Min. ≤ 0° |                                    |      |                   |                          | ≥ 1.0                | 1.0-9.9 | 10.0-24.9 | 25.0-49.9 | 50.0-99.9 | ≥ 100.0 |
| JAN   | 22.7               | 6.4  |       | 25.6<br>29       | 6.0<br>16  | 0              | 0         | 92                                 | 94   | 2                 | 2 / 1                    | 1                    | 1       | 0         | 0         | 0         | 0       |
| FEB   | 25.5               | 10.0 |       | 30.2<br>18       | 6.0<br>7   | 2              | 0         | 85                                 | 88   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| MAR   |                    |      |       |                  |            |                |           | 81                                 | 80   | 5                 | 2 / 2                    | 3                    | 3       | 0         | 0         | 0         | 0       |
| APR   |                    |      |       |                  |            |                |           | 76                                 | 63   | 5                 | 5 / 20                   | 1                    | 1       | 0         | 0         | 0         | 0       |
| MAY   |                    |      |       |                  |            |                |           | 80                                 | 82   | 131               | 40 / 29                  | 10                   | 3       | 6         | 1         | 0         | 0       |
| JUN   | 34.7               | 25.4 |       | 38.5<br>7        | 22.0<br>8  | 29             | 0         | 88                                 | 87   | 127               | 42 / 8                   | 8                    | 4       | 1         | 3         | 0         | 0       |
| JUL   | 34.0               | 24.4 |       | 38.0<br>1        | 22.0<br>20 | 31             | 0         | 91                                 | 90   | 345               | 45 / 29                  | 16                   | 5       | 5         | 6         | 0         | 0       |
| AUG   | 34.0               | 25.3 |       | 37.0<br>22       | 23.0<br>17 | 31             | 0         | 91                                 | 87   | 170               | 41 / 16                  | 14                   | 8       | 3         | 3         | 0         | 0       |
| SEP   | 33.9               | 23.4 |       | 36.0<br>4        | 23.0<br>29 | 29             | 0         | 89                                 | 84   | 232               | 42 / 21                  | 12                   | 6       | 1         | 5         | 0         | 0       |
| OCT   | 30.6               | 19.7 |       | 33.0<br>4        | 16.0<br>31 | 26             | 0         | 87                                 | 90   | 32                | 15 / 7                   | 3                    | 1       | 2         | 0         | 0         | 0       |
| NOV   |                    |      |       |                  |            |                |           |                                    |      | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| DEC   | 25.9               | 9.7  |       | 28.0<br>1        | 7.0<br>12  | 0              | 0         | 91                                 | 86   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| Year  |                    |      |       |                  |            |                |           |                                    |      | 1049              | 45<br>Jul                | 68                   | 32      | 18        | 18        | 0         | 0       |

1980

STATION JANAKPUR AIRPORT

YEAR 1981

| Month | AIR TEMPERATURE °C |      |       |                  |            |                |           | RELATIVE HUMIDITY %<br>Observed at |      | PRECIPITATION mm. |                          |                      |         |           |           |           |         |
|-------|--------------------|------|-------|------------------|------------|----------------|-----------|------------------------------------|------|-------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|---------|
|       | Mean               |      |       | Absolute extreme |            | Number of days |           | 0840                               | 1740 | Total             | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |         |
|       | Max.               | Min. | Daily | Max. date        | Min. date  | Max. ≥ 30°     | Min. ≤ 0° |                                    |      |                   |                          | ≥ 1.0                | 1.0-9.9 | 10.0-24.9 | 25.0-49.9 | 50.0-99.9 | ≥ 100.0 |
| JAN   | 24.5               | 7.4  | 16.0  | 27.0<br>29       | 6.0<br>19  | 0              | 0         | 92                                 | 91   | 20                | 15 / 25                  | 2                    | 1       | 1         | 0         | 0         | 0       |
| FEB   | 27.4               | 8.2  | 17.8  | 30.0<br>21       | 6.0<br>11  | 1              | 0         | 89                                 | 89   | 25                | 25 / 11                  | 1                    | 0       | 0         | 1         | 0         | 0       |
| MAR   | 31.2               | 12.4 | 21.8  | 34.0<br>24       | 10.0<br>30 | 22             | 0         | 83                                 | 78   | 41                | 21 / 31                  | 3                    | 1       | 2         | 0         | 0         | 0       |
| APR   |                    | 21.1 |       |                  | 16.0<br>12 |                |           | 81                                 | 79   | 73                | 43 / 17                  | 5                    | 2       | 2         | 1         | 0         | 0       |
| MAY   | 33.7               | 21.6 | 27.4  | 36.5<br>14       | 19.0<br>27 | 22             | 0         | 86                                 | 82   | 174               | 49 / 27                  | 10                   | 2       | 6         | 2         | 0         | 0       |
| JUN   | 35.6               | 25.6 | 30.6  | 40.0<br>14       | 20.0<br>8  | 29             | 0         | 85                                 | 85   | 160               | 42 / 28                  | 10                   | 5       | 2         | 3         | 0         | 0       |
| JUL   | 33.0               | 26.0 | 29.5  | 36.0<br>23       | 24.0<br>20 | 27             | 0         | 92                                 | 90   | 384               | 42 / 1                   | 15                   | 3       | 4         | 8         | 0         | 0       |
| AUG   | 33.3               | 25.4 | 29.4  | 35.0<br>7        | 23.0<br>29 | 24             | 0         | 92                                 | 91   | 197               | 46 / 26                  | 11                   | 5       | 3         | 3         | 0         | 0       |
| SEP   |                    | 24.9 |       |                  | 23.0<br>28 |                |           | 94                                 | 91   | 124               | 42 / 30                  | 8                    | 5       | 0         | 3         | 0         | 0       |
| OCT   |                    | 20.7 |       |                  | 17.0<br>28 |                |           | 86                                 | 84   | 1                 | 1 / 26                   | 1                    | 1       | 0         | 0         | 0         | 0       |
| NOV   |                    | 14.5 |       |                  | 11.0<br>30 |                |           | 82                                 | 87   | 2                 | 2 / 4                    | 1                    | 1       | 0         | 0         | 0         | 0       |
| DEC   |                    | 10.2 |       |                  | 8.0<br>23  |                |           | 81                                 | 79   | 0                 | 0                        | 0                    | 0       | 0         | 0         | 0         | 0       |
| Year  |                    | 18.2 |       |                  | 6.0<br>Feb |                |           | 87                                 | 86   | 1201              | 49<br>May                | 47                   | 26      | 20        | 21        | 0         | 0       |

1981



STATION JANAKPUR AIRPORT

YEAR 1982

| Month | AIR TEMPERATURE °C |      |       |                  |            |                |    | RELATIVE HUMIDITY % Observed at |      | PRECIPITATION (mm) |                          |                      |         |           |           |           |
|-------|--------------------|------|-------|------------------|------------|----------------|----|---------------------------------|------|--------------------|--------------------------|----------------------|---------|-----------|-----------|-----------|
|       | Mean               |      |       | Absolute extreme |            | Number of days |    | 0840                            | 1740 | Total              | Maximum in 24 hrs & date | Number of rainy days |         |           |           |           |
|       | Max.               | Min. | Daily | Max. date        | Min. date  | ≥30            | ≥0 |                                 |      |                    |                          | ≥1.0                 | 1.0-9.9 | 10.0-24.9 | 25.0-49.9 | 50.0-99.9 |
| JAN   | 22.9               | 8.7  | 15.8  | 28.0<br>26       | 5.0<br>1   | 0              | 0  | 84                              | 79   | 0                  | 0                        | 0                    | 0       | 0         | 0         | 0         |
| FEB   | 25.2               | 10.5 | 17.8  | 29.5<br>21       | 7.8<br>7   | 0              | 0  | 82                              | 74   | 3                  | 2/17                     | 1                    | 1       | 1         | 0         | 0         |
| MAR   | 29.9               | 14.9 | 22.4  | 35.0<br>30       | 9.8<br>4   | 0              | 0  | 72                              | 59   | 6                  | 3/7                      | 2                    | 2       | 0         | 0         | 0         |
| APR   | 34.3               | 20.5 | 27.4  | 38.5<br>5        | 11.6<br>18 | 28             | 0  | 68                              | 58   | 17                 | 7/21                     | 3                    | 3       | 0         | 0         | 0         |
| MAY   | 37.5               | 24.0 | 30.8  | 42.0<br>26       | 19.0<br>19 | 31             | 0  | 70                              | 59   | 24                 | 21/29                    | 2                    | 1       | 1         | 0         | 0         |
| JUN   | 33.8               | 24.4 | 29.1  | 37.5<br>1        | 21.0<br>11 | 29             | 0  | 86                              | 82   | 204                | 50/27                    | 10                   | 3       | 4         | 3         | 0         |
| JUL   | 33.2               | 23.4 | 29.3  | 36.5<br>17       | 23.0<br>23 | 31             | 0  | 68                              | 85   | 121                | 46/15                    | 8                    | 5       | 1         | 2         | 0         |
| AUG   | 33.7               | 26.5 | 30.1  | 36.0<br>2        | 24.6<br>1  | 31             | 0  | 87                              | 84   | 62                 | 21/28                    | 8                    | 4       | 2         | 0         | 0         |
| SEP   | 32.5               | 24.3 | 28.4  | 37.0<br>7        | 21.0<br>27 | 27             | 0  | 83                              | 81   | 133                | 34/13                    | 12                   | 7       | 4         | 1         | 0         |
| OCT   | 31.8               | 21.3 | 26.6  | 34.0<br>2        | 17.6<br>31 | 27             | 0  | 77                              | 71   | 11                 | 11/23                    | 1                    | 0       | 1         | 0         | 0         |
| NOV   | 27.6               | 13.2 | 20.4  | 32.0<br>2        | 8.0<br>30  | 5              | 0  | 85                              | 73   | 0                  | 0                        | 0                    | 0       | 0         | 0         | 0         |
| DEC   | 24.5               | 9.2  | 16.8  | 25.5<br>21       | 4.0<br>7   | 0              | 0  | 88                              | 72   | 0                  | 0                        | 0                    | 0       | 0         | 0         | 0         |
| Year  | 30.6               | 18.6 | 24.6  | 42.0<br>May      | 5.0<br>Jan | 287            | 0  | 81                              | 73   | 581                | 50/Jan                   | 47                   | 28      | 13        | 4         | 0         |

1982

Station : Janakpur Airport

Year : 1983

| Month | Air Temperature |      |                  |             | R/H (%) observed |      | Precipitation (mm) |                         |                  |    |
|-------|-----------------|------|------------------|-------------|------------------|------|--------------------|-------------------------|------------------|----|
|       | Max.            | Min. | Absolute extreme |             | at               |      | Total              | Max in 24 hrs. and date | No. of rainy day |    |
|       |                 |      | Max. (date)      | Min. (date) | 0840             | 1740 |                    |                         |                  |    |
| JAN.  | 21.5            | 7.9  | -                | -           | 4/11             | 90   | 86                 | NA                      | NA               | -  |
| FEB.  | 25.3            | 8.4  | -                | -           | -                | 82   | 62                 | NA                      | NA               | -  |
| MAR.  | 31.2            | 13.2 | -                | -           | -                | 63   | 16                 | NA                      | NA               | -  |
| APR.  | 32.8            | 18.0 | -                | -           | -                | 63   | 50                 | 40.8                    | 26/2             | 3  |
| MAY   | 33.3            | 20.5 | -                | -           | -                | 73   | 68                 | 81.7                    | 75.3/6           | 4  |
| JUNE  | 35.7            | 25.4 | 39/1             | -           | -                | 75   | 67                 | 78.8                    | 59.3/7           | 6  |
| JULY  | 33.1            | 23.6 | -                | -           | -                | 88   | 81                 | 304.6/1                 | 83.0/3           | 7  |
| AUG.  | 33.0            | 24.9 | -                | -           | -                | 88   | 86                 | 326.3                   | 107.3/25         | 18 |
| SEP.  | 31.9            | 24.0 | -                | -           | -                | 89   | 87                 | 133.2                   | 67.0/2           | 11 |
| OCT.  | 31.2            | 22.8 | -                | -           | -                | 85   | 85                 | 118.8                   | 87.5/3           | 4  |
| NOV.  | 29.3            | 17.6 | -                | -           | -                | 81   | 68                 | 0                       | 0                | 0  |
| DEC.  | 24.2            | 10.7 | -                | -           | -                | 89   | 66                 | 28.5                    | 26.0/26          | 2  |

