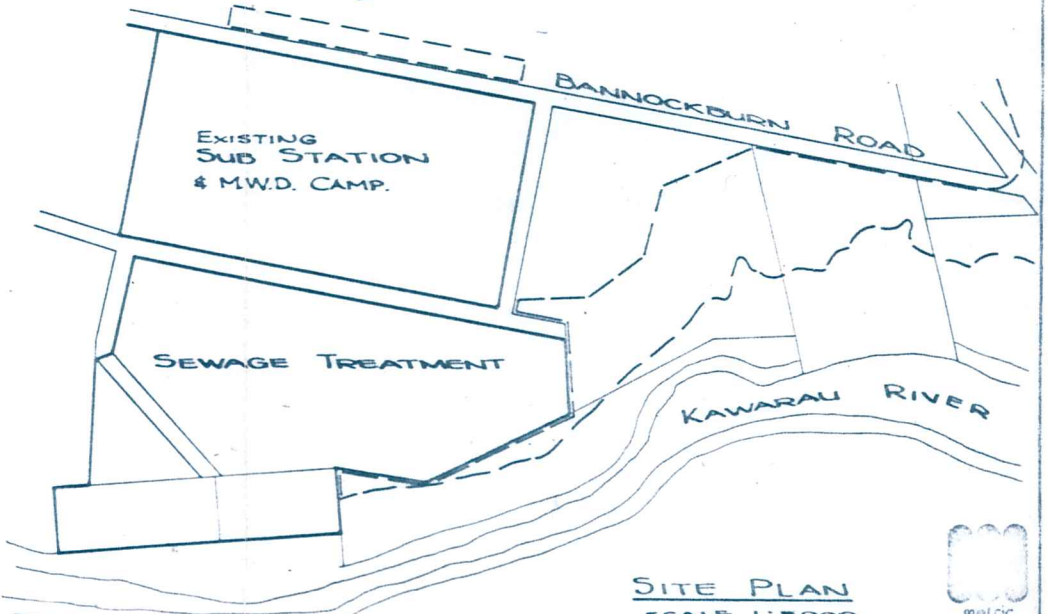


| SYMBOL | CO-ORDINATES   |             | DESCRIPTION                    |
|--------|----------------|-------------|--------------------------------|
|        | NORTH          | EAST        |                                |
| B1     | 664 064.160    | 278 627.530 | EXISTING BOUNDARY PEG          |
| B2     | 664 026.610    | 278 720.080 | "                              |
| B3     | 663 818.110    | 278 716.650 | "                              |
| B4     | 663 718.310    | 278 644.630 | "                              |
| B5     | 663 424.240    | 278 523.270 | "                              |
| MH A3  | 664 015.800    | 278 104.020 | MANHOLE ON OVERFLOW PIPE       |
| R1     | 663 755.650    | 278 431.850 | OUTSIDE CURVE EDGE OF ROAD     |
| R2     | 663 767.640    | 278 502.880 | INSIDE CURVE EDGE OF ROAD      |
| TP1    | 663 780.240    | 278 455.530 | TANGENT POINT ON ROAD E        |
| IP1    | 663 520.250    | 278 572.200 | INTERSECTION POINT OF TANGENTS |
| IP2    | 663 931.360    | 278 495.680 | "                              |
| TP3    | 663 581.860    | 278 547.820 | TANGENT POINT ON ROAD E        |
| RADIUS |                |             |                                |
|        | BOTTOM OF BANK |             | TOP OF BANK                    |
| P1     | 663 934.520    | 278 624.360 | 7.000                          |
| P2     | 663 867.080    | 278 676.370 | 18.480                         |
| P3     | 663 848.010    | 278 586.750 | 100.000                        |
| P4     | 663 723.230    | 278 672.410 | 7.000                          |
| P5     | 663 656.910    | 278 673.430 | 7.000                          |
| P6     | 663 671.830    | 278 729.250 | 100.000                        |
| P7     | 663 605.080    | 278 571.850 | 100.000                        |
| P8     | 663 458.480    | 278 541.910 | 7.000                          |
| P9     | 663 512.280    | 278 440.000 | 7.000                          |
| P10    | 663 745.580    | 278 515.780 | 7.000                          |
| P11    | 663 779.180    | 278 639.780 | 7.000                          |
| P12    | 663 866.970    | 278 639.630 | 100.000                        |



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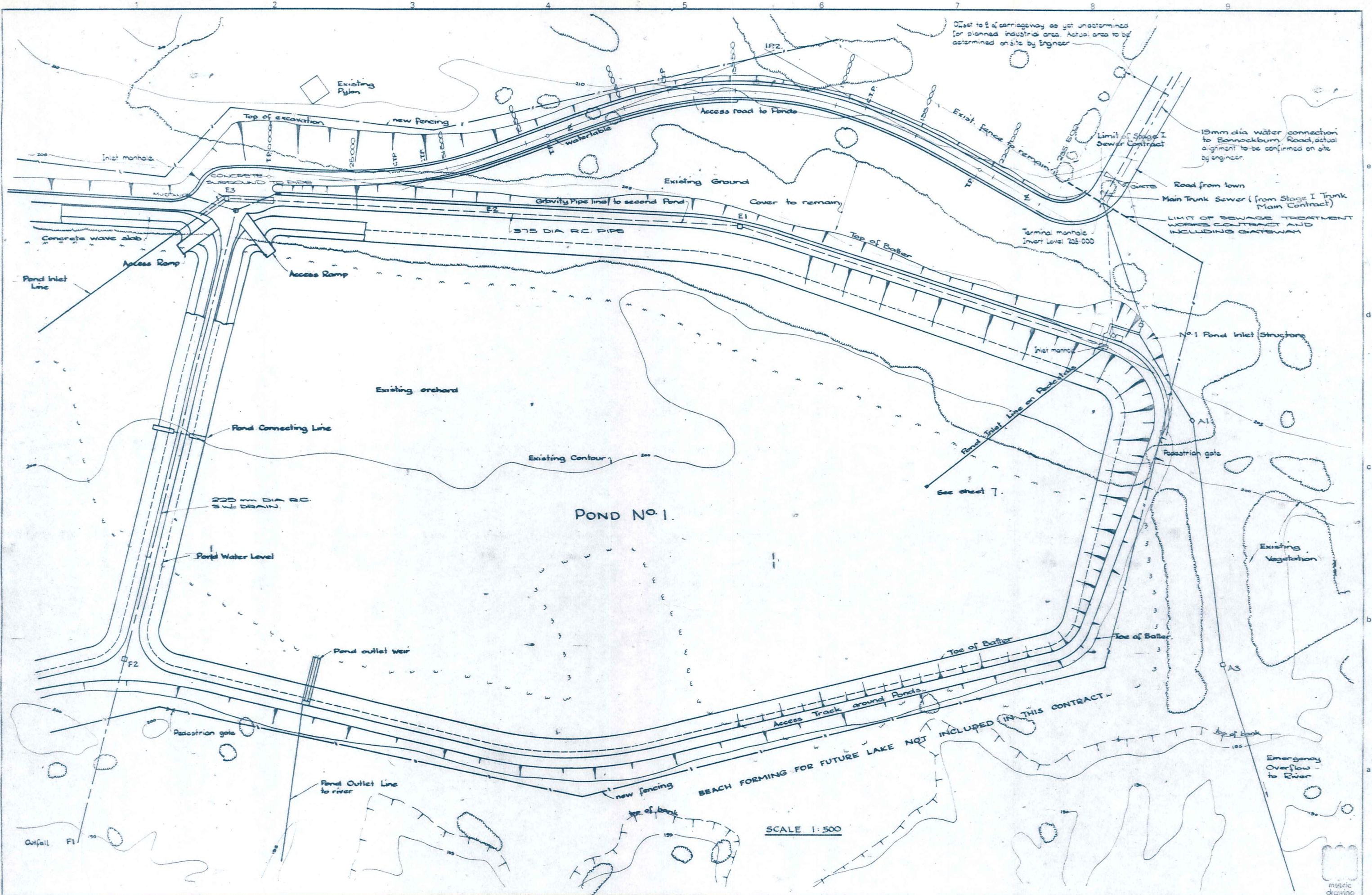
MINISTRY OF WORKS  
& DEVELOPMENT

CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

LOCALITY PLAN  
& SETTING OUT DETAILS

| AMENDMENTS |    |      | NAME DATE |              | JOB NO. | Sheet No |  |  |
|------------|----|------|-----------|--------------|---------|----------|--|--|
| NO         | BY | DATE | Appvd     | Surveyed     | 8312    | 1        |  |  |
|            |    |      |           | Drawn        |         |          |  |  |
|            |    |      |           | Calculations |         |          |  |  |
|            |    |      |           | Traced       |         |          |  |  |
|            |    |      |           | Checked      |         |          |  |  |
|            |    |      |           | Approved     |         |          |  |  |

File 2/15 LB 334 F.B.



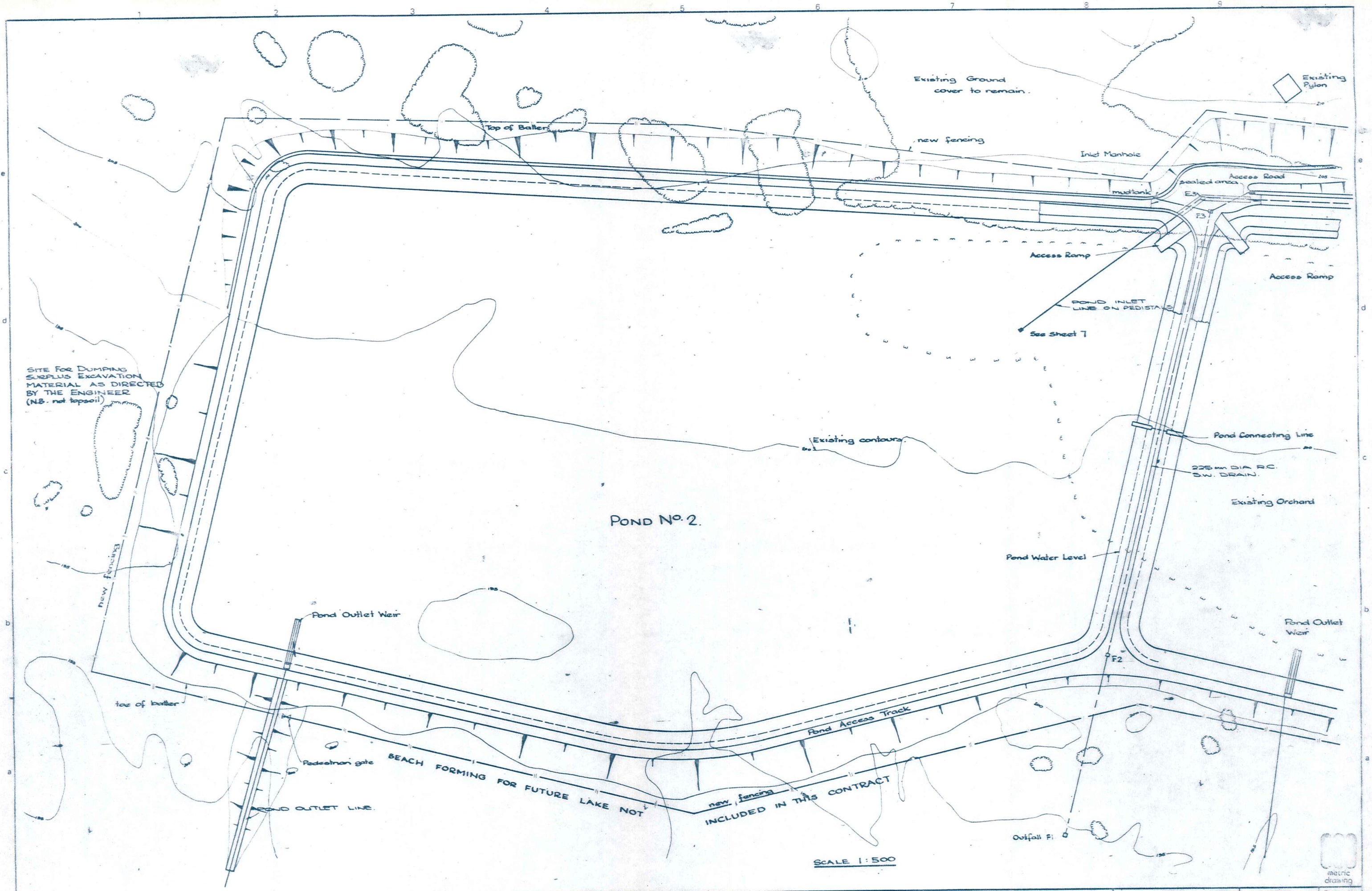
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MINISTRY OF WORKS  
 & DEVELOPMENT