1983

Station : Janakpur Airport

Year : 1984

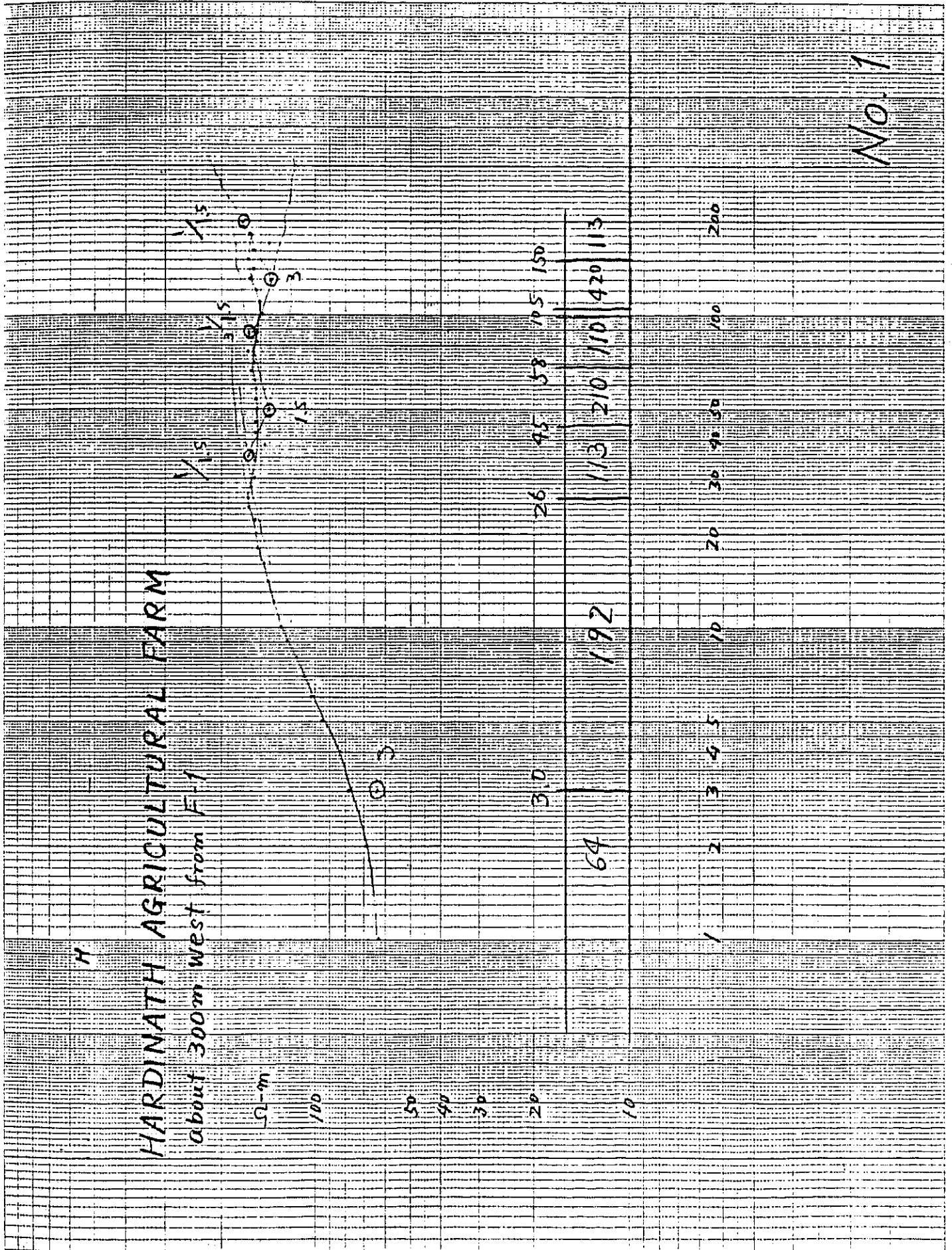
| Month | Air Temperature |      |                  |             | R/H (%) observed |      | Precipitation (mm) |                         |                  |    |
|-------|-----------------|------|------------------|-------------|------------------|------|--------------------|-------------------------|------------------|----|
|       | Max.            | Min. | Absolute extreme |             | at               |      | Total              | Max in 24 hrs. and date | No. of rainy day |    |
|       |                 |      | Max. (date)      | Min. (date) | 0840             | 1740 |                    |                         |                  |    |
| JAN.  | 22.3            | 7.2  | -                | -           | 4/16             | 87   | 68                 | 1.00                    | 1/16             | 1  |
| FEB.  | 24.2            | 10.8 | -                | -           | -                | 84   | 70                 | 24.6                    | 11.5/21          | 3  |
| MAR.  | 31.6            | 15.4 | -                | -           | -                | 68   | 65                 | 1.6                     | 1.6/27           | 1  |
| APR.  | 37.2            | 30.4 | 40/20            | -           | -                | 63   | 41                 | 36.8                    | 14/30            | 4  |
| MAY   | 32.4            | 29.4 | -                | -           | -                | 75   | 62                 | 142.1                   | 63/10            | 6  |
| JUNE  | 32.1            | 26.2 | -                | -           | -                | 83   | 80                 | 217.1                   | 61/25            | 12 |
| JULY  | 31.8            | 23.3 | -                | -           | -                | 80   | 87                 | 912/9                   | 157/24           | 17 |
| AUG.  | 33.6            | 26.7 | -                | -           | -                | 86   | 81                 | 88.1                    | 69.5/15          | 5  |
| SEP.  | 31.5            | 24.8 | -                | -           | -                | 89   | 81                 | 381.3                   | 102.6/7          | 12 |
| OCT.  | 32.5            | 21.9 | -                | -           | -                | 82   | 79                 | 9.5                     | 5.0/18           | 3  |
| NOV.  | 20.8            | 13.5 | -                | -           | -                | 82   | 81                 | 0                       | 0                | 0  |
| DEC.  | 24.8            | 10.3 | -                | -           | -                | 80   | 77                 | 13.0                    | 13.0/14          | 1  |

1984

22



資料 e. 電氣探査 解析結果



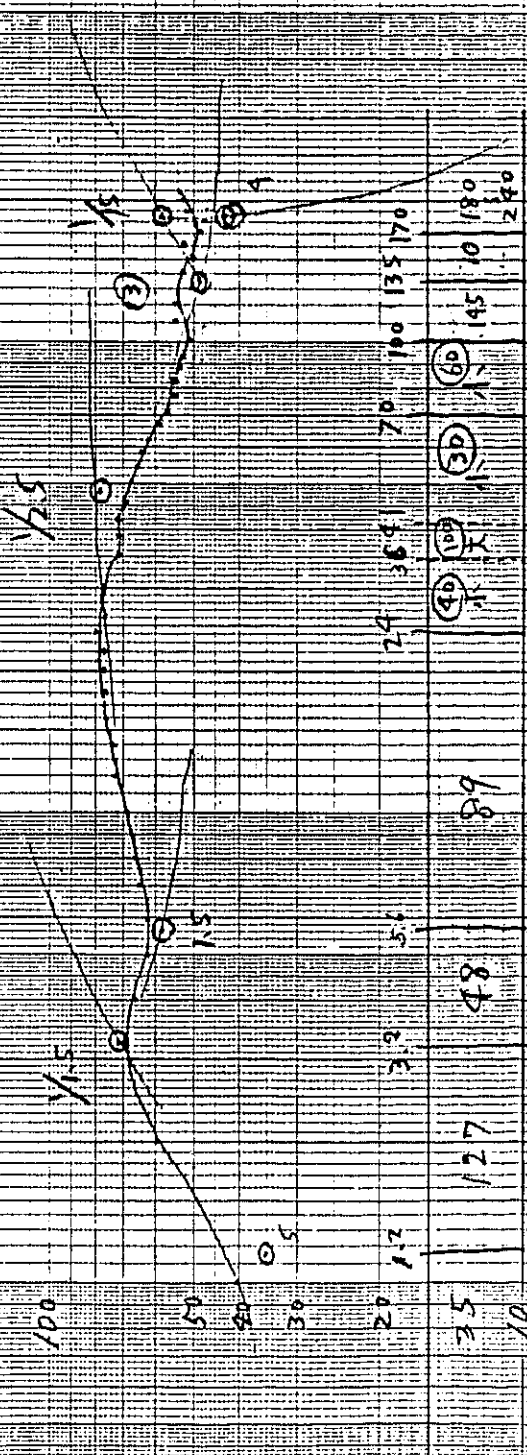
No. 1





HARDINATH AGRICULTURAL FARM  
 八〇 進入路 (HIGHWAY 30.11) 25181 200mm

100 ~ 130

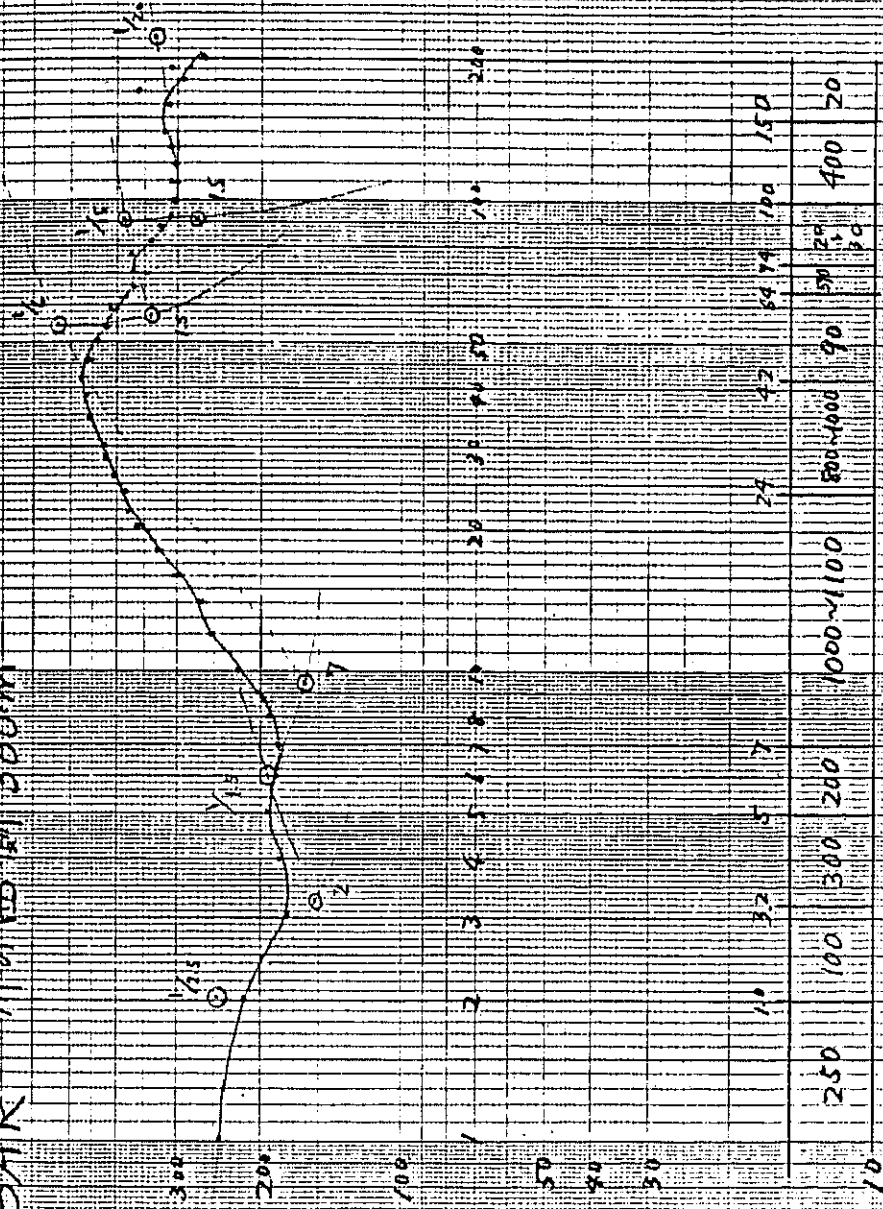


No. 2

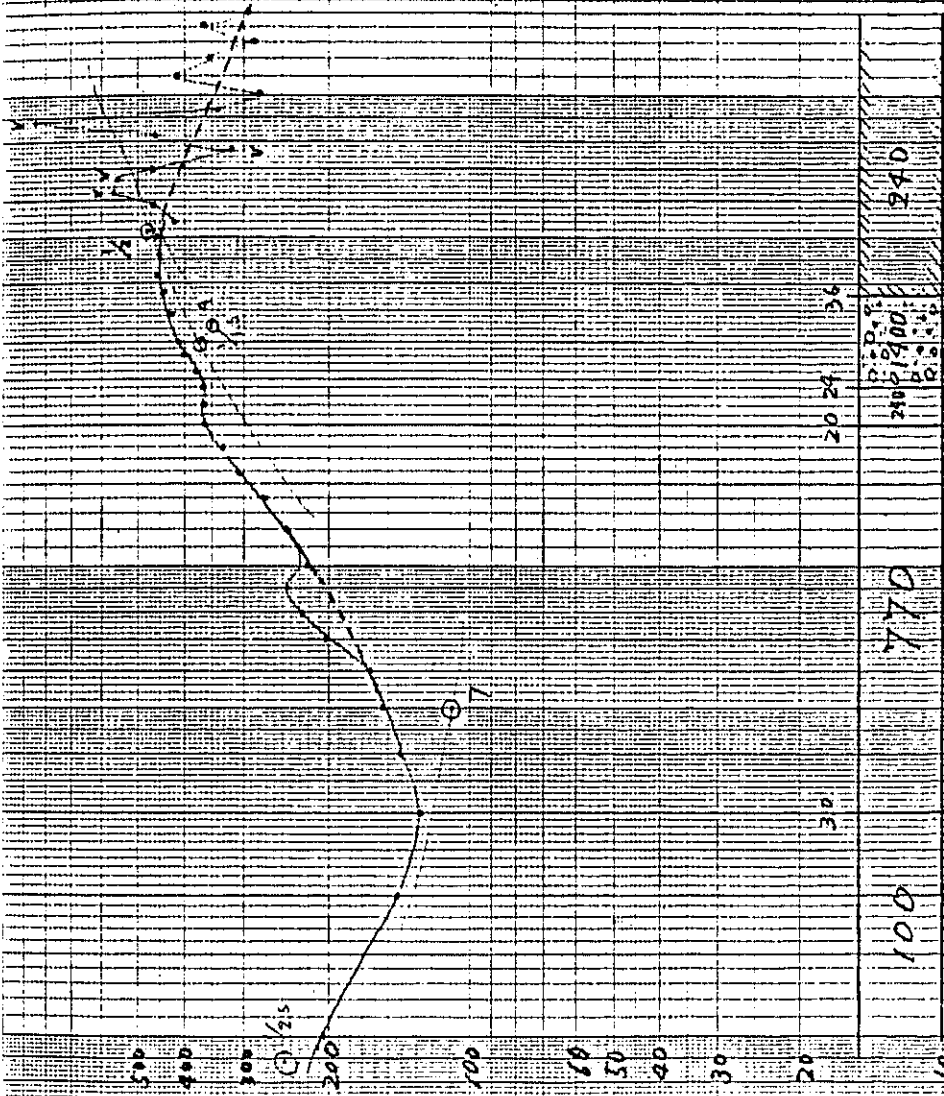


No. 3

DHALKEBAR 11 5 181 300m



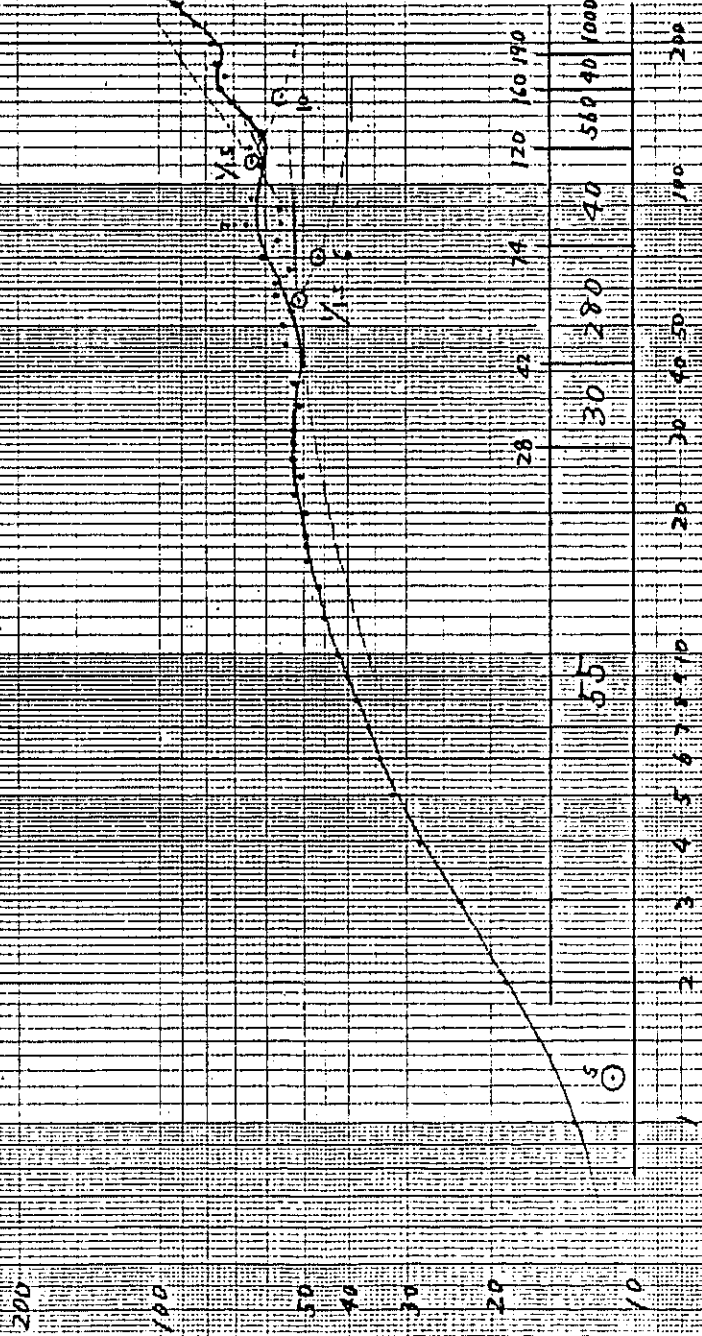






Janakpur (along railway)

Sep. 9 '86



No. 5

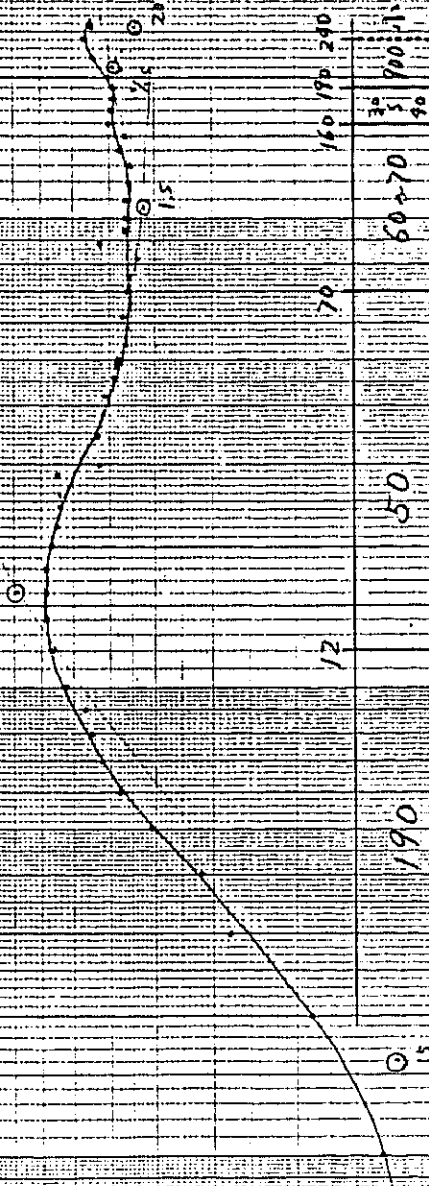




Pipra

Sep. 10 86

300  
200  
100  
60  
50  
40  
30  
20  
10



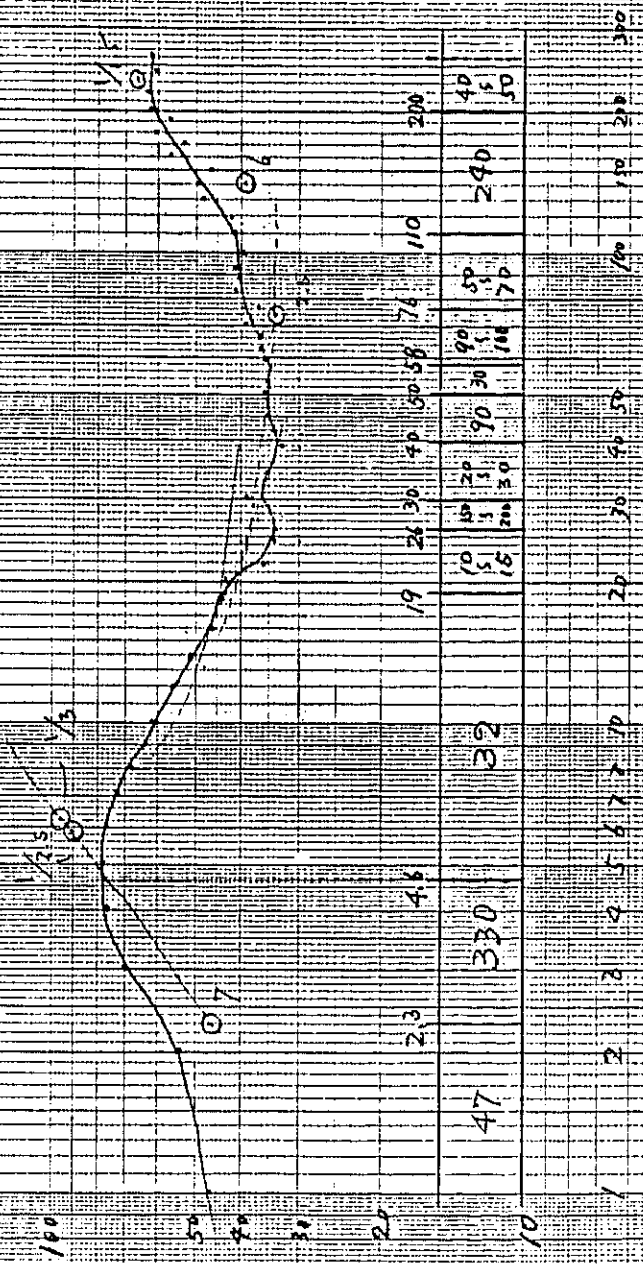
15 12 50 70 60+70 160 190 240

1 2 3 4 5 6 7 8 9 10 20 30 40 50 100 200

No. 6



JALZ SWOR



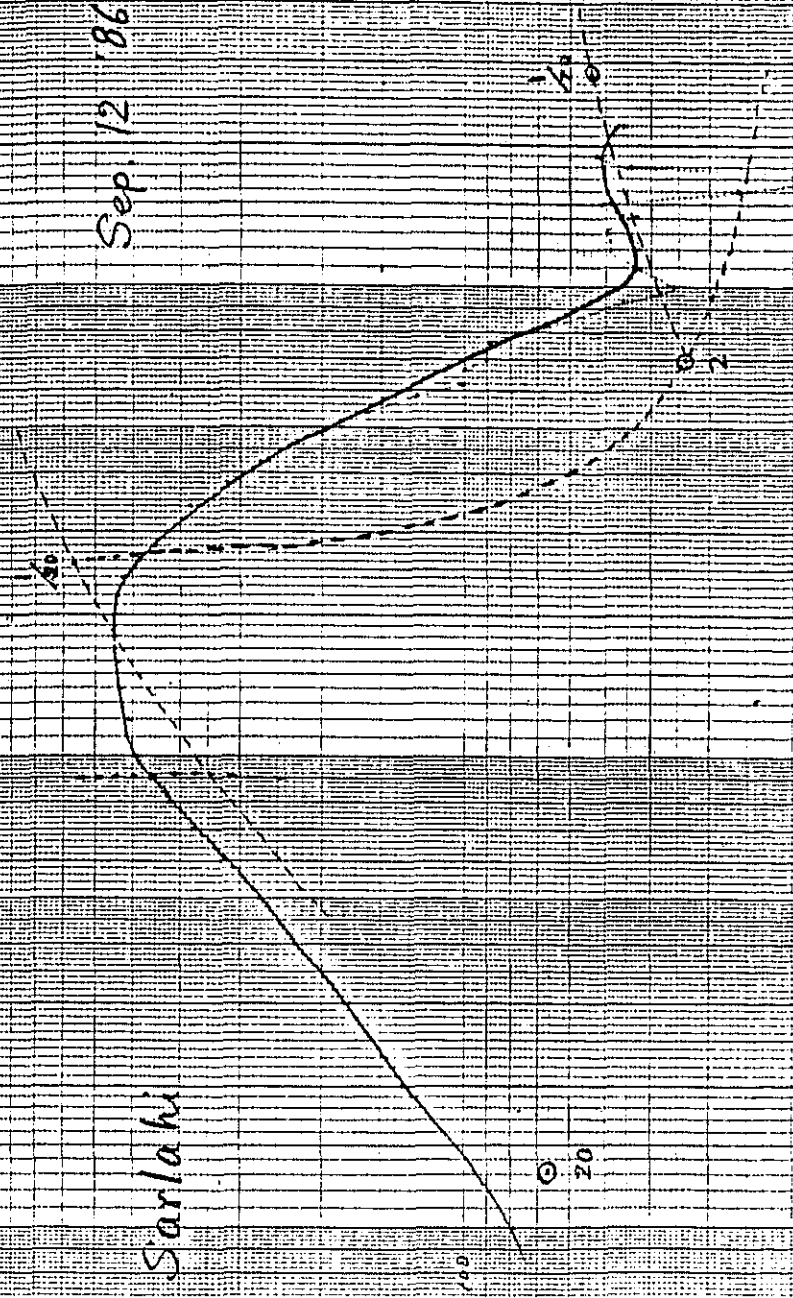
|    |     |    |    |    |    |    |    |    |    |    |     |     |
|----|-----|----|----|----|----|----|----|----|----|----|-----|-----|
| 47 | 330 | 32 | 10 | 19 | 26 | 30 | 40 | 50 | 58 | 74 | 110 | 200 |
|    |     |    |    | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  |
|    |     |    |    | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  |
|    |     |    |    | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  |