CLUTHA VALLEY DEVELOPMENT  
 CROMWELL EXPANSION  
 SEWAGE TREATMENT

LAYOUT PLAN  
 STABILIZATION POND NO. 1

| AMENDMENTS |    |      | NAME  | DATE         | JOB NO.    | Sheet No |
|------------|----|------|-------|--------------|------------|----------|
| NO         | BY | DATE | Appvd | Surveyed     | B. Knoster | July 76  |
|            |    |      |       | Drawn        | D. WATSON  |          |
|            |    |      |       | Calculations |            |          |
|            |    |      |       | Traced       | A. MOORE   | Sept 76  |
|            |    |      |       | Checked      |            | 12/10/76 |
|            |    |      |       | Approved     |            | Oct 76   |
|            |    |      |       |              | File       | 57/2115  |
|            |    |      |       |              | LB 334     | FB       |



SITE FOR DUMPING SURPLUS EXCAVATION MATERIAL AS DIRECTED BY THE ENGINEER (NB. not topsoil)

POND NO. 2

SCALE 1:500

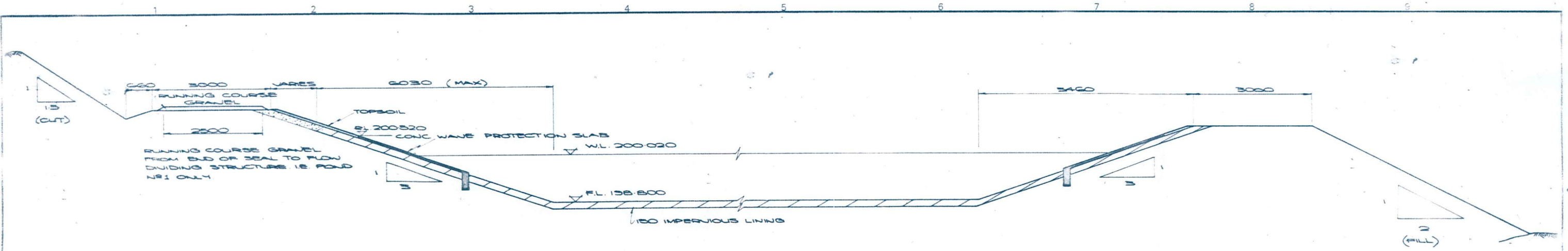
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 Cromwell P.O. Box 92 Phone 98

MINISTRY OF WORKS  
 & DEVELOPMENT

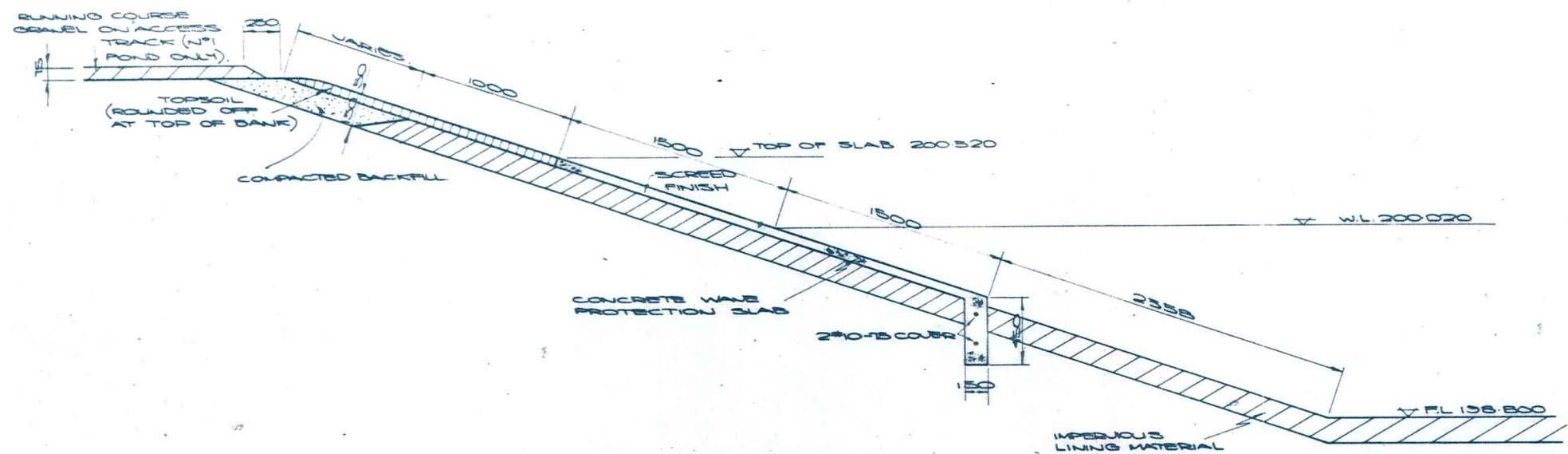
CLUTHA VALLEY DEVELOPMENT  
 CROMWELL EXPANSION  
 SEWAGE TREATMENT

LAYOUT PLAN  
 STABILIZATION POND NO. 2

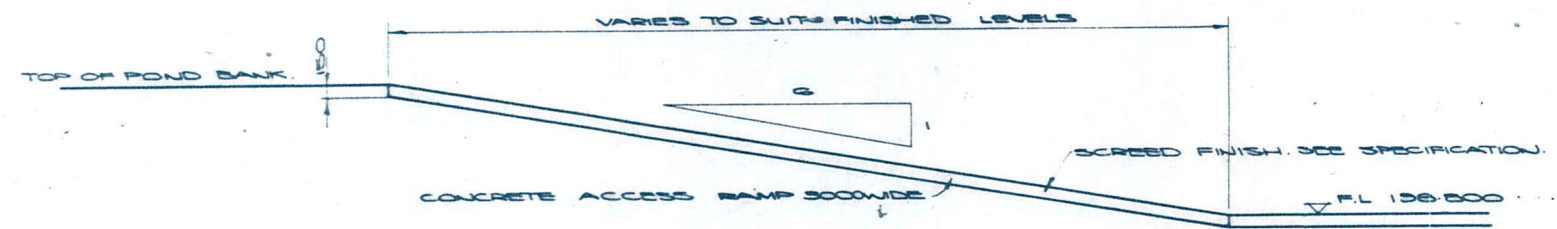
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| NO         | BY | DATE | Appvd | Surveyed     | B.T. Kingston July '78 | 8312    | 3         |
|            |    |      |       | Drawn        |                        |         |           |
|            |    |      |       | Calculations | B.T. Kingston          |         |           |
|            |    |      |       | Traced       | A.H. Moore             |         |           |
|            |    |      |       | Checked      | R. Jacobs 12/10/78     |         |           |
|            |    |      |       | Approved     | James Oct 78           | File    | LB 334    |



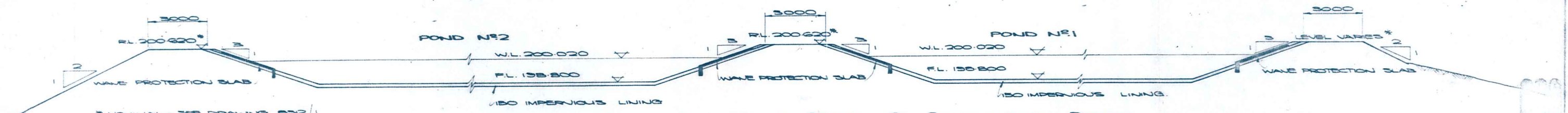
TYPICAL CROSS SECTION  
OF STABILISATION PONDS  
SCALE 1:50



SECTION THROUGH POND WALL  
SCALE 1:20



SECTION THROUGH ACCESS RAMP  
SCALE 1:50



TYPICAL LONGITUDINAL SECTION OF STABILISATION PONDS  
SCALE 1:100

\* NOMINAL - SEE DRAWING 6512/1  
FOR DETAILS OF SPECIFIC LEVELS  
FOR PONDS.