No. 7



Nawalpur, Sarlahi

Sep 12 '86

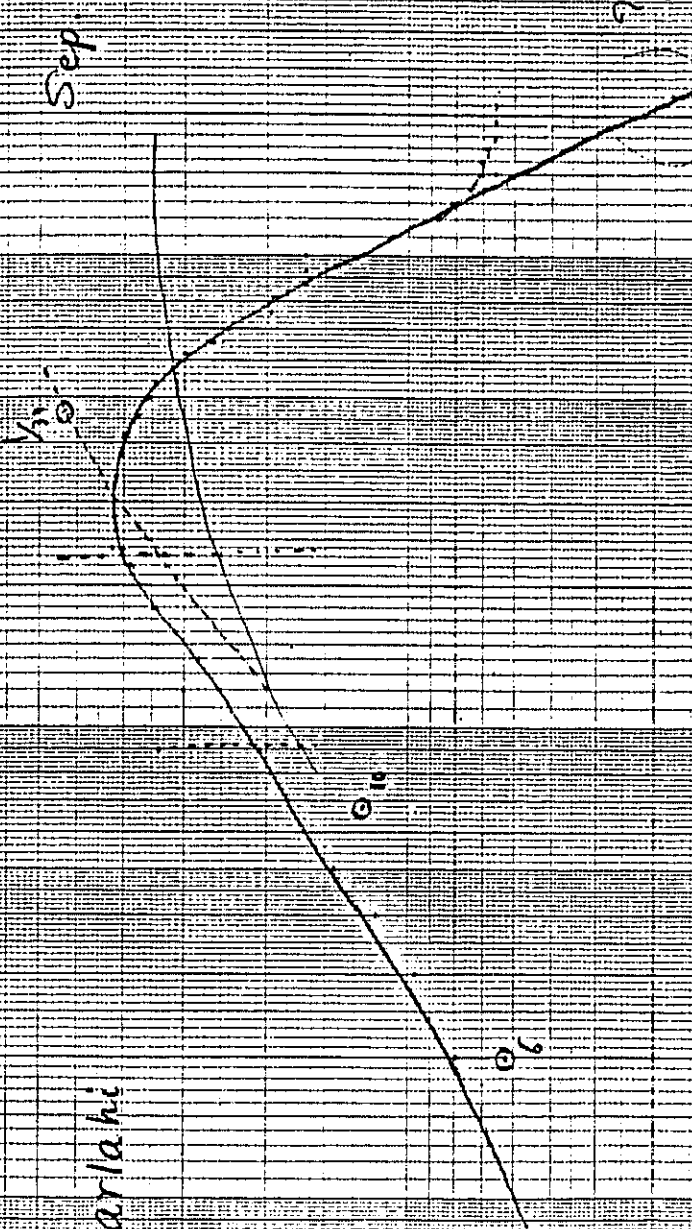


|    |      |   |    |     |            |
|----|------|---|----|-----|------------|
| 70 | 1350 | ( <sup>1580</sup> <sub>2000</sub> ) (200~500) | 22 | 100 | 190        |
|    |      |   |    |     | 100~150 10 |
|    |      |   |    |     | 200        |



Lalbandi Sarlahi

Sep. 12. 186



|           |     |    |    |    |      |
|-----------|-----|----|----|----|------|
| 50        | 370 | ?  | 29 | 30 | 130? |
| 1000~1200 | 200 | ?  | 20 | 30 | 100  |
|           | 500 | 15 | 40 | 50 | 200  |
|           |     |    | 20 | 30 |      |
|           |     |    | 10 | 10 |      |

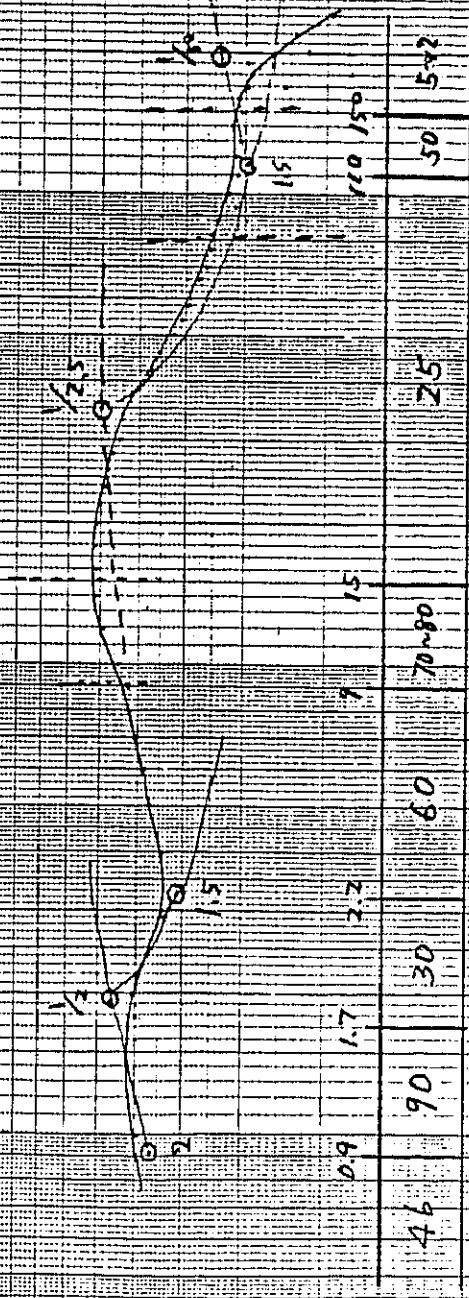
No. 9





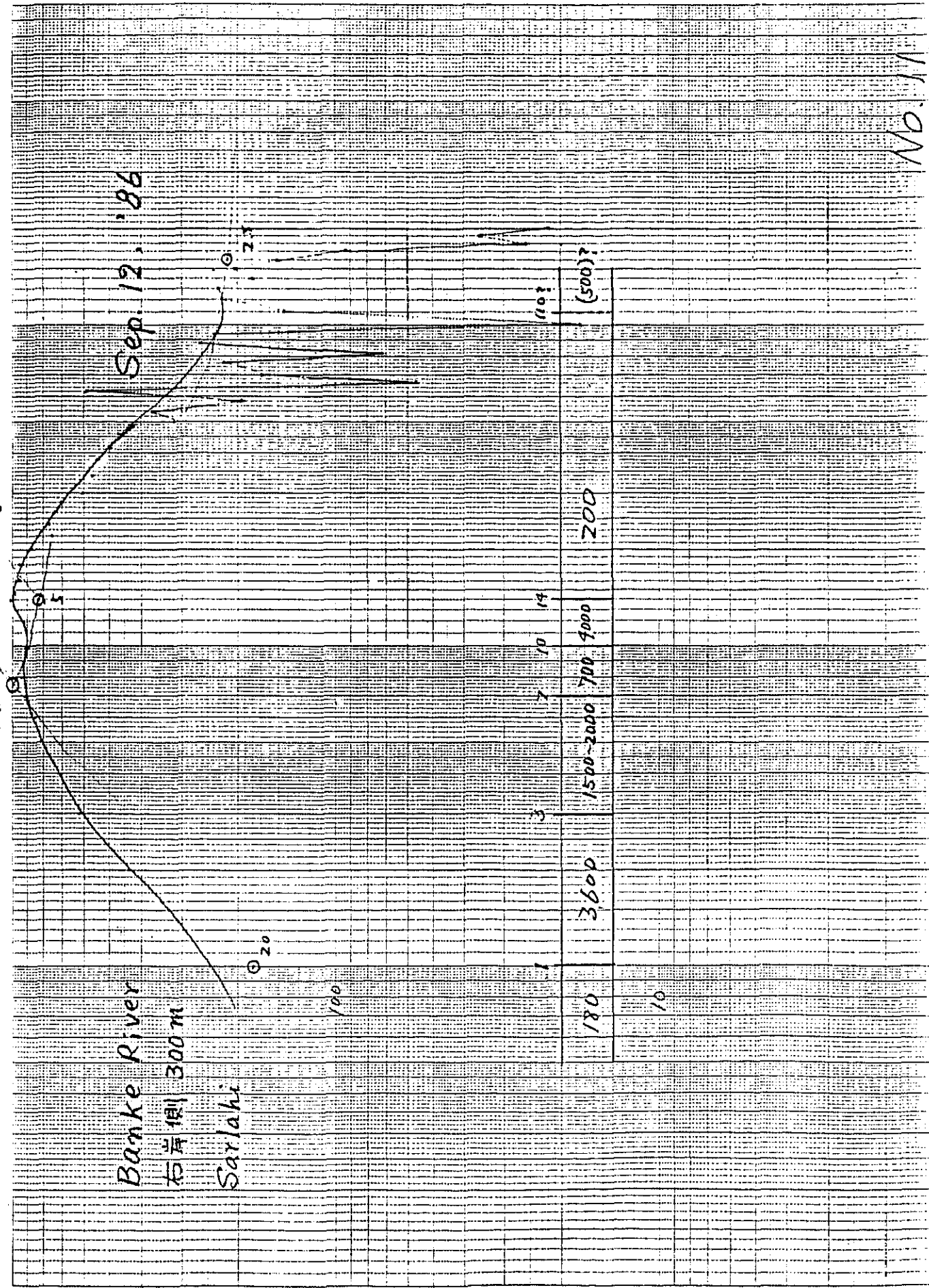
Between Salimpur and Gambaria, Sarlahi  
 MALANGWA at 5 km

Sep. 12, '86



No 10







## 資料 f. 幹線水路等 かんがい施設の形式検討

### a). 幹線水路

この事業の中で最も工事費が高いのがこの Main channel であるので水路形式、施工方法等の決定は十分検討がなされなければならない。今日の調査で検討対象となった水路形式は次の 4 タイプである ① プレキャスト U 字溝水路 (TYPE A), ② ヒューム管暗渠 (TYPE B), ③ レンガ水路 Single (TYPE C), ④ レンガ水路 Double (TYPE D) この比較一覽表を次ページに示す。

この表より プレキャスト U 字溝水路 が良いと考えられるが、U 字溝の地元生産の方法等を検討する必要がある。ヒューム管暗渠は水路用地が不要という利点があるが維持管理、修理等に問題があり、部分的に短い区間に採用する事を考えた方が良いであろう。レンガ水路は TYPE C, TYPE D ともレンガの調達が最大の問題である。D.T.W.I.P でも独自の工場をつくり、レンガ生産しなければならなかった状況もあり、それなりの対策が必要である。また施工時、多量の水が必要なこと、レンガ入夫も多数確保しなければならない問題もあり、あまり良い形式とは言えない。

### b). Road crossing & Siphone.

D.T.W.I.P の Siphone では土砂溜枒に子供達による石投げ入れ等が見られる。この枒が (60cm x 60cm) で狭く土砂排除に苦労しているので、スクリーンを設けたり枒を大きくするなど維持管理の容易な構造を考えなければならぬ。

### c). Turnout

D.T.W.I.P の Turnout は水路と田圃との高低差が大きくと、水量に関係なく、大きな構造となるので、コンパクトな形式を検討すべきである。

### d). Drainage

D.T.W.I.P の 暗渠方式では排水量が少ないので NARAYANI. I.P の方式が良いと思われる。



比較一覽表

|       | TYPE A<br>(プロキャストU字溝)  | TYPE B<br>(ヒューム管暗渠)   | TYPE C<br>(レンガ水路 Single)   | TYPE D<br>(レンガ水路 Double)                    | 備考                                |
|-------|--|---|--|---|-----------------------------------|
| 形式    | 開水路 エンクリート水路   | 暗渠 ヒューム管<br>(パイプライン形式U字)  | 開水路 (側壁一層レンガ積)   | 開水路 (側壁三層レンガ積)                              |                                   |
| 経済性   | 843,200 円  | 1,122,000 円   | 823,200 円  | 903,200 円                                   | 井戸50本水準50%<br>の施設費,<br>ボリマー費は含まない |
| 施工性   | <ul style="list-style-type: none"> <li>・U字溝を並べてゆくだけなので工事は簡単で熟練工を必要としない。</li> <li>・施工期間も短い。</li> <li>・U字溝生産は工事が出来ないうちに雨をばらばらに地元の民をばらばらに行なう。</li> <li>・元側にU字溝生産技術継承が必要。</li> </ul> | <ul style="list-style-type: none"> <li>・管の接合部分の施工を十分に行う必要がある。</li> <li>・TIA/TSPにバックホウが敷設出来ないため施工機械のリースが必要である。</li> <li>・年による破壊より守りためお程度深く敷設しなればならない。</li> </ul> | <ul style="list-style-type: none"> <li>・多数のレンガが工が必要で、人のレンガ工を雇うことも考えなければならぬ。</li> <li>・レンガに十分水を含ませなければならぬ。</li> <li>・水量の水が必ずである。</li> </ul> | <p>同 左</p> <p>・TYPE Cよりレンガが多いため工期も長くなる。</p> |                                   |
| 維持管理  | 問題なし   | 管が詰った場合の箇所発見及び修理が難しい。   | 問題なし   | 問題なし  |                                   |
| 資材の調達 | 地元瓦によるU字溝生産は技術指導を十分おこなうことにより可能である。   | 地元業者にてヒューム管製造し種類も豊富なので問題なし。   | 莫大の量のレンガを使用するため独自の工場を建設する必要はある。  | 同 左   |                                   |
| 評価    | ○  | ×   | △  | ×   |                                   |





Type A (Reinforced Concrete Gutters)

I. Cost of Irrigation facility works for 50 units

| Description                   | Unit | Qty    | Unit Price<br>¥ | Amount<br>¥ |
|-------------------------------|------|--------|-----------------|-------------|
| a) Pump House & Operator Room | Nos  | 50     | 2,300,000       | 115,000,000 |
| b) Baffle Tank                | "    | 50     | 240,000         | 12,000,000  |
| c) Channel                    | M    | 50,000 | 9,100           | 455,000,000 |
| d) Division Box               | Nos  | 100    | 30,000          | 3,000,000   |
| e) Road crossing or Syphone   | Nos  | 100    | 60,000          | 6,000,000   |
| f) Aquaduct                   | Nos  | 50     | 120,000         | 6,000,000   |
| g) Turnout                    | Nos  | 500    | 30,000          | 15,000,000  |
| h) Drop Structure             | Nos  | 100    | 12,000          | 1,200,000   |

Total 613,200,000

i) Approach Road NM 50 3,700,000 185,000,000

k) Pipe Culvert Nos 100 450,000 45,000,000

230,000,000

合計 843,200,000

1ヶ所当り 16,864,000



Type B (Hume Pipe  $\phi$  400)

I. Cost of Irrigation facility works for 50 units

| Description                     | Unit | Qty    | Unit Price<br>¥ | Amount<br>¥ |
|---------------------------------|------|--------|-----------------|-------------|
| a) Pump House & Operator Room   | Nos  | 50     | 2,300,000       | 115,000,000 |
| b) Baffle Tank                  | "    | 50     | 240,000         | 12,000,000  |
| c) Channel Hume Pipe $\phi$ 400 | M    | 50,000 | 15,300          | 765,000,000 |
| d) Division Box                 | Nos  | 100    | —               | —           |
| e) Road crossing or Siphone     | Nos  | 100    | —               | —           |
| f) Aqueduct                     | Nos  | 50     | —               | —           |
| g) Turnout                      | Nos  | 500    | —               | —           |
| h) Drop Structure               | Nos  | 100    | —               | —           |
| Total                           |      |        |                 | 892,000,000 |

|                  |     |     |           |             |
|------------------|-----|-----|-----------|-------------|
| i) Approach Road | KM  | 50  | 3,700,000 | 185,000,000 |
| k) Pipe Culvert  | Nos | 100 | 450,000   | 45,000,000  |

|       |               |
|-------|---------------|
|       | 230,000,000   |
| 合計    | 1,122,000,000 |
| 1ヶ所当り | 22,440,000    |



Type C (Brick Channel--Single )

I. Cost of Irrigation facility works for 50 units

| Description                   | Unit | Qty    | Unit Price<br>₹ | Amount<br>₹ |
|-------------------------------|------|--------|-----------------|-------------|
| a) Pump House & Operator Room | Nos  | 50     | 2,300,000       | 115,000,000 |
| b) Baffle Tank                | "    | 50     | 240,000         | 12,000,000  |
| c) Channel                    | M    | 50,000 | 8,700           | 435,000,000 |
| d) Division Box               | Nos  | 100    | 30,000          | 3,000,000   |
| e) Road crossing or Syphone   | Nos  | 100    | 60,000          | 6,000,000   |
| f) Aqueduct                   | Nos  | 50     | 120,000         | 6,000,000   |
| g) Turnout                    | Nos  | 500    | 30,000          | 15,000,000  |
| h) Drop Structure             | Nos  | 100    | 12,000          | 1,200,000   |

Total 593,200,000

|                  |     |     |           |             |
|------------------|-----|-----|-----------|-------------|
| i) Approach Road | KM  | 50  | 3,700,000 | 185,000,000 |
| k) Pipe Culvert  | Nos | 100 | 450,000   | 45,000,000  |

230,000,000

合計 823,200,000

1ヶ所当り 16,464,000



Type D (Brick Channel Double)

L. Cost of Irrigation facility works for 50 units

| Description                   | Unit | Qty    | Unit Price<br>₹ | Amount<br>₹ |
|-------------------------------|------|--------|-----------------|-------------|
| a) Pump House & Operator Room | Nos  | 50     | 2,300,000       | 115,000,000 |
| b) Baffle Tank                | "    | 50     | 240,000         | 12,000,000  |
| c) Channel                    | M    | 50,000 | 10,300          | 515,000,000 |
| d) Division Box               | Nos  | 100    | 30,000          | 3,000,000   |
| e) Road crossing of Siphone   | Nos  | 100    | 60,000          | 6,000,000   |
| f) Aquaduct                   | Nos  | 50     | 120,000         | 6,000,000   |
| g) Turnout                    | Nos  | 500    | 30,000          | 15,000,000  |
| h) Drop Structure             | Nos  | 100    | 12,000          | 1,200,000   |

Total

673,200,000

i) Approach Road

M

50

3,700,000

185,000,000

k) Pipe Culvert

Nos

100

450,000

45,000,000

230,000,000

合計

903,200,000

1ヶ所当り)

18,064,000





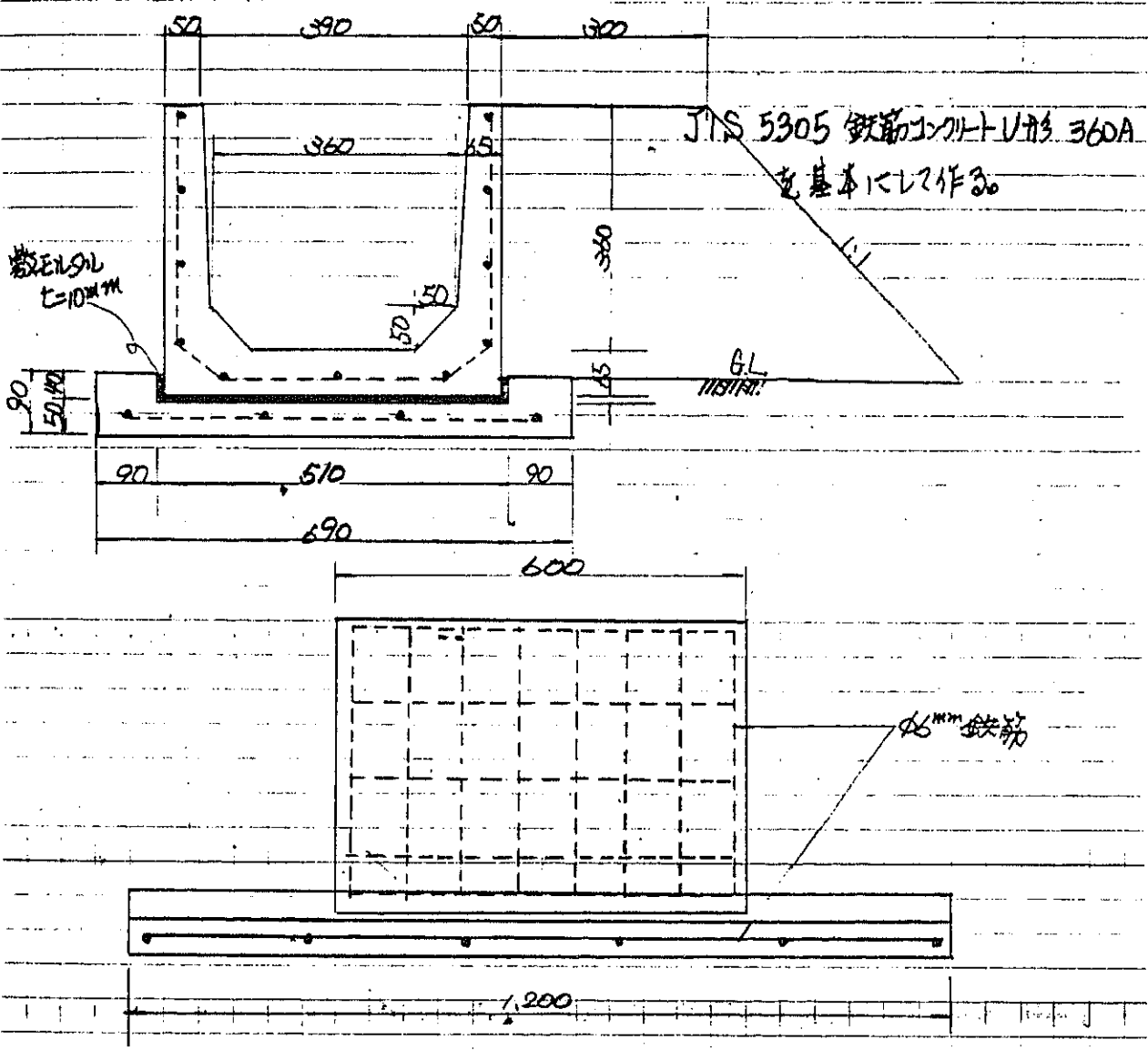
各タイプ1km当り標準工程表

|          |   |
|----------|---|
| Type "A" | <p>10日 準備工及び基礎整形<br/>35日 L形布設<br/>5日 埋戻し片付<br/>55日</p>                  |
| Type "B" | <p>3日 準備工<br/>40日 Home Pipe 布設<br/>3日 埋戻し片付<br/>4日 埋戻し片付<br/>50日</p>    |
| Type "C" | <p>10日 準備工及び基礎整形<br/>25日 Channel<br/>5日 埋戻し片付<br/>10日 埋戻し片付<br/>50日</p> |
| Type "D" | <p>10日 準備工及び基礎整形<br/>35日 Channel<br/>5日 埋戻し片付<br/>10日 埋戻し片付<br/>60日</p> |