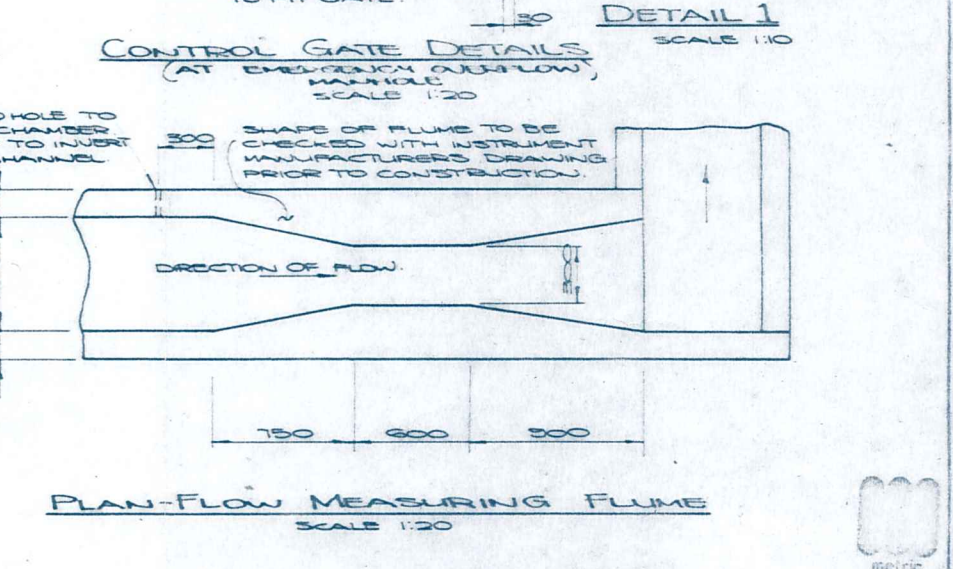
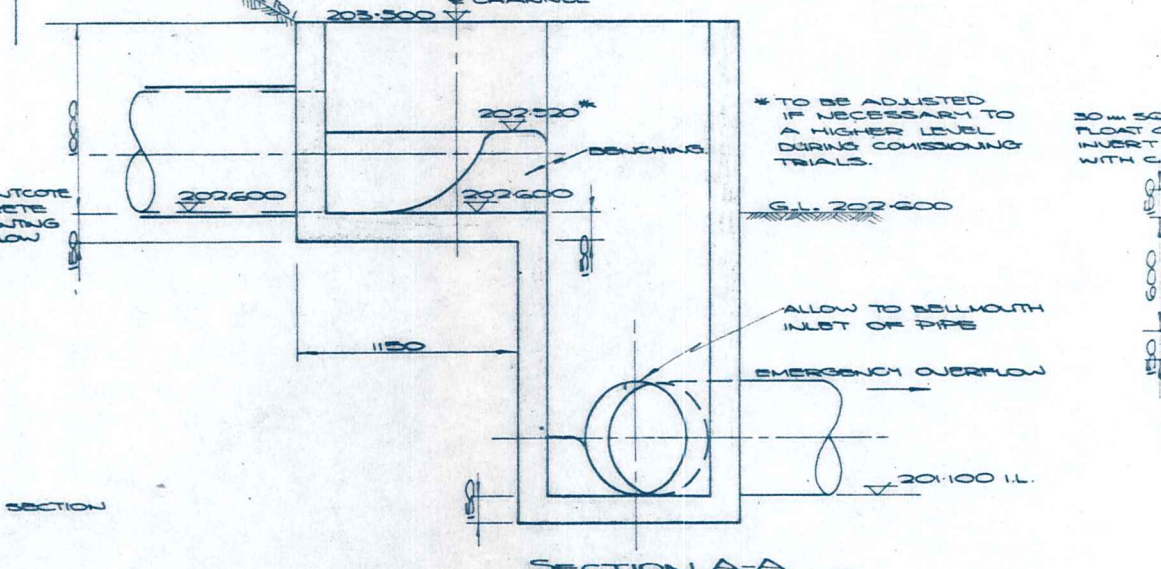
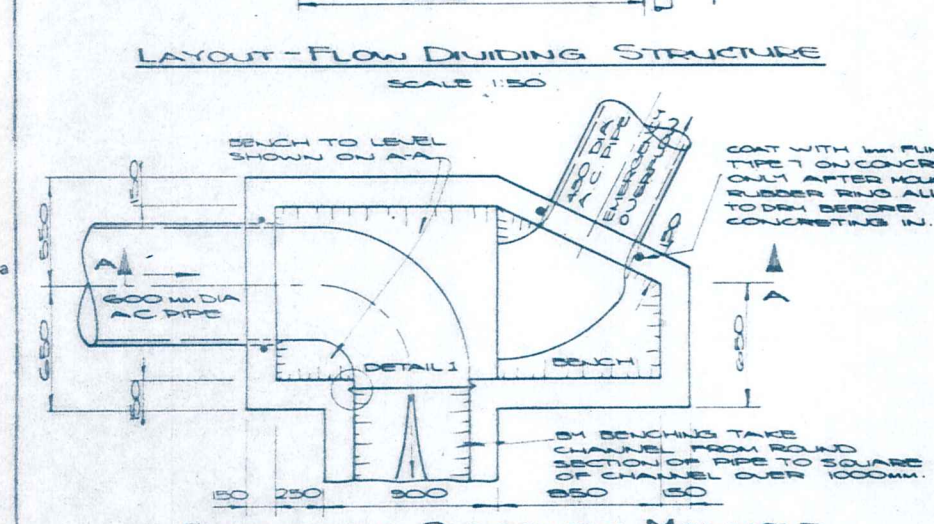
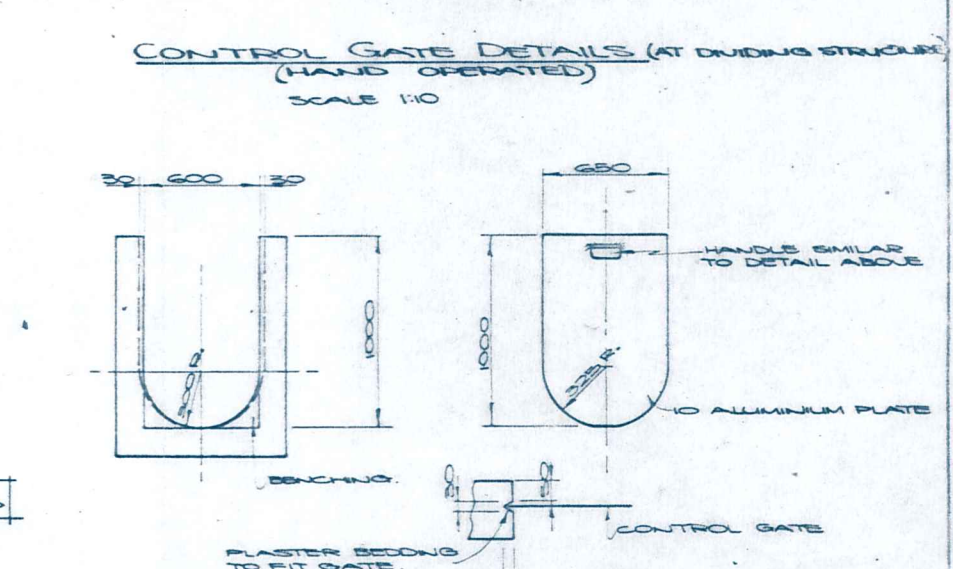
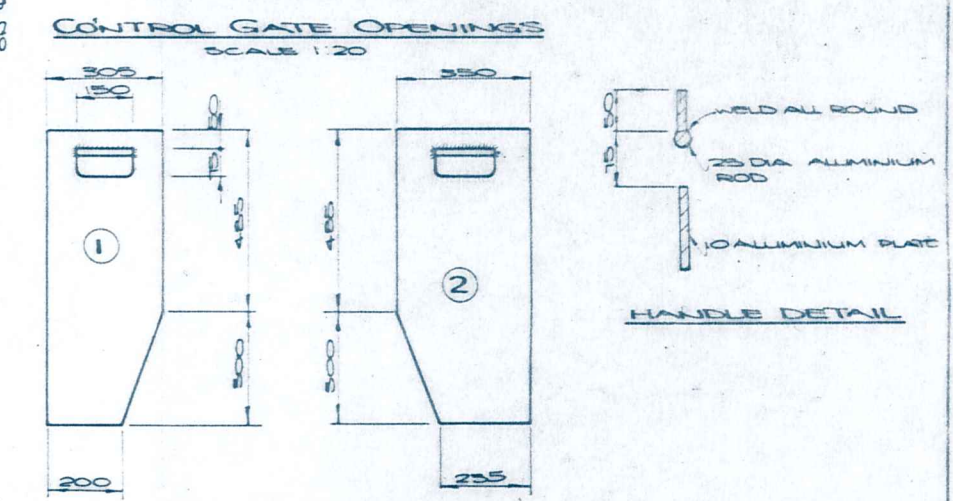
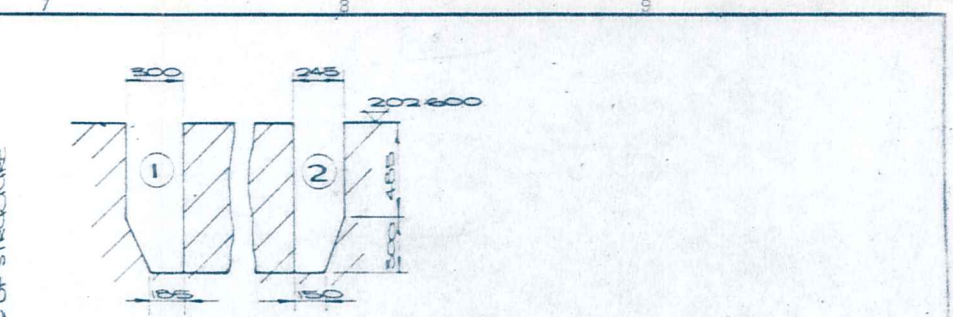
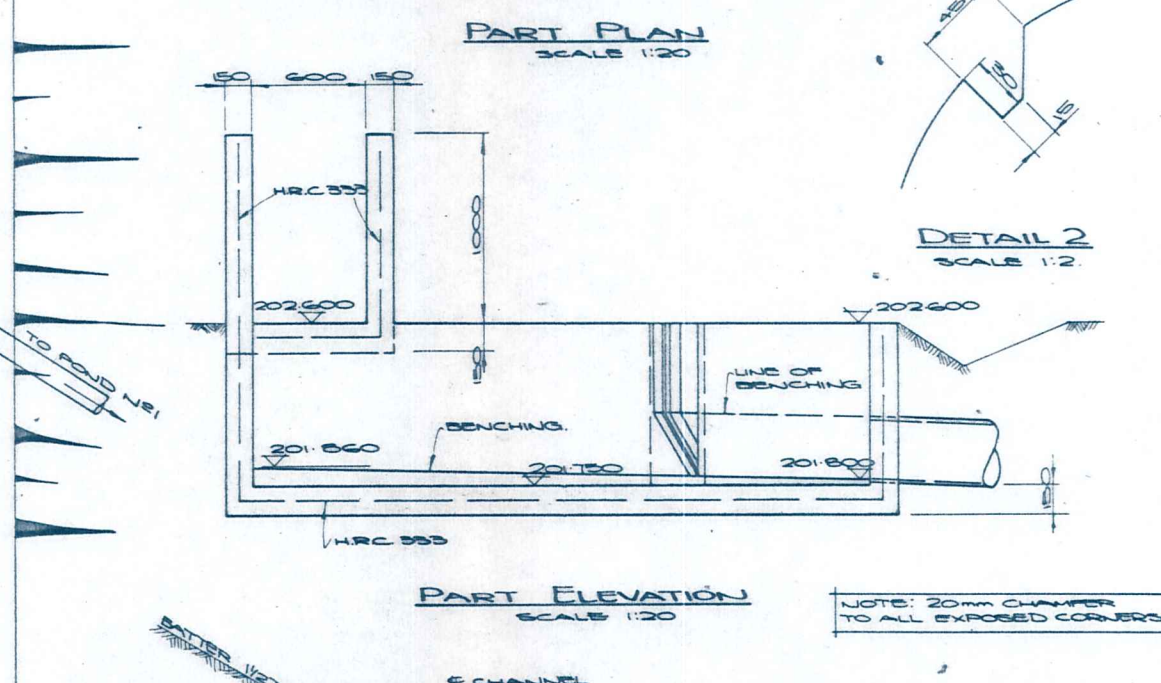
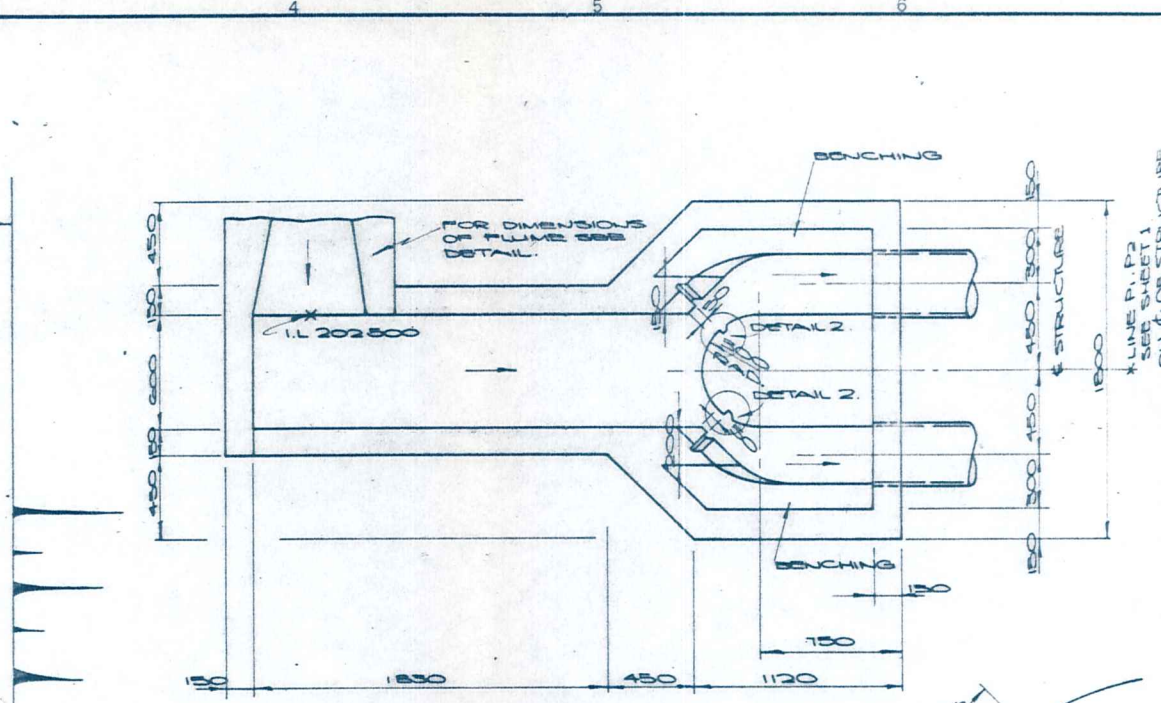
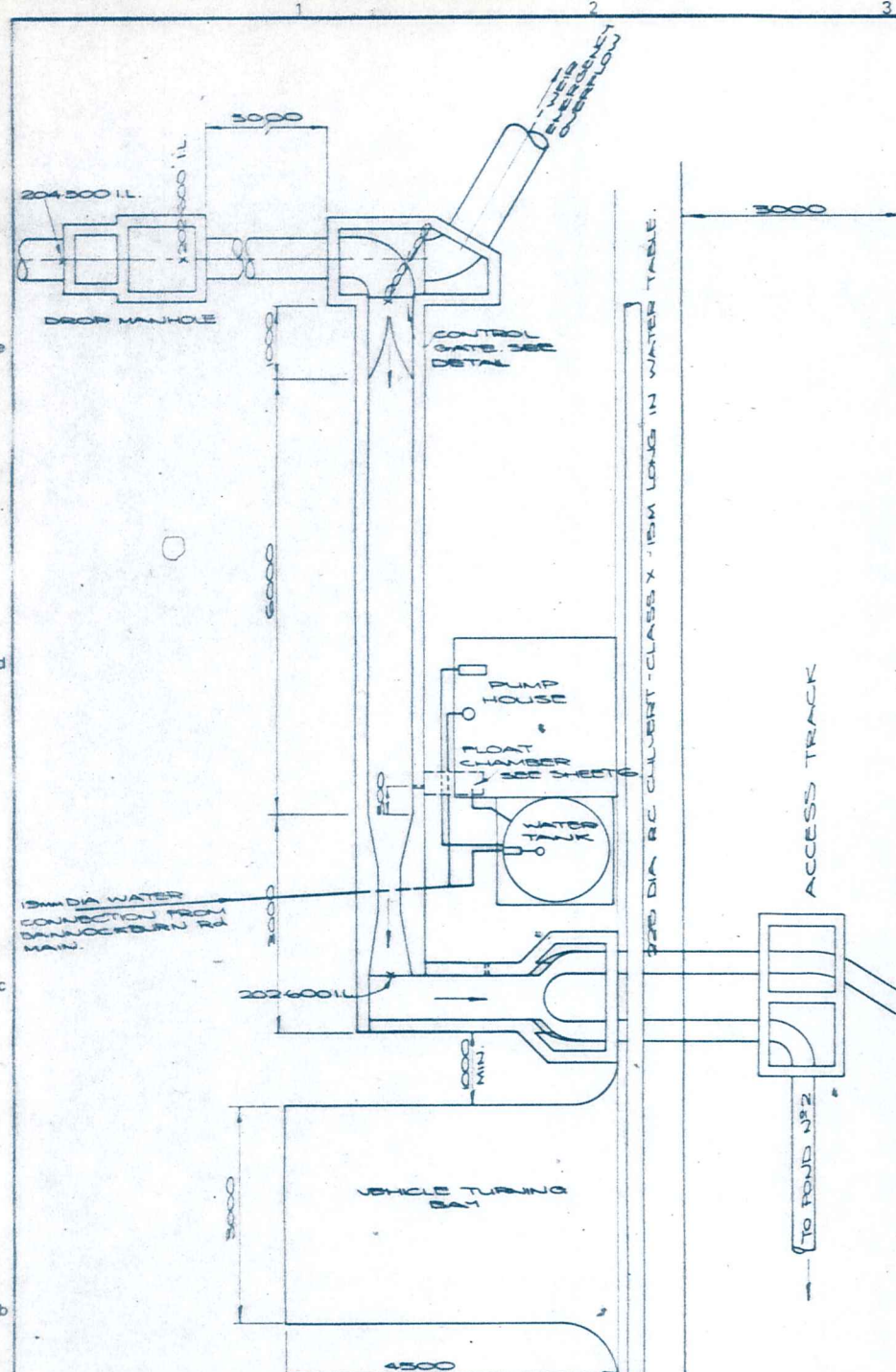
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MINISTRY OF WORKS  
& DEVELOPMENT

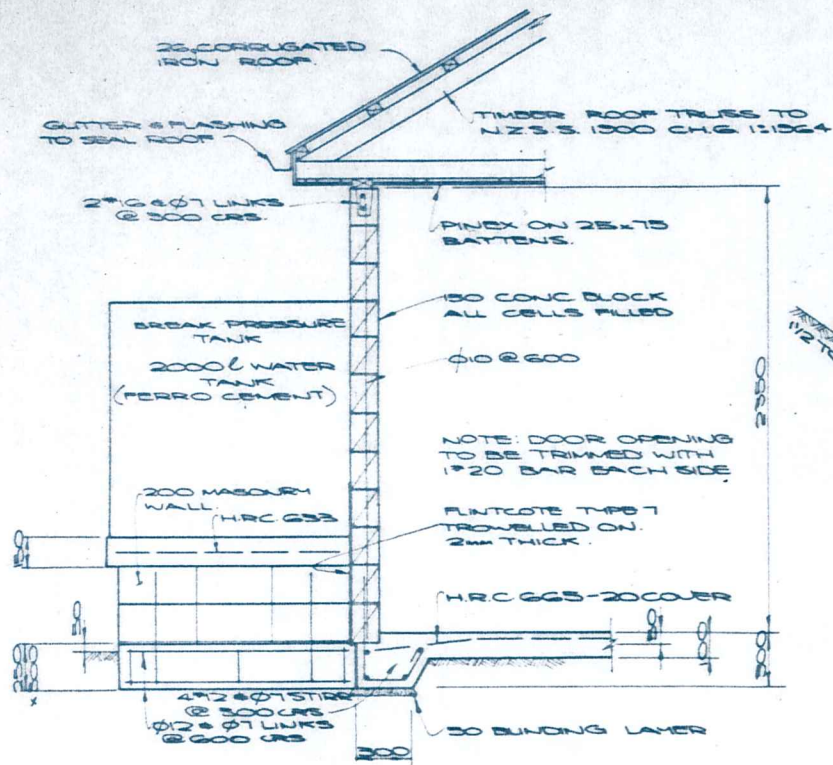
CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

TYPICAL SECTIONS  
OF STABILISATION PONDS

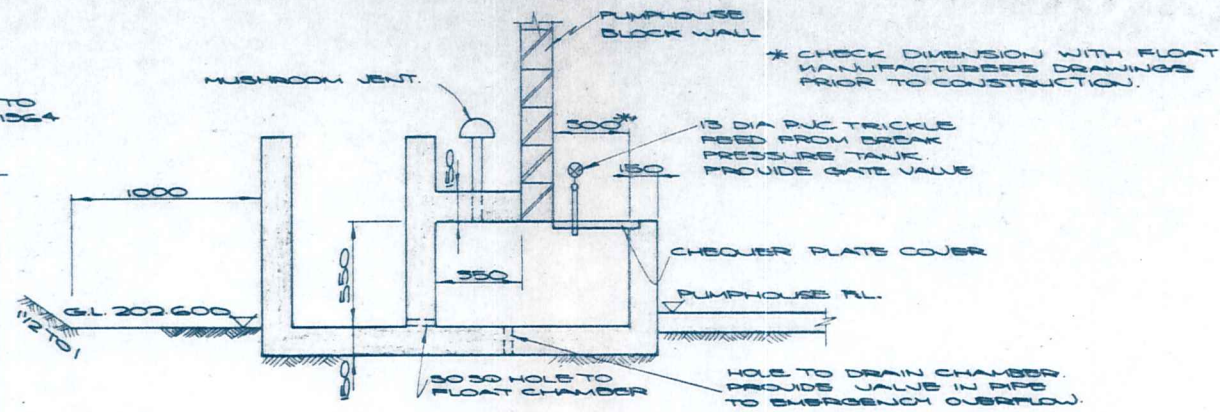
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|            |    |      |       | Calculations |          |
|            |    |      |       | Traced       |          |
|            |    |      |       | Checked      |          |
|            |    |      |       | Approved     |          |



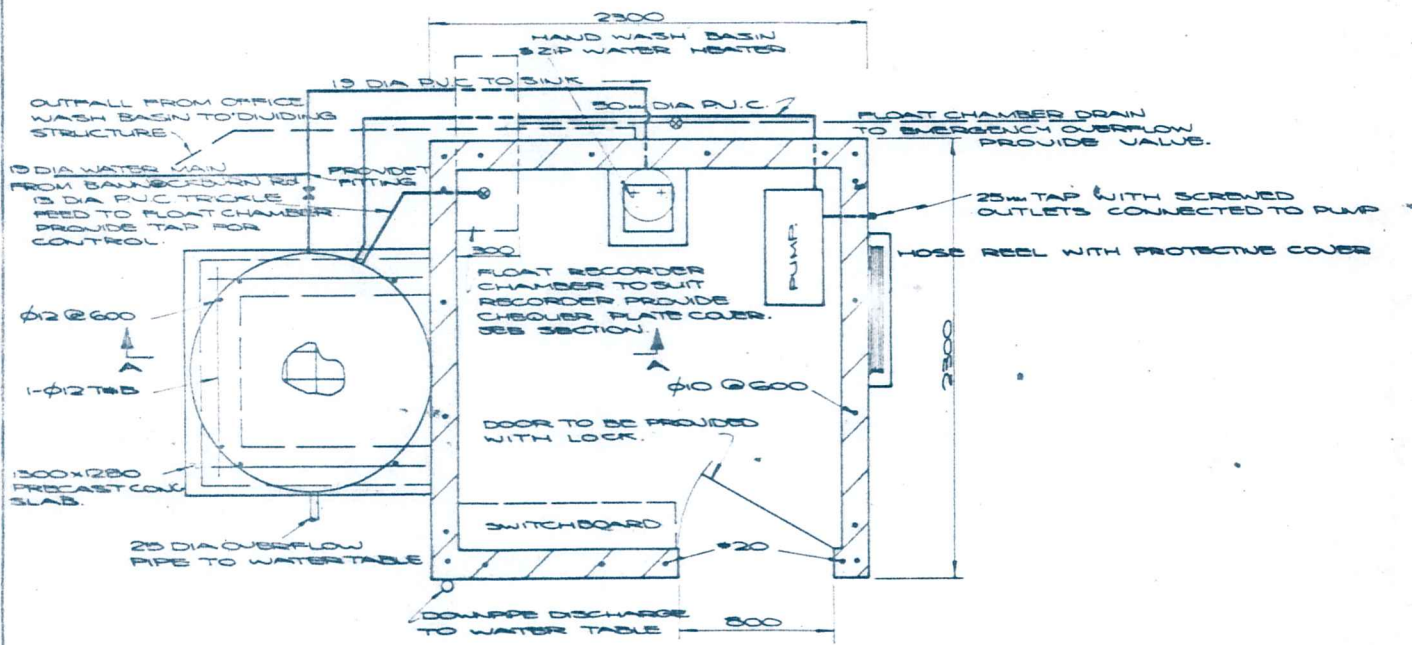
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|---|--|--|--|------------|----|--------------|----------------------|-------------|--------------|
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|   |  |  |  | NO         | BY | DATE         | Appvd                | Surveyed    | BRUNSON 9/76 |
|   |  |  |  |            |    | Drawn        | CHAMWOOD 10/76       |             |              |
|   |  |  |  |            |    | Calculations | ED JACK MORTON 11/76 |             |              |
|   |  |  |  |            |    | Traced       |                      |             |              |
|   |  |  |  |            |    | Checked      | CHAMWOOD 12/76       |             |              |
|   |  |  |  |            |    | Approved     | 12/76                | File 57/2/5 | LB 334 F.B.  |