但し、付帯設備及びU形製作は含まず



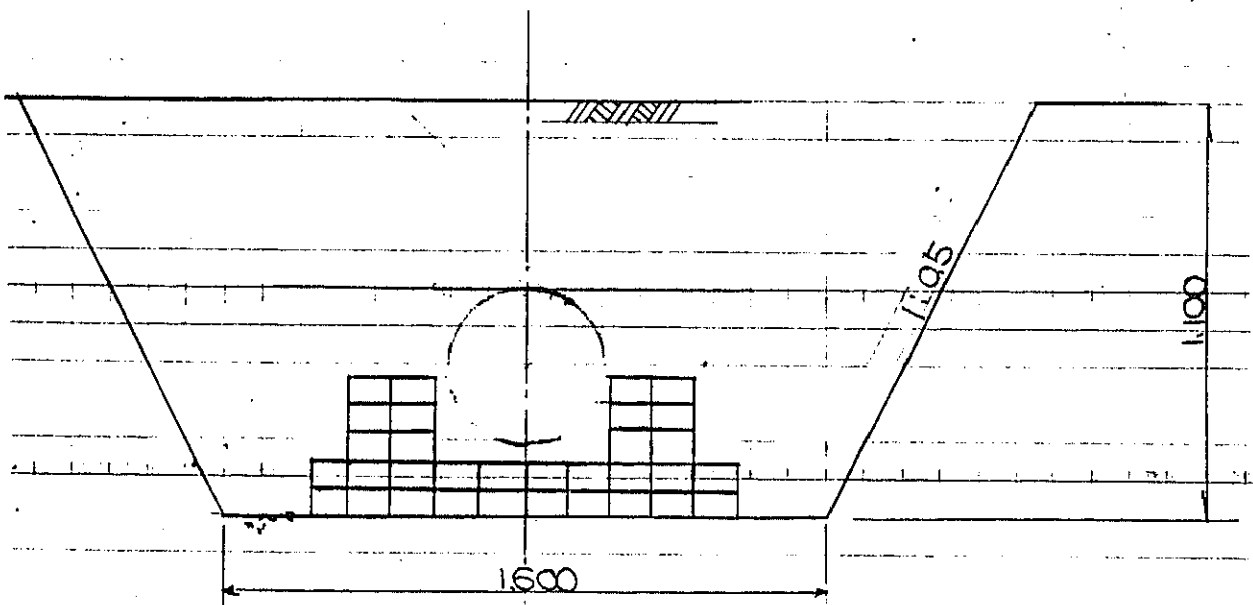
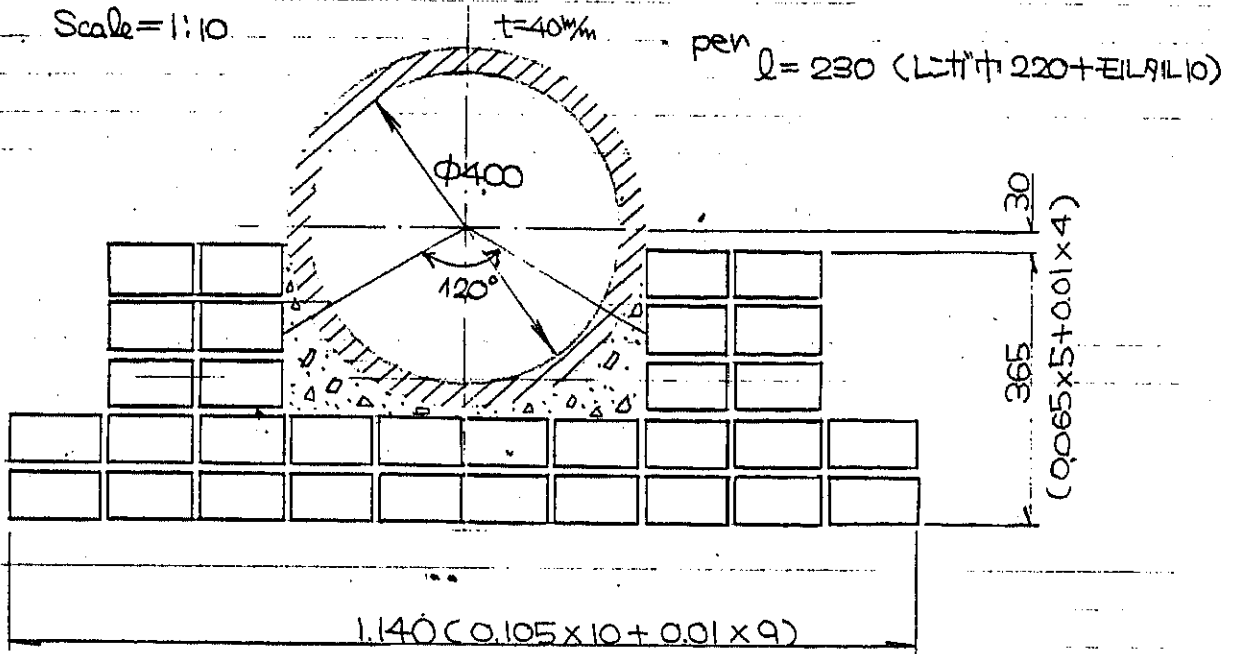
Irrigation Channel Model Plan Type A





Irrigation Channel Model Plan Type B

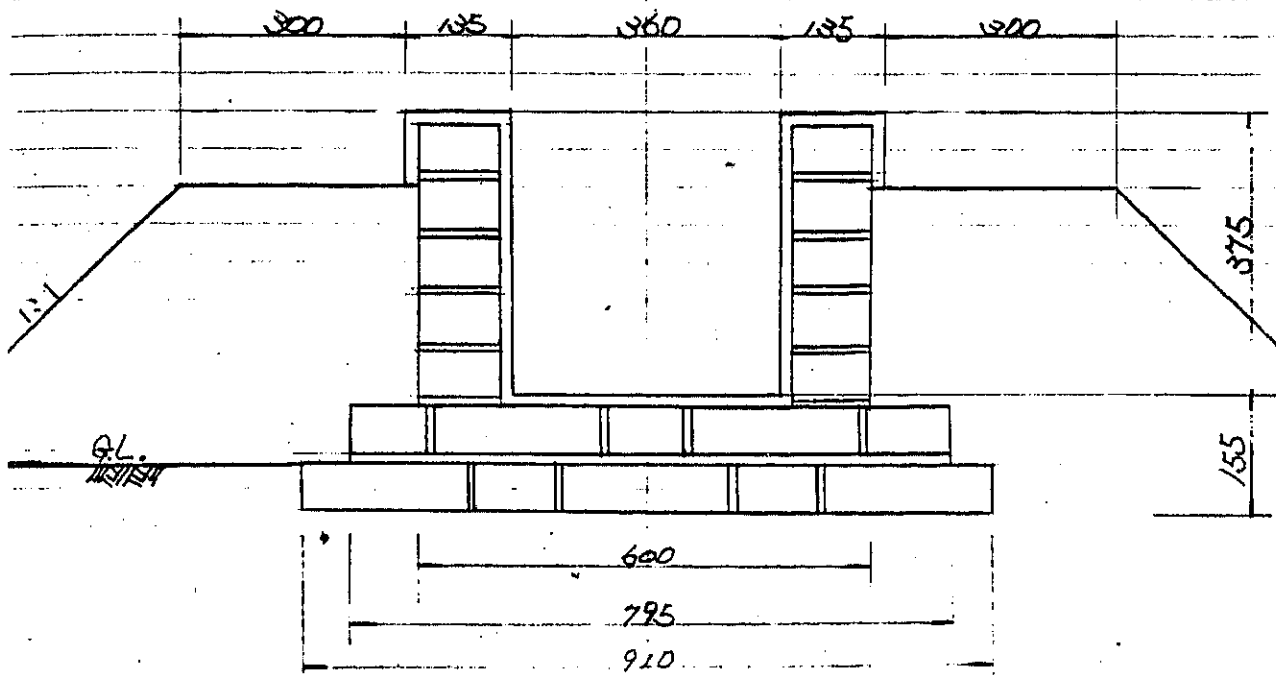
Hume 管の台座は 以下の形状とする。(NP.3 Range  $Q=25m$ )



使用モルタルは 1:4 (C=425kg -- 8.5袋 S=1.13 m<sup>3</sup>)  
 Pan  $Q=230$

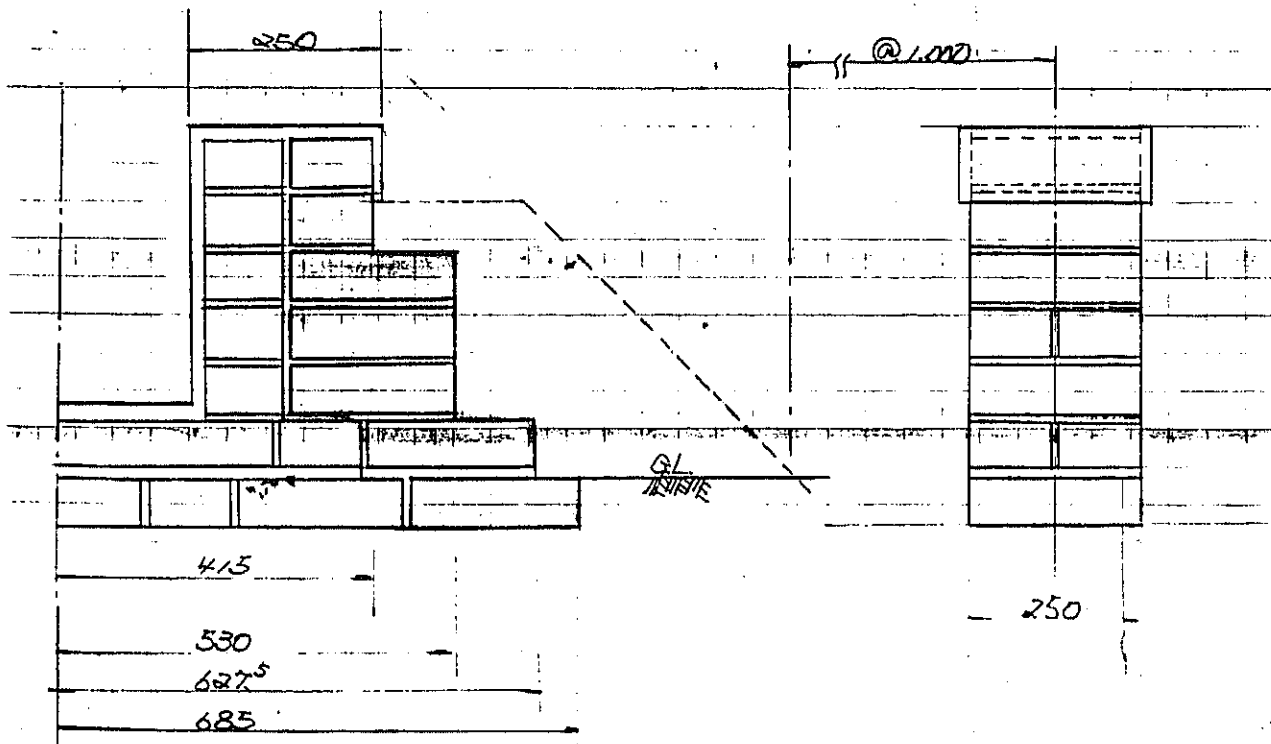


# Irrigation Channel Model Plan Type C (Brick)



補強部詳細

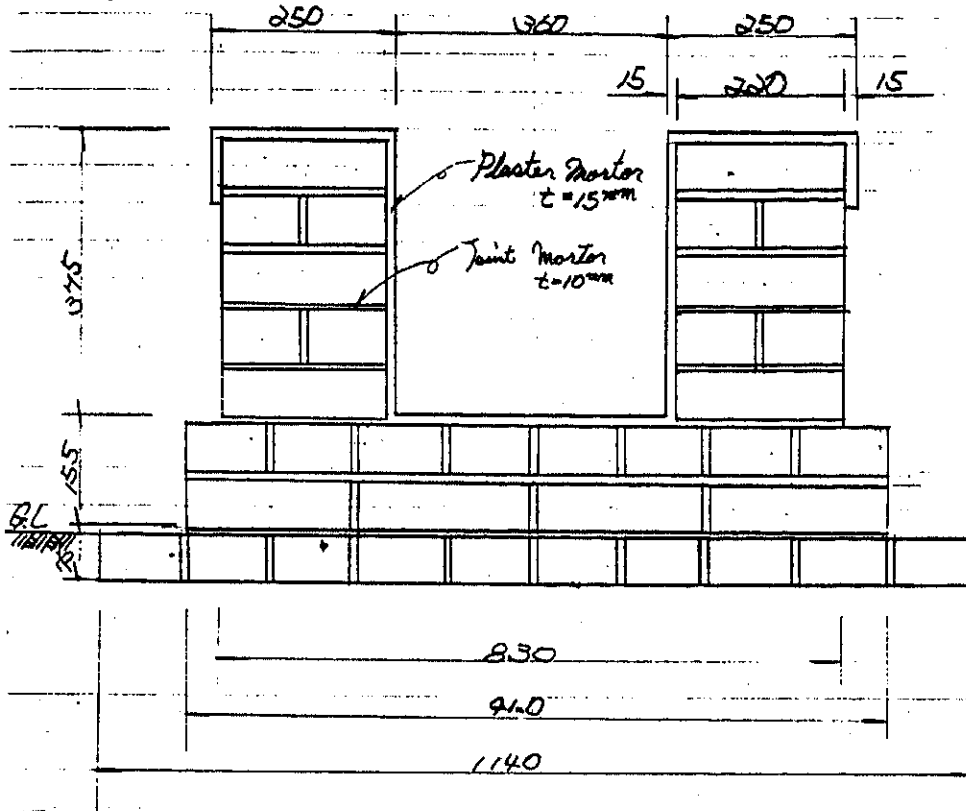
S = 1/100







Irrigation Channel Model Plan Type D (Brick)