SECTION A-A  
SCALE 1:20



SECTION THRU  
FLOAT CHAMBER.  
SCALE 1:20



PUMP HOUSE  
SCALE 1:20

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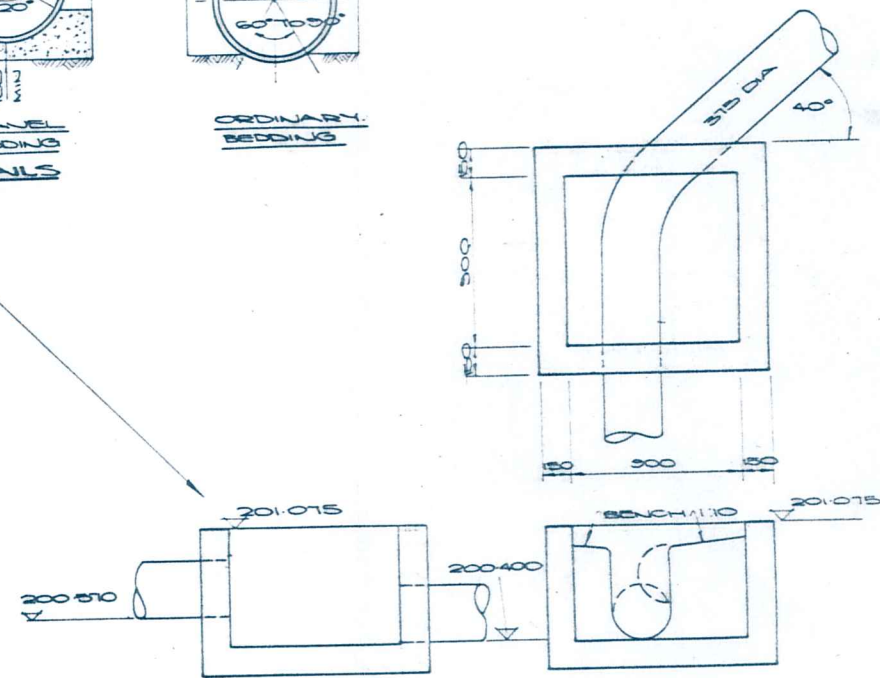
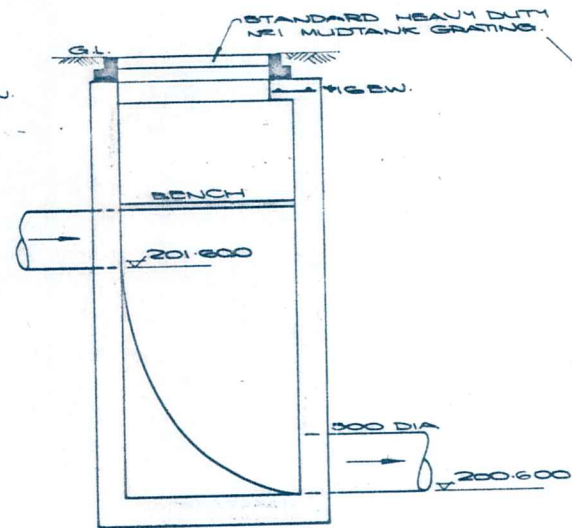
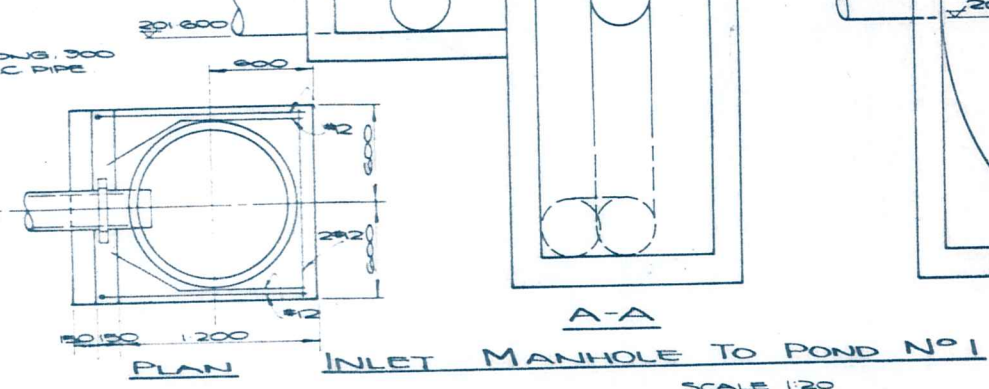
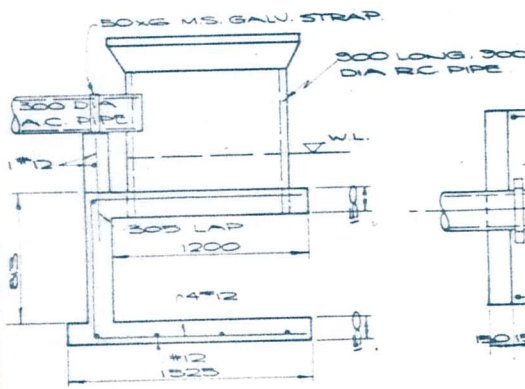
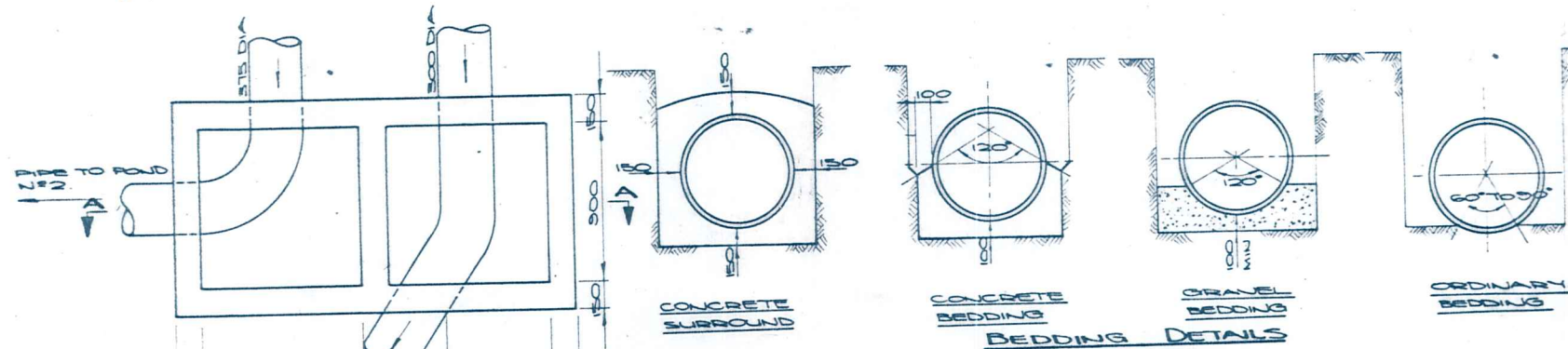
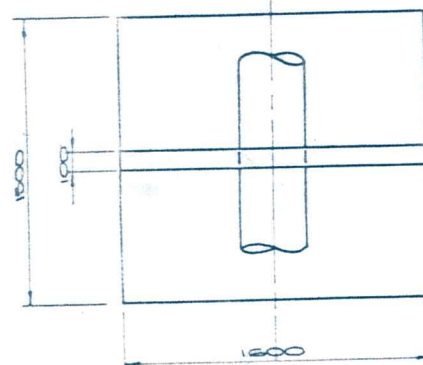
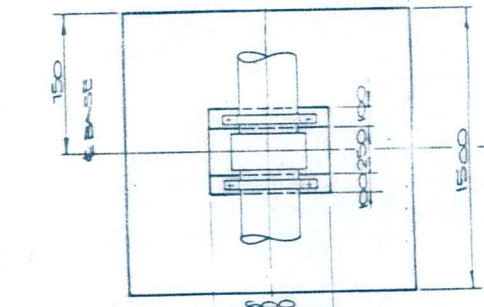
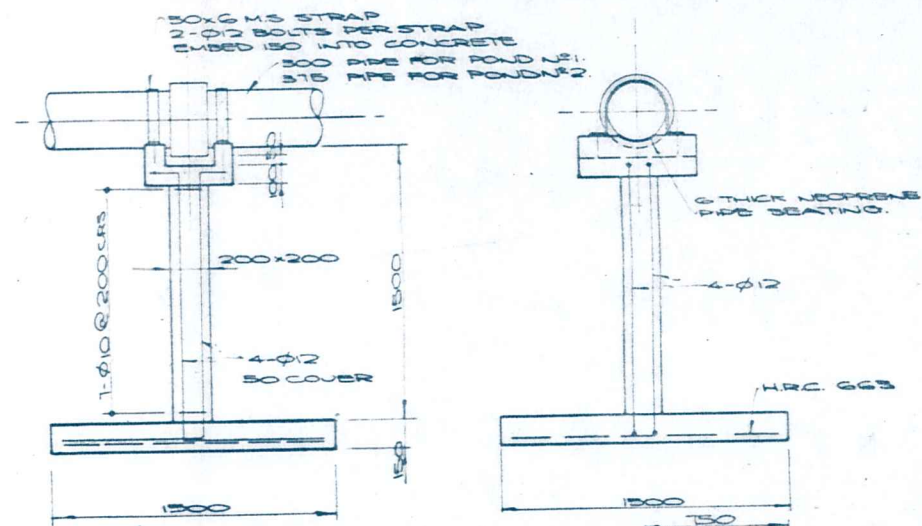
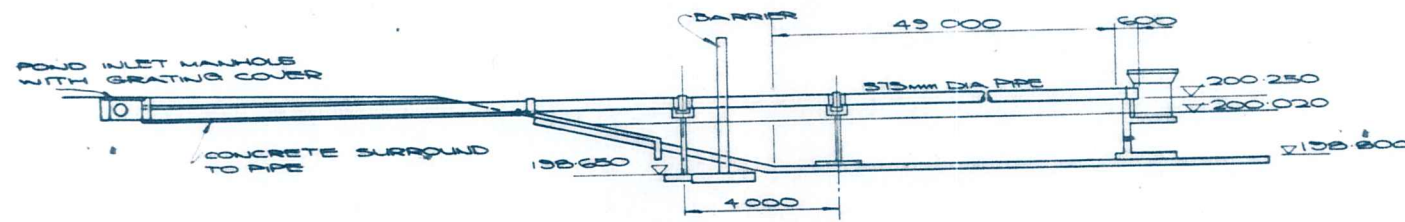
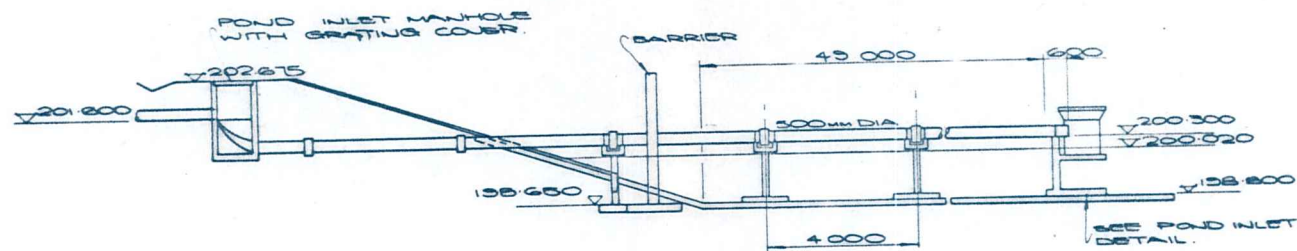
MINISTRY OF WORKS  
& DEVELOPMENT

CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

PUMP HOUSE DETAILS

| AMENDMENTS |    | NAME |       | DATE         | JOB NO. | Sheet No |
|------------|----|------|-------|--------------|---------|----------|
| NO         | BY | DATE | Appvd | Surveyed     | 8312    | 6        |
|            |    |      |       | Drawn        |         |          |
|            |    |      |       | Calculations |         |          |
|            |    |      |       | Traced       |         |          |
|            |    |      |       | Checked      |         |          |
|            |    |      |       | Approved     |         |          |





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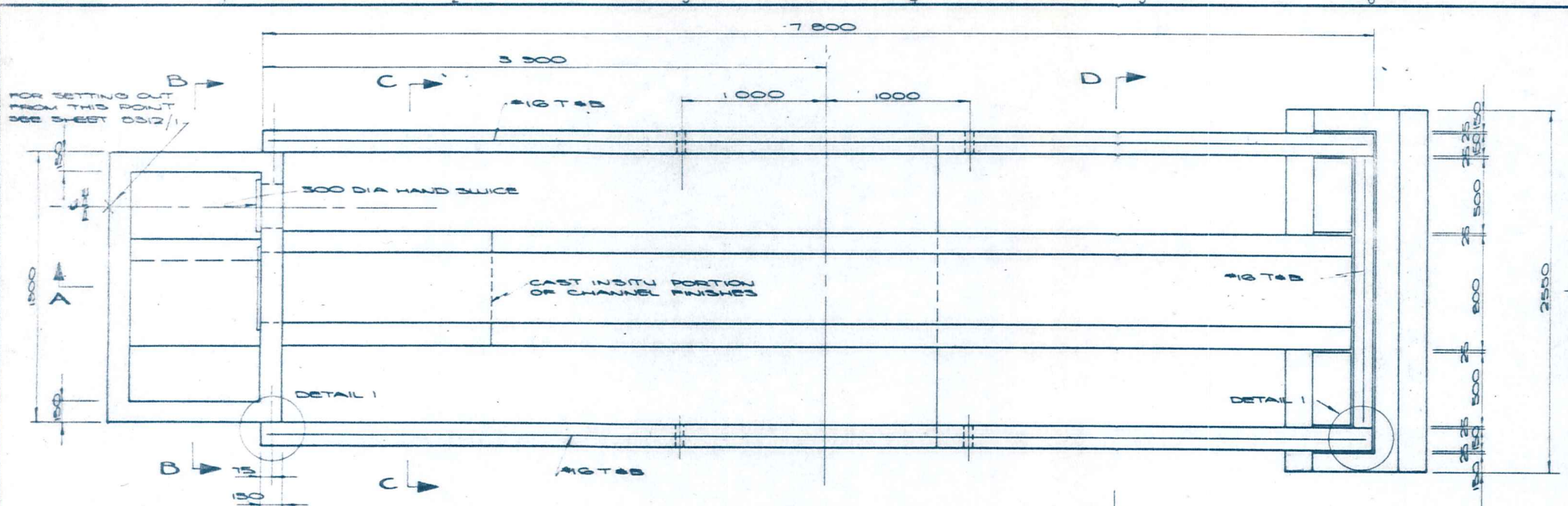
MINISTRY OF WORKS  
& DEVELOPMENT

CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

DETAILS OF POND  
INLET STRUCTURES

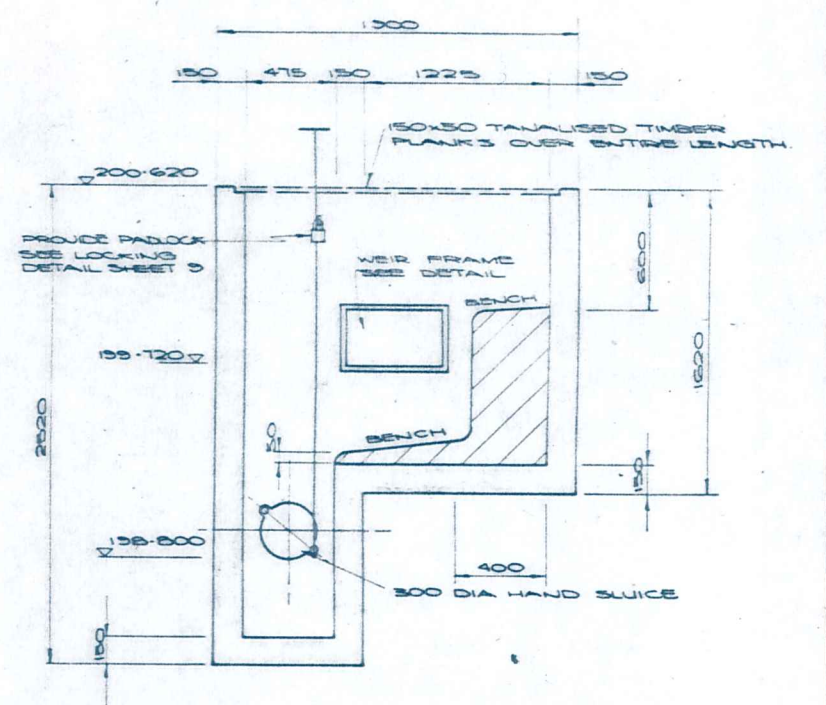
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|------------|----|------|--------------|---------|----------|---------|-----------|
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|            |    |      | B. KINGSWOOD |         |          |         |           |
|            |    |      | B. JACK      |         |          |         |           |
|            |    |      | B. HODGSON   |         |          |         |           |
|            |    |      | B. HODGSON   |         |          |         |           |
|            |    |      | B. HODGSON   |         |          |         |           |
|            |    |      | B. HODGSON   |         |          |         |           |
|            |    |      | B. HODGSON   |         |          |         |           |
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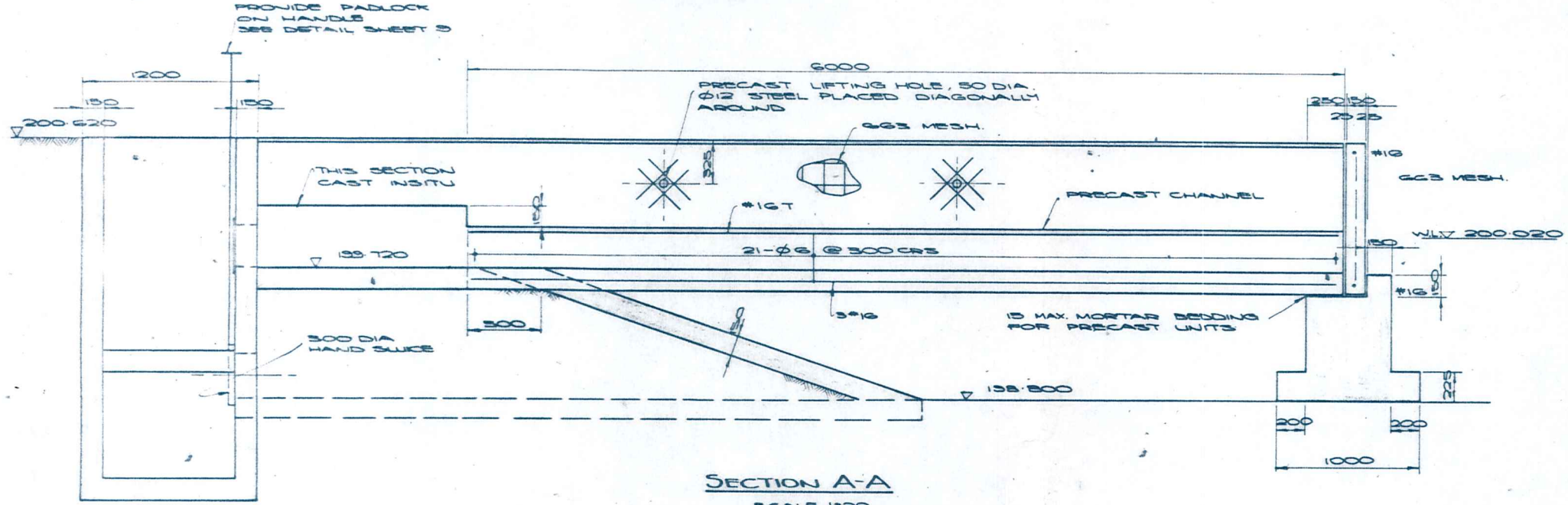
PLAN - OUTLET WEIR

SCALE 1:20



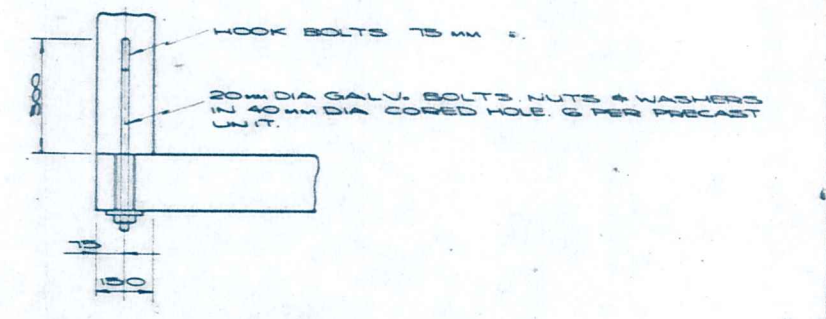
SECTION B-B

SCALE 1:20



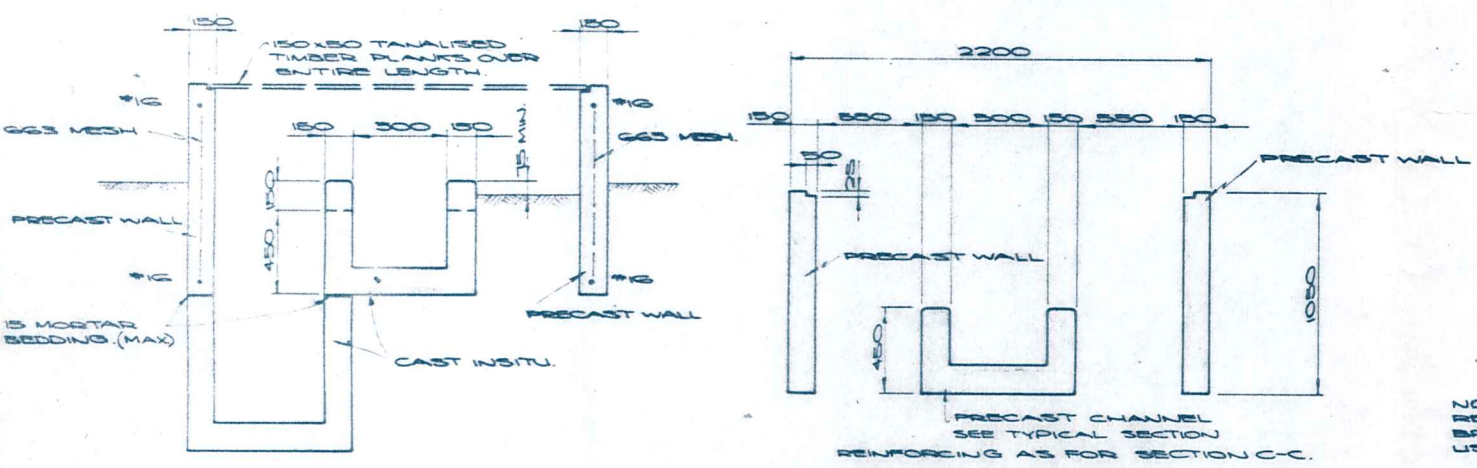
SECTION A-A

SCALE 1:20



DETAIL 1

SCALE 1:10

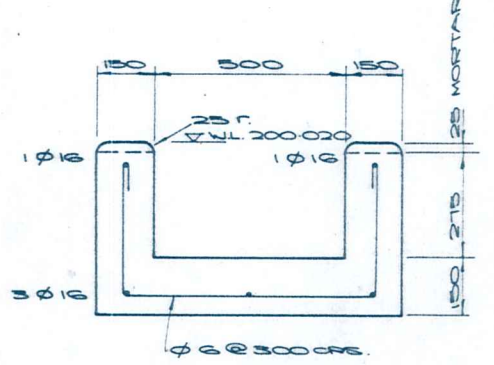


SECTION C-C

SCALE 1:20

SECTION D-D

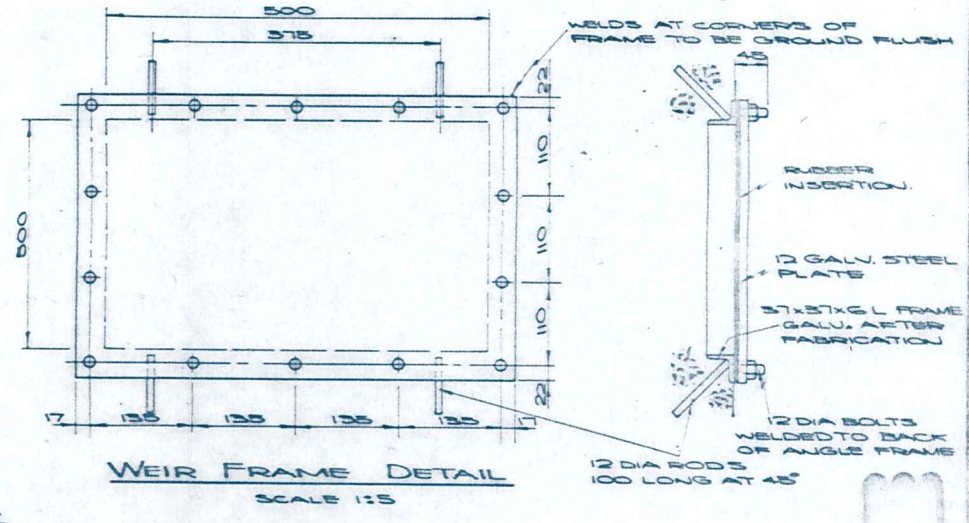
SCALE 1:20



NOTE: FINISH CONCRETE 25 MIN. BELOW REQUIRED LEVEL, LEAVING ROUGH SURFACE. BRING WEIR UP TO FINISHED LEVEL & SHAPE USING MORTAR AS SPECIFIED, AFTER INSTALLATION.

TYPICAL PRECAST CHANNEL

SCALE 1:10



WEIR FRAME DETAIL

SCALE 1:5

NOTE: CONTRACTOR MAY OFFER CAST IN SITU ALTERNATIVES.

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MINISTRY OF WORKS  
& DEVELOPMENT

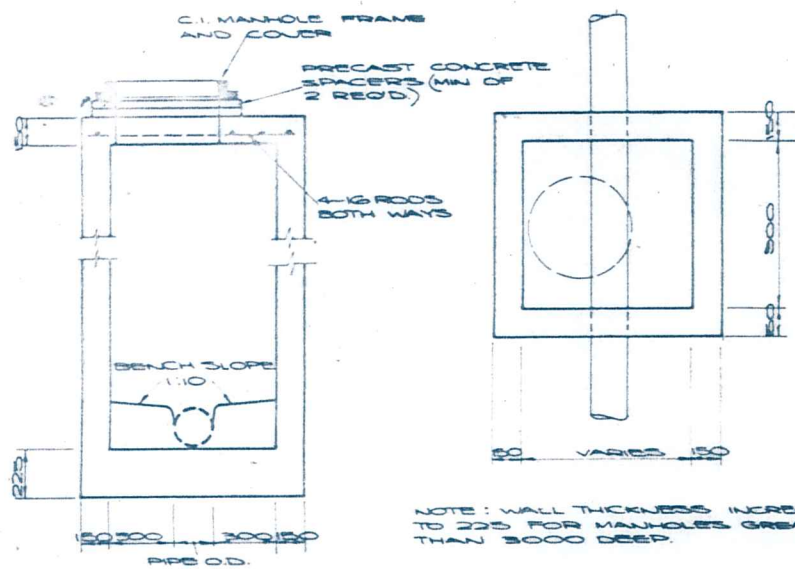
CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

DETAILS OF POND OUTLET STRUCTURES

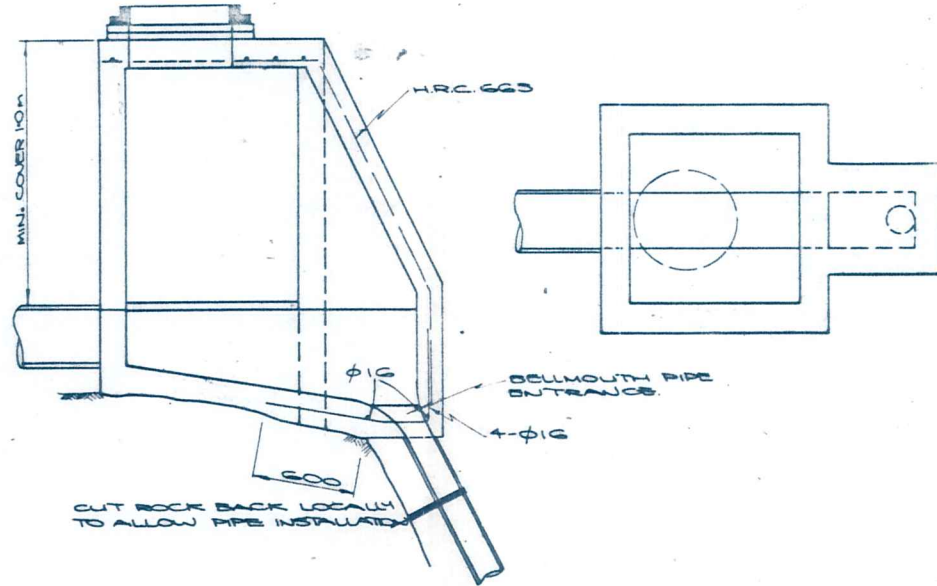
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|------------|----|------|-------|--------------|-------------------|---------|----------|
| NO.        | BY | DATE | Appvd | Drawn        | 12/10/76          | 8312    | 8        |
|            |    |      |       | Calculations | P. MORRISON 11/11 |         |          |
|            |    |      |       | Traced       | CHEWWOOD 11/11    |         |          |
|            |    |      |       | Checked      | 12/10/76          |         |          |
|            |    |      |       | Approved     | 12/10/76          |         |          |

File: CV12/45 LB 334 F.B.