TYPE A (U形)

| ITEM          | DESCRIPTIONS | UNIT | QUANTITY | YEN PORTION (¥) |             | LOCAL PORTION ( ) |            | REMARKS     |            |
|---------------|--------------|------|----------|-----------------|-------------|-------------------|------------|-------------|------------|
|               |              |      |          | UNIT PRICE      | AMOUNT      | UNIT PRICE        | AMOUNT     |             |            |
|               |              |      |          | UNIT PRICE      | AMOUNT      | UNIT PRICE        | AMOUNT     | TOTAL       |            |
| [直接工事費]       |              |      |          |                 | 367,536,900 |                   | 11,603,200 | 454,560,900 | ≒ 9100 円/㎡ |
| Labour Cost   |              |      |          |                 |             |                   | 10,428,700 |             |            |
| Material Cost |              |      |          |                 | 104,650,000 |                   |            |             |            |
| [間接工事費]       |              |      |          |                 |             |                   |            |             |            |
| 材料運搬費         |              |      |          |                 | 103,636,900 |                   | 687,500    |             |            |
| 仮設建物          |              |      |          |                 |             |                   | 687,500    |             |            |
| [現場経費]        |              |      |          |                 | 113,250,000 |                   |            |             | (25%)      |
| [粗利益]         |              |      |          |                 | 45,500,000  |                   |            |             | (10%)      |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |
|               |              |      |          |                 |             |                   |            |             |            |

No. ....



| ITEM                   | DESCRIPTIONS                              | UNIT | QUANTITY | YEN PORTION ( ¥ ) |        | LOCAL PORTION ( ) |            | REMARKS |
|------------------------|---|------|----------|-------------------|--------|-------------------|------------|---------|
|                        |   |      |          | UNIT PRICE        | AMOUNT | UNIT PRICE        | AMOUNT     |         |
| 50 49                  |   |      |          |                   |        |                   |            |         |
| [Labour Cost]          |   |      |          |                   |        |                   |            |         |
| U形製作<br>Fore men [世話役] | 人 B<br>18 x 450                           | Nos  | 8,100    |                   |        | 82                | 664,200    |         |
| Carpenter [木工]         | 15 x 450                                  | "    | 6,750    |                   |        | 52                | 351,000    |         |
| Barbender [鉄筋工]        | 20 x 450                                  | "    | 9,000    |                   |        | 52                | 468,000    |         |
| Plasterer [灰工]         | 10 x 450                                  | "    | 4,500    |                   |        | 52                | 234,000    |         |
| Common Labourer [II]   | 270 x 450                                 | "    | 121,500  |                   |        | 26                | 3,159,000  |         |
| Site Fore man          | 1 x 35 x 50<br>3 x 5 x 50<br>10 x 35 x 50 | "    | 4,500    |                   |        | 82                | 369,000    |         |
| Plasterer              | 10 x 35 x 50                              | "    | 18,750   |                   |        | 52                | 975,000    |         |
| Common Labourer        | 30 x 35 x 50<br>10 x 3 x 50               | "    | 62,500   |                   |        | 26                | 1,625,000  |         |
| Driver                 | 153A                                      | 月    | 253      |                   |        | 2,500             | 632,500    |         |
| Operator               | 181A                                      | "    | 181      |                   |        | 3,000             | 543,000    |         |
| Survey                 | 3 x 15A                                   | "    | 45       |                   |        | 7,000             | 315,000    |         |
| Watch man              | 1 x 19A x 50 <sup>3/4</sup>               | "    | 950      |                   |        | 1,000             | 950,000    |         |
| Mechanic               | 3 x 19A                                   | "    | 57       |                   |        | 2,500             | 142,500    |         |
|                        |   |      |          |                   |        |                   | 10,428,700 |         |
|                        |   |      |          |                   |        |                   |            |         |
|                        |   |      |          |                   |        |                   |            |         |
|                        |   |      |          |                   |        |                   |            |         |
|                        |   |      |          |                   |        |                   |            |         |
|                        |   |      |          |                   |        |                   |            |         |
|                        |   |      |          |                   |        |                   |            |         |

No. ....

| I T E M           | D E S C R I P T I O N S | U N I T | Q U A N T I T Y | Y E N P O R T I O N ( ¥ ) |             | L O C A L P O R T I O N ( ) |             | R E M A R K S |
|-------------------|-------------------------|---------|-----------------|---------------------------|-------------|-----------------------------|-------------|---------------|
|                   |                         |         |                 | U N I T P R I C E         | A M O U N T | U N I T P R I C E           | A M O U N T |               |
|                   |                         |         |                 |                           |             |                             | T O T A L   |               |
| [ Material Cost ] |                         |         |                 |                           |             |                             |             |               |
| Cement            |                         | t       | 2130            | 20,000                    | 42,600,000  |                             |             |               |
| 鉄筋                | φ6                      | t       | 396             | 110,000                   | 43,560,000  |                             |             |               |
| 鋼製型枠              | [ 日本型製作 ]               | t       | 52              | 300,000                   | 15,600,000  |                             |             |               |
| 結束線               |                         | kg      | 960             | 350                       | 336,000     |                             |             |               |
| 工具 ( 消耗品 )        |                         | 組       | 200             | 1,000                     | 200,000     |                             |             |               |
| 水タンク              |                         | 個       | 20              | 60,000                    | 1,200,000   |                             |             |               |
|                   |                         |         |                 |                           | 104,450,000 |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |
|                   |                         |         |                 |                           |             |                             |             |               |

No. ....



| I T E M                   | DESCRIPTORS  | UNIT | QUANTITY | YEN PORTION ( ¥ ) |             | LOCAL PORTION ( ) |         |         | REMARKS |
|---------------------------|--|------|----------|-------------------|-------------|-------------------|---------|---------|---------|
|                           |  |      |          | UNIT PRICE        | AMOUNT      | UNIT PRICE        | AMOUNT  | TOTAL   |         |
| [ 機材運車費 ]                 |  |      |          |                   |             |                   |         |         |         |
| クワッドラック (3*)              | (3 <sup>甲</sup> 19'x25'+3 <sup>甲</sup> 13'x25') <sup>B</sup> R | "    | 19,200   | 1,380             | 26,496,000  |                   |         |         |         |
| 水ポンク車 (4*)                | (2x19'x25'+1x13'x25') <sup>B</sup>                             | "    | 7,650    | 1,380             | 10,557,000  |                   |         |         |         |
| 油ポンク車 (4*)                | (1x16'x25')x4  | "    | 1,600    | 1,380             | 2,208,000   |                   |         |         |         |
| ビルド-ザ (D5)                | (3x13'x25')x2  | "    | 3,900    | 3,652             | 14,242,800  |                   |         |         |         |
| ロードロー (5*)                | (3x13'x25')x2  | "    | 1,950    | 1,200             | 2,340,000   |                   |         |         |         |
| モーグ-グレ-ザ' (ウ-28)          | (3x13'x25')x4  | "    | 2,600    | 2,903             | 7,547,000   |                   |         |         |         |
| ビルド-ザ (D8)                | (2x19'x25')x6  | "    | 5,700    | 1,963             | 11,161,980  |                   |         |         |         |
| エンジンポンク (2 <sup>台</sup> ) | (5x19'x25')x2  | "    | 4,750    | 500               | 2,375,000   |                   |         |         |         |
| ユ-ック (2,9*)               | (1x13'x25')x8  | "    | 2,600    | 2,312             | 6,011,200   |                   |         |         |         |
| ジ-ック                      | (2x19'x25')x6  | "    | 5,700    | 1,200             | 6,840,000   |                   |         |         |         |
| ピックアップ                    | (3x13'x25')x6  | "    | 5,850    | 1,000             | 5,850,000   |                   |         |         |         |
| セカミキサ-                    | (3x19'x25')x6  | "    | 8,550    | 1,000             | 8,550,000   |                   |         |         |         |
| トラクタ- (外注費)               | 3 <sup>甲</sup> x 13 <sup>甲</sup> x 25 <sup>甲</sup>             | 台    | 975      |                   |             | 500               | 487,500 |         |         |
|                           |  |      |          |                   | 103,636,900 |                   |         | 487,500 |         |
|                           |  |      |          |                   |             |                   |         | 487,500 |         |





| ITEM   | DESCRIPTIONS    | UNIT           | QUANTITY | YEN PORTION ( ¥ ) |        | LOCAL PORTION ( ) |         | TOTAL | REMARKS |
|--------|-----------------|----------------|----------|-------------------|--------|-------------------|---------|-------|---------|
|        |                 |                |          | UNIT PRICE        | AMOUNT | UNIT PRICE        | AMOUNT  |       |         |
| 〔仮設建物〕 |                 |                |          |                   |        |                   |         |       |         |
| 事務所    |                 | m <sup>2</sup> | 100      |                   |        | 1,500             | 150,000 |       |         |
| 倉庫     | (その他)           | "              | 300      |                   |        | 1,500             | 450,000 |       |         |
| 養生ポール  | (Block/脚)       | m <sup>3</sup> | 35       |                   |        | 2,500             | 87,500  |       |         |
|        | 50mm x 100 x 3脚 |                |          |                   |        |                   | 687,500 |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |
|        |                 |                |          |                   |        |                   |         |       |         |



TYPE C (Brick Single)

| ITEM | DESCRIPTIONS  | UNIT | QUANTITY | YEN PORTION (¥) |             | LOCAL PORTION (75) |            | REMARKS              |
|------|---------------|------|----------|-----------------|-------------|--------------------|------------|----------------------|
|      |               |      |          | UNIT PRICE      | AMOUNT      | UNIT PRICE         | AMOUNT     |                      |
|      | [直接工事費]       |      |          |                 | 285,304,500 |                    | 19,708,000 | 433,116,500 ÷ 8700 円 |
|      | Labour Cost   |      |          |                 |             |                    | 6,895,500  |                      |
|      | Material Cost |      |          |                 | 44,100,000  |                    | 11,200,000 |                      |
|      | [間接工事費]       |      |          |                 |             |                    |            |                      |
|      | 機械運轉費         |      |          |                 | 83,954,500  |                    | 1,312,500  |                      |
|      | 仮設建物          |      |          |                 |             |                    | 600,000    |                      |
|      | [現場経費]        |      |          |                 |             |                    |            |                      |
|      | [粗利益]         |      |          |                 | 113,250,000 |                    |            | (10%)                |
|      |               |      |          |                 | 43,500,000  |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |
|      |               |      |          |                 |             |                    |            |                      |