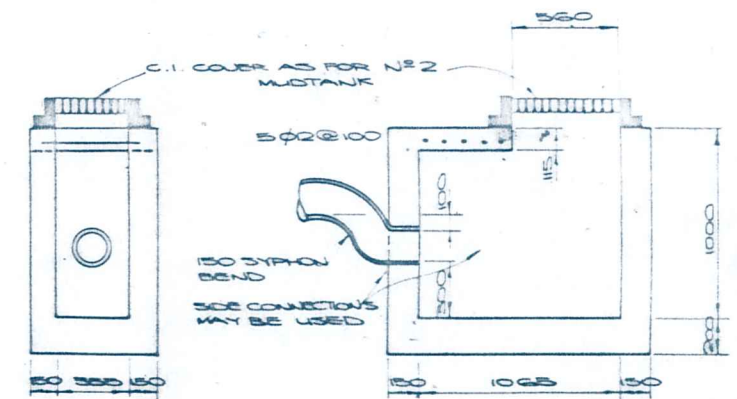




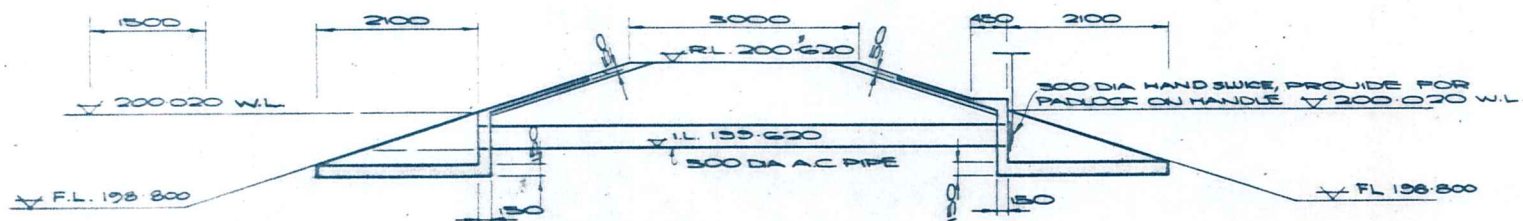
**CAST INSITU STRAIGHT THRU MANHOLE**  
SCALE 1:20



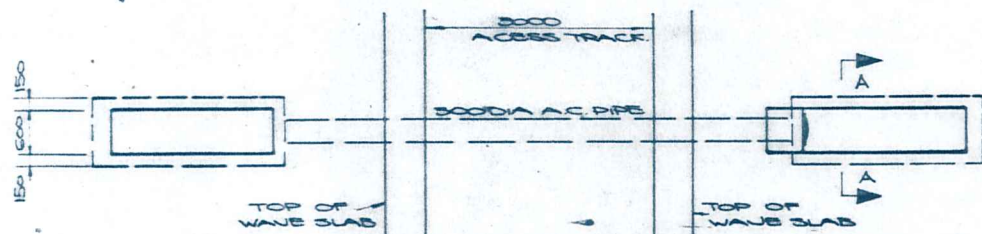
**DISCHARGE MANHOLE**  
SCALE 1:20



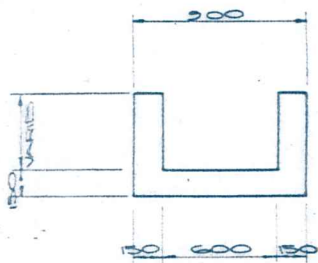
**MUDTANK DETAILS**  
SCALE 1:20



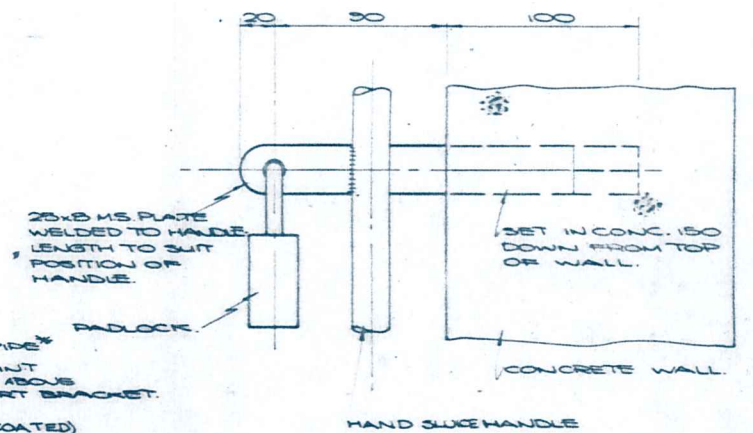
**SECTION**



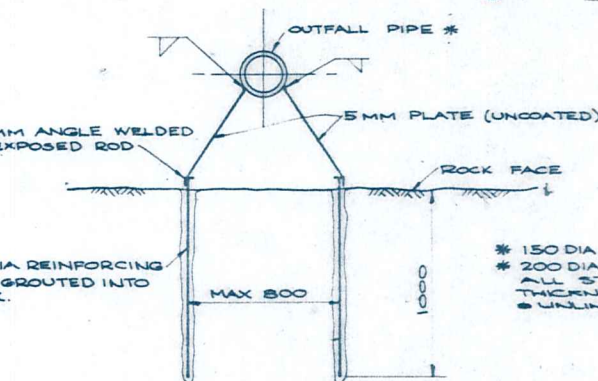
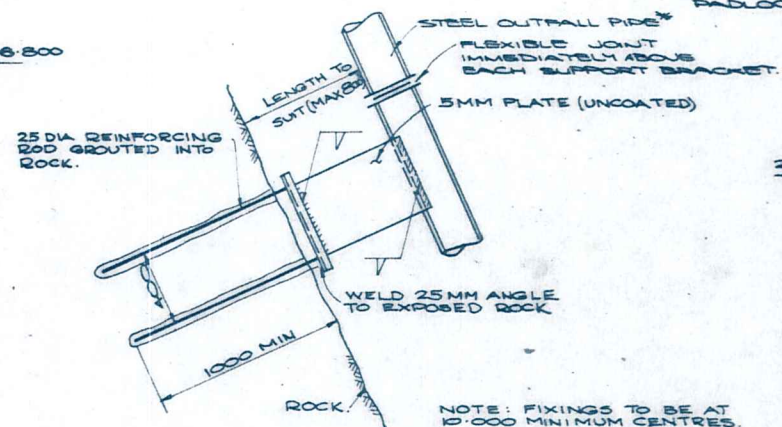
**PLAN POND CONNECTING LINE**  
SCALE 1:20



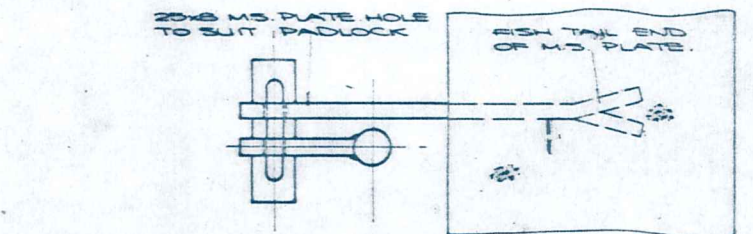
**SECTION A-A**  
SCALE 1:20



**HAND SLUCE DETAIL**  
SCALE 1:20



**FIXING DETAILS FOR STEEL OUTFALL PIPE TO RIVER**  
SCALE 1:20



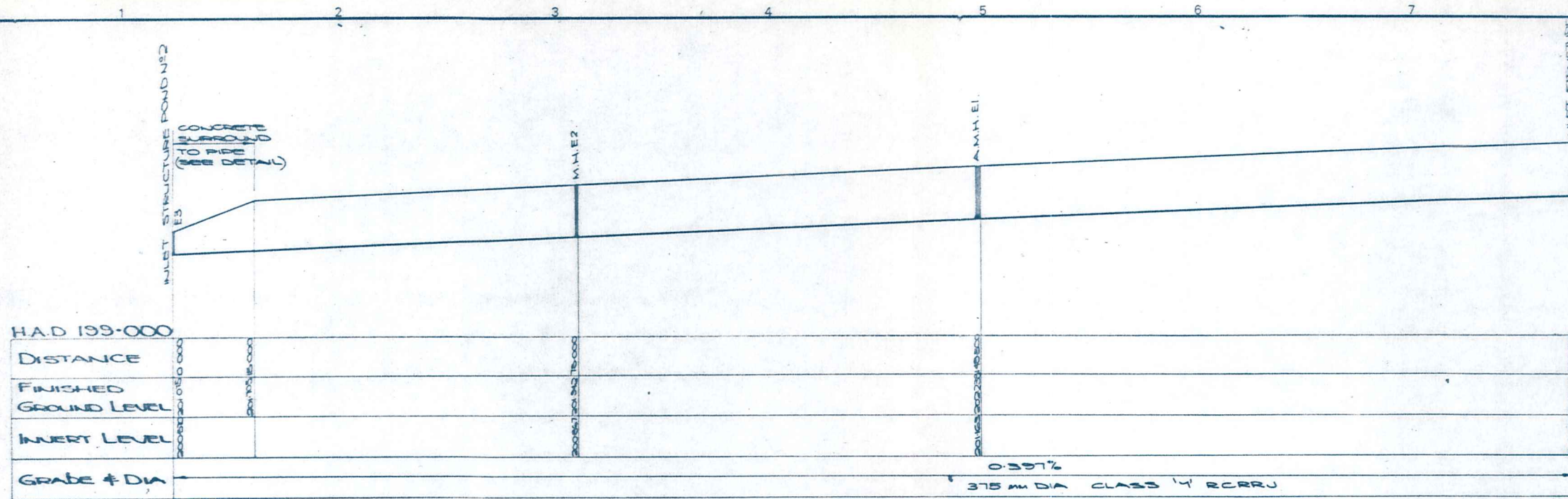
NOTE: FIXINGS TO BE AT 10'000 MINIMUM CENTRES.