TYPE C (Brick Single)

| ITEM          | DESCRIPTIONS  | UNIT | QUANTITY | YEN PORTION (¥) |        | LOCAL PORTION ( ) |           | REMARKS |
|---------------|---|------|----------|-----------------|--------|-------------------|-----------|---------|
|               |   |      |          | UNIT PRICE      | AMOUNT | UNIT PRICE        | AMOUNT    |         |
|               |   |      |          |                 |        |                   |           | TOTAL   |
| 50ka 当り       |   |      |          |                 |        |                   |           |         |
| [Labour Cost] |   |      |          |                 |        |                   |           |         |
| Foreman       | [25 <sup>A</sup> × 50 <sup>A</sup> + 10 <sup>A</sup> × 20 <sup>A</sup> ] × 50 Nos   | Nos  | 5 250    |                 |        | 82                | 430,500   |         |
| Plasterer     | [30 <sup>A</sup> × 25 <sup>A</sup> + 5 <sup>A</sup> × 10 <sup>A</sup> ] × 50  | "    | 40,000   |                 |        | 52                | 2,080,000 |         |
| Common Labour | 其細要形<br>[5 <sup>A</sup> × 25 <sup>A</sup> + 40 <sup>A</sup> × 25 <sup>A</sup> + 30 <sup>A</sup> × 5 <sup>A</sup> + 10 <sup>A</sup> × 10 <sup>A</sup> ] × 50 | "    | 66,250   |                 |        | 26                | 1,722,500 |         |
| Driver        |   | A    | 231      |                 |        | 2,500             | 577,500   |         |
| Operator      |   | "    | 150      |                 |        | 3,000             | 450,000   |         |
| Surveyor      | 3 <sup>A</sup> × 15 <sup>A</sup>  | "    | 45       |                 |        | 7,000             | 315,000   |         |
| Watchman      | 1 <sup>A</sup> × 18 <sup>A</sup> × 50 site  | "    | 900      |                 |        | 1,000             | 900,000   |         |
| Mechanic      | 3 <sup>A</sup> × 16 <sup>A</sup>  | "    | 48       |                 |        | 2,500             | 120,000   |         |
|               |   |      |          |                 |        |                   | 6,595,500 |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |
|               |   |      |          |                 |        |                   |           |         |



| ITEM              | DESCRIPTIONS                      | UNIT | QUANTITY  | YEN PORTION ( ¥ ) |            | LOCAL PORTION ( ) |            | REMARKS |
|-------------------|-----------------------------------|------|-----------|-------------------|------------|-------------------|------------|---------|
|                   |                                   |      |           | UNIT PRICE        | AMOUNT     | UNIT PRICE        | AMOUNT     |         |
|                   |                                   |      |           | TOTAL             |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
| [ Material Cost ] |                                   |      |           |                   |            |                   |            |         |
| Brick             | 132,000 x 12 x 50 <sup>size</sup> | Nos  | 8,000,000 |                   |            | 14                | 11,200,000 |         |
| Cement            | 34.75 x 12 x 50 <sup>size</sup>   | kg   | 2,100     | 20,000            | 42,000,000 |                   |            |         |
| 工具 (工具類)          |                                   | 組    | 1,000     | 1,000             | 900,000    |                   |            |         |
| 水勾                |                                   | 個    | 20        | 60,000            | 1,200,000  |                   |            |         |
|                   |                                   |      |           |                   | 44,100,000 |                   | 11,200,000 |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |
|                   |                                   |      |           |                   |            |                   |            |         |

No. ....





| I T E M   | DESCRIPTIONS   | UNIT | QUANTITY | YEN PORTION ( ¥ ) |            | LOCAL PORTION ( ) |           | REMARKS |
|-----------|--|------|----------|-------------------|------------|-------------------|-----------|---------|
|           |  |      |          | UNIT PRICE        | AMOUNT     | UNIT PRICE        | AMOUNT    |         |
| [ 機爪運轉費 ] |  |      |          |                   |            |                   |           |         |
|           | (7# x 15 <sup>A</sup> x 25 <sup>B</sup> ) x 8 <sup>t</sup> | h    | 21,000   | 1,380             | 28,980,000 |                   |           |         |
|           | 水タンク (4 <sup>t</sup> )                                     | v    | 6,000    | 1,380             | 8,280,000  |                   |           |         |
|           | ワイルド-ザ" (D5)   | v    | 4,500    | 3,652             | 16,434,000 |                   |           |         |
|           | 油タンク (4 <sup>t</sup> )                                     | "    | 1,500    | 1,380             | 2,070,000  |                   |           |         |
|           | ヒョクアツク   | v    | 1,125    | 1,000             | 1,125,000  |                   |           |         |
|           | ジ-ク  | v    | 4,500    | 1,200             | 5,400,000  |                   |           |         |
|           | エ-ン-ジ-ン-20H  | "    | 3,750    | 500               | 1,875,000  |                   |           |         |
|           | モ-ト-リ-9- (28 <sup>H</sup> )                                | "    | 3,000    | 2,903             | 8,709,000  |                   |           |         |
|           | ロ-ド-ラ (5 <sup>t</sup> )                                    | v    | 2,250    | 1,200             | 2,700,000  |                   |           |         |
|           | ワ-イルド-ジ" (D8 <sup>M</sup> )                                | "    | 4,500    | 1,863             | 8,383,500  |                   |           |         |
|           | トラク- (9H注費)  | 月    | 2,625    |                   |            | 500               | 1,312,500 |         |
|           |  |      |          |                   | 83,956,500 |                   | 1,312,500 |         |



| ITEM | DESCRIPTIONS | UNIT           | QUANTITY | YEN PORTION (¥) |        | LOCAL PORTION ( ) |         | TOTAL | REMARKS |
|------|--------------|----------------|----------|-----------------|--------|-------------------|---------|-------|---------|
|      |              |                |          | UNIT PRICE      | AMOUNT | UNIT PRICE        | AMOUNT  |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      | [仮設建物]       |                |          |                 |        |                   |         |       |         |
|      | 事務所          | m <sup>2</sup> | 100      |                 |        | /500              | 150,000 |       |         |
|      | 倉庫           | "              | 300      |                 |        | /500              | 450,000 |       |         |
|      |              |                |          |                 |        |                   | 600,000 |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |
|      |              |                |          |                 |        |                   |         |       |         |

No. ....



1km当り Net 数量 (0.5トン)

重機使用計画

9|10|11|12|1|2|3|4|5|6|7|8|9|10|11|12|1|2|3|4|5|6|7|8

各種下地出費表

| Type     | Cement<br>鉄筋 | Brick<br>管埋 | 掘削<br>埋戻            | 1km当<br>工期        | M当り<br>(円) |
|----------|--------------|-------------|---------------------|-------------------|------------|
|          |              |             |                     |                   |            |
| Type "A" | 7L D5        |             | 62.1                |                   | 7,100      |
|          | コンクリ         |             |                     |                   |            |
|          | 9.5P15.7     |             |                     |                   |            |
|          | 14.10-9-     |             |                     |                   |            |
|          | 9.20-9-(雑木)  |             | 400.1               | 55 day<br>(0.5トン) |            |
|          | その他          |             |                     |                   |            |
| Type "B" | 7L D5        | Rs          | 2365                |                   | 15,300     |
|          | コンクリ         | 139,133     |                     |                   |            |
|          | 9.5P15.7     |             |                     |                   |            |
|          | 14.10-9-     |             |                     |                   |            |
|          | 9.20-9-(雑木)  | 400         | 1213 m <sup>3</sup> | 60 day            |            |
|          | その他          |             |                     |                   |            |
| Type "C" | 7L D5        | Rs          | 89.1                |                   | 8,700      |
|          | コンクリ         | 137,696     |                     |                   |            |
|          | 9.5P15.7     |             |                     |                   |            |
|          | 14.10-9-     |             |                     |                   |            |
|          | 9.20-9-(雑木)  |             | 287.0               | 50 day            |            |
|          | その他          |             |                     |                   |            |
| Type "D" | 7L D5        | Rs          | 174.1               |                   | 10,300     |
|          | コンクリ         | 200,000     |                     |                   |            |
|          | 9.5P15.7     |             |                     |                   |            |
|          | 14.10-9-     |             |                     |                   |            |
|          | 9.20-9-(雑木)  |             | 422.8               | 60 day            |            |
|          | その他          |             |                     |                   |            |



現場経費内訳

(職員配置工程)

|            | 初年度 |   |    | 第2年度 |    |   |   |   | 第3年度 |   |   |   |   | M/M |    |    |     |       |
|------------|-----|---|----|------|----|---|---|---|------|---|---|---|---|-----|----|----|-----|-------|
|            | 8   | 9 | 10 | 11   | 12 | 1 | 2 | 3 | 4    | 5 | 6 | 7 | 8 | 9   | 10 | 11 | 国内  | 海外    |
| 1. 土木係(主任) | ●   |   |    |      |    |   |   |   |      |   |   |   |   |     |    |    | 1.0 | 25.0  |
| 2. " "     |     |   |    |      |    |   |   |   |      |   |   |   |   |     |    |    | 1.0 | 16.0  |
| 3. " "     |     |   |    |      |    |   |   |   |      |   |   |   |   |     |    |    | 1.0 | 19.0  |
| 4. 事務係     |     |   |    |      |    |   |   |   |      |   |   |   |   |     |    |    | 1.0 | 26.0  |
| 5. 機械係     |     |   |    |      |    |   |   |   |      |   |   |   |   |     |    |    | 1.0 | 20.0  |
|            |     |   |    |      |    |   |   |   |      |   |   |   |   |     |    |    | 5.0 | 106.0 |

—— 海外勤務  
 ..... 国内勤務

< 現場経費 >

(国内)  $100^{(円)} \times 5^{M/m} = 2,500^{(円)}$   
 (海外)  $1,500^{(円)} \times 106^{M/m} = 159,000^{(円)}$

計 162,500 (円) ※ a. 労務管理費

- \* (右記 a. 諸経費に含む)
  - b. 代車賃
  - c. 保険料
  - d. 給料手当
  - e. 法定福利費
  - f. 福利厚生費 (食費等)
  - g. 重傷用品費 (重傷経費 老困用見当)
  - h. 通信費 (代代 郵便費)
  - i. 交通費 (住居航空券代 出張旅費等)
  - j. 調査研究費 (書籍代 工事費代 竣工車代)

職員配置工程、現場経費内訳





資料 9. 資材単価

1986. 9月

| 種 別                  | 明 細        | 単 位            | 単 価                    | 備 考<br>(調 達 方 法)             |
|----------------------|------------|----------------|------------------------|------------------------------|
| レンガ                  | 220X105X65 | 個              | 7.6 円<br>(0.95 RS)     | 現地購入, 工場生産                   |
| セメント                 | 50kg/袋     | 袋              | 1,200 円<br>(150 RS)    | ネパール産. (輸送費別)                |
| "                    | 50kg/袋     | 袋              | 1,000 円                | 韓国産 商社を通じて購入<br>(無税)         |
| 砂, 砂利                |            | ton            | 7,600 円<br>(950 RS)    | 河川より無料採取. 運搬費,<br>粒径分類あり     |
| 鉄 筋                  | φ10        | kg             | 96 円<br>(12 RS)        | 現地購入 一部は輸入                   |
| ヒューム管<br>(1φ - 2.5m) | φ300       | 本              | 5,700 円<br>(700 RS)    | 工場直価格. 工場は. Hetauda, Birganj |
|                      | φ800       | "              | 8,000 円<br>(1,000 RS)  | " " " " "                    |
| コンクリート               |            | m <sup>3</sup> | 40,000 円<br>(5,000 RS) |                              |
| 土 工                  |            | m <sup>2</sup> | 500 円                  |                              |
| 左 官                  | 1人/日       | 人日             | 400 円<br>(50 RS)       | レンガ水路建設                      |
| 普通作業員                | ネパール人      | 人日             | 200 円<br>(25 RS)       |                              |
| 大 工                  | " "        | 人日             | 400 円<br>(50 RS)       |                              |

1ルビ = 8円で換算



資材単価 (TIATSP センター スタッフによる調査)

| 種別               | 明細          | 単位             | 単価                   | 備考   |
|------------------|-------------|----------------|----------------------|--|
| レンガ<br>セメント      | 220x105x65  | 口              | 6.4円<br>(0.80RS)     | 工場渡(価格)<br>ネパール産<br>韓国産                          |
|                  | 50kg/袋      | 袋              | 1,080円<br>(135RS)    |  |
|                  | " "         | 袋              | 1,200円<br>(150RS)    |  |
| 砂利               | 13mm ~ 19mm | m <sup>3</sup> | 1,400円<br>(175RS)    |  |
|                  | 粒径を拡大した場合   | m <sup>3</sup> | 2,000円<br>(250RS)    |  |
| 鉄筋               | φ 12.5mm    | kg             | 88円<br>(11RS)        |  |
|                  | φ 25mm      | kg             | 96円<br>(12RS)        |  |
| 鉄板               |             | kg             | 120円<br>(15RS)       |  |
| 針金               | φ 3 ~ 4mm   | kg             | 136円<br>(17RS)       |  |
| 木材               |             | m <sup>3</sup> | 63,200円<br>(7900RS)  |  |
| 土工               | 掘削          | m <sup>3</sup> | 91円<br>(11.43RS)     |  |
|                  | 埋戻          | m <sup>3</sup> | 23円<br>(2.86RS)      |  |
| E-4管<br>(L:2.5m) | φ 300       | 本              | 3,800円<br>(475RS)    | Birganj 工場より現場渡   価格<br>輸送費 1台 1200RS<br>運搬能力 1台 |
|                  | φ 400       | "              | 4,600円<br>(575RS)    |  |
|                  | φ 450       | "              | 5,400円<br>(675RS)    |  |
|                  | φ 600       | "              | 7,304円<br>(913RS)    |  |
|                  | φ 800       | "              | 11,800円<br>(1475RS)  |  |
|                  | φ 1000      | "              | 16,400円<br>(2,050RS) |  |
|                  |             |                |                      | 6本 φ300, 400, 450<br>5本 φ600, 800<br>3本 φ1000    |