\* 150 DIA BOTH POND OUTFALLS  
\* 200 DIA EMERGENCY OUTFALL  
ALL STEEL PIPES TO BE WALL THICKNESS 4MM, UNTREATED & UNLINED

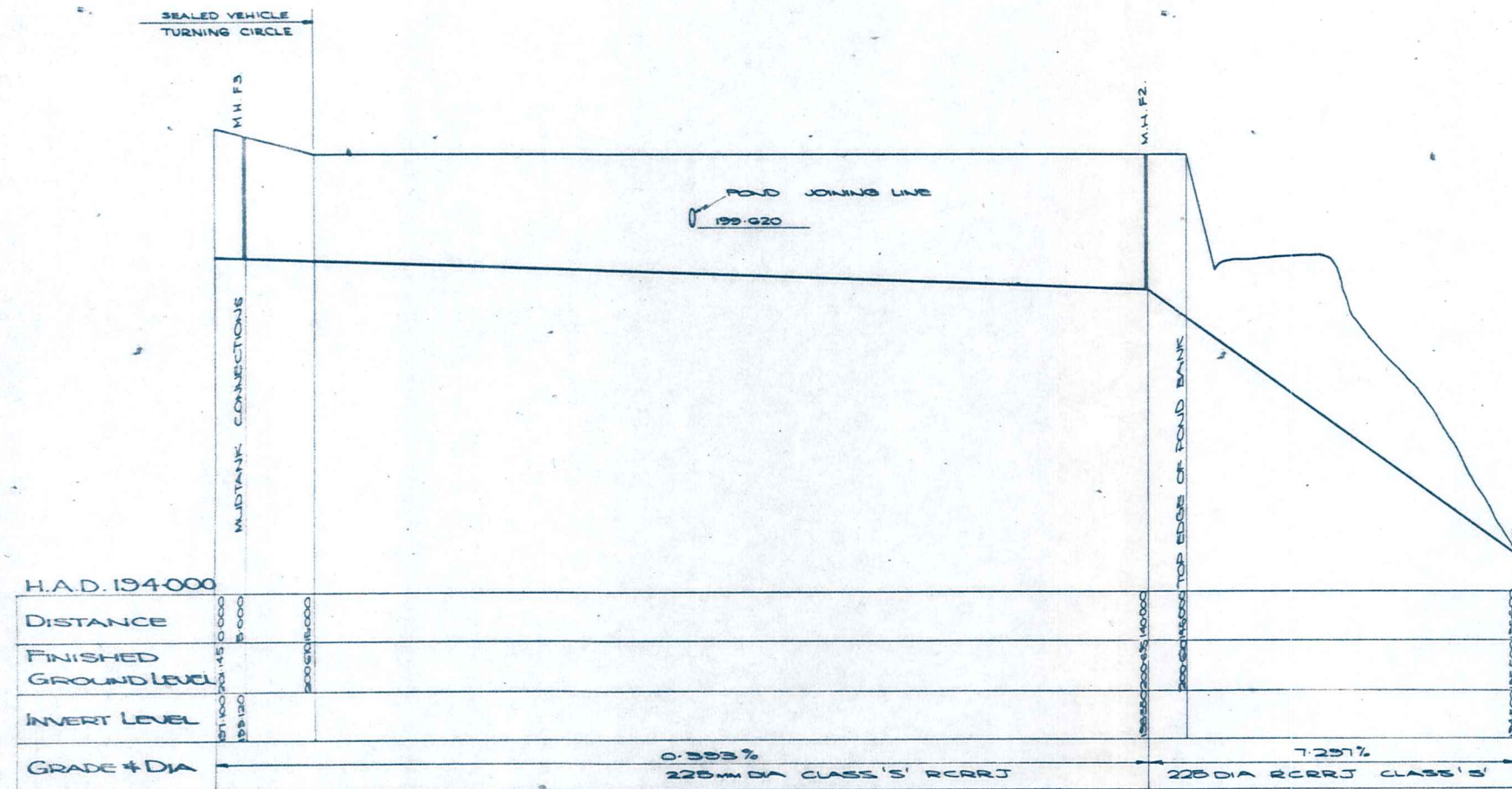
| AMENDMENTS |    |      |       | NAME DATE |              | JOB NO. | Sheet No |
|------------|----|------|-------|-----------|--------------|---------|----------|
| NO         | BY | DATE | Appvd | Surveyed  | Checked      | 8312    | 9        |
|            |    |      |       | Drawn     | Calculations |         |          |
|            |    |      |       | Traced    | Checked      |         |          |
|            |    |      |       | Approved  | Approved     |         |          |
|            |    |      |       |           |              |         |          |

LB.334





PROFILE OF PIPELINE TO POND NO. 2  
SCALE HORIZ 1:500  
VERT 1:50



PROFILE OF STORMWATER DRAIN  
SCALE HORIZ 1:500  
VERT 1:50

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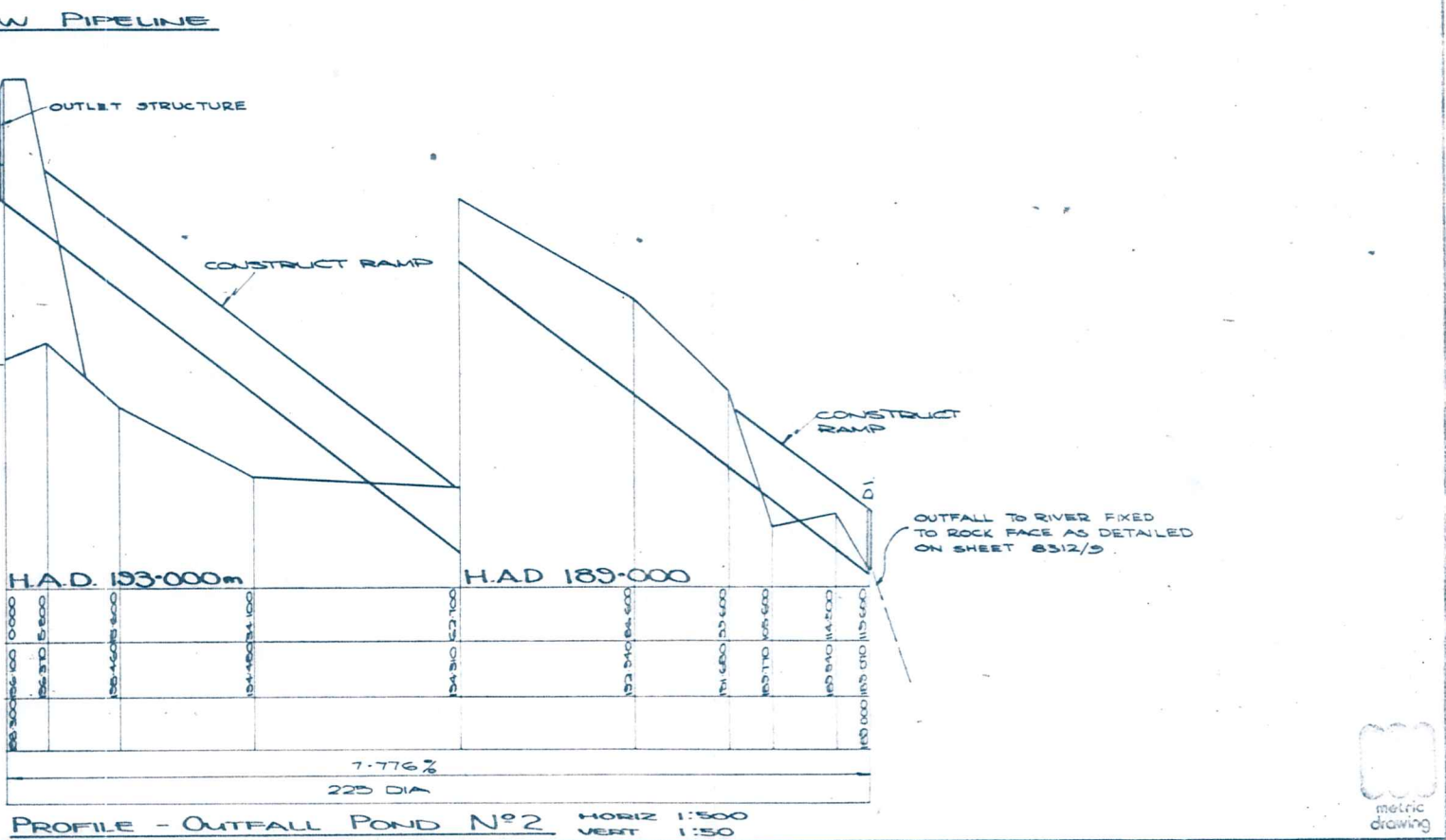
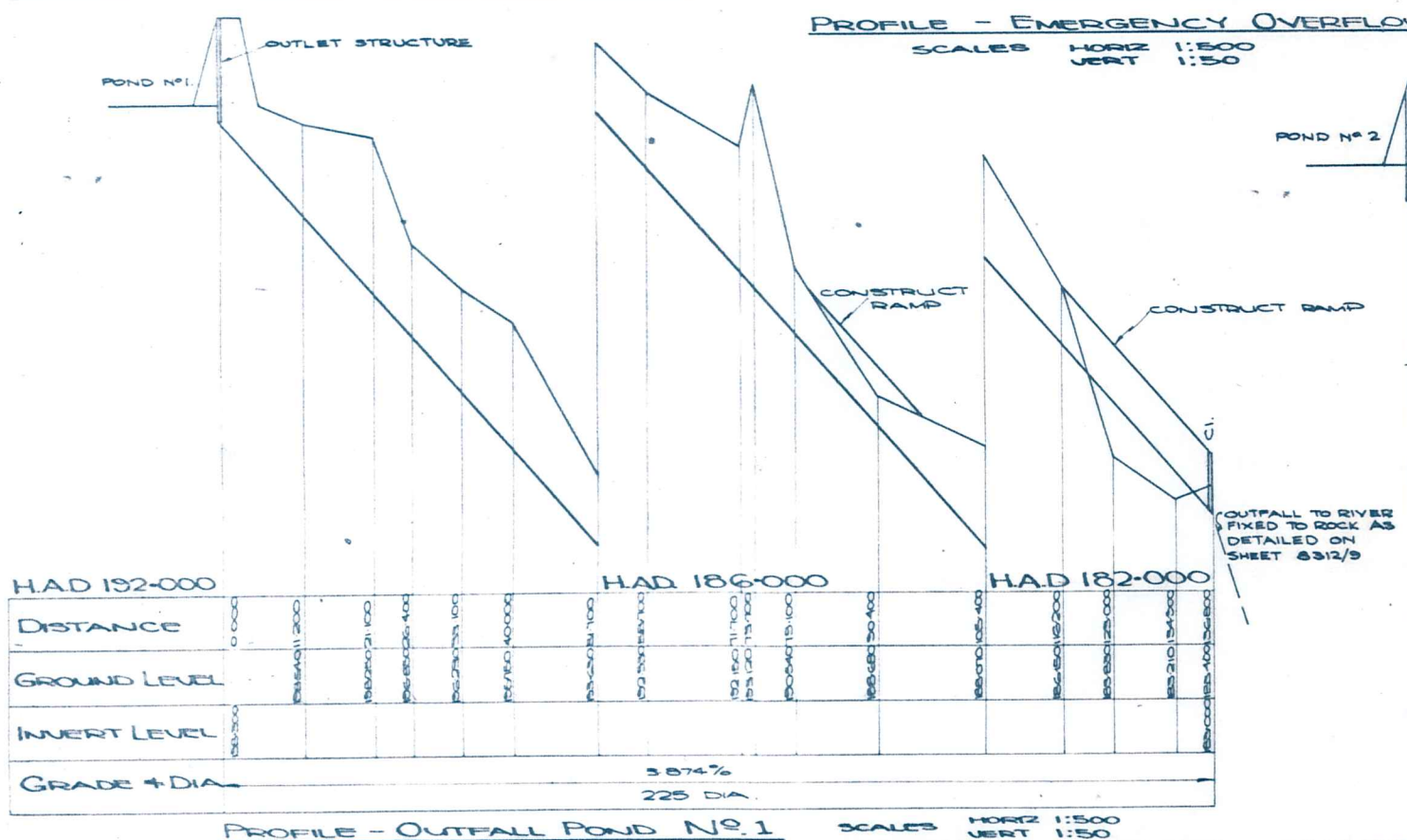
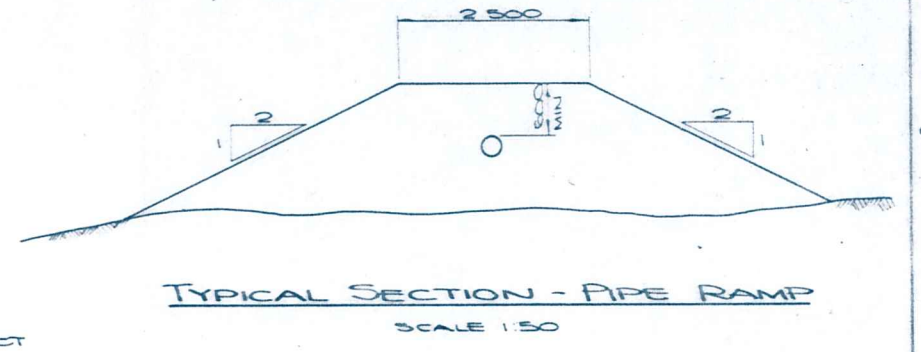
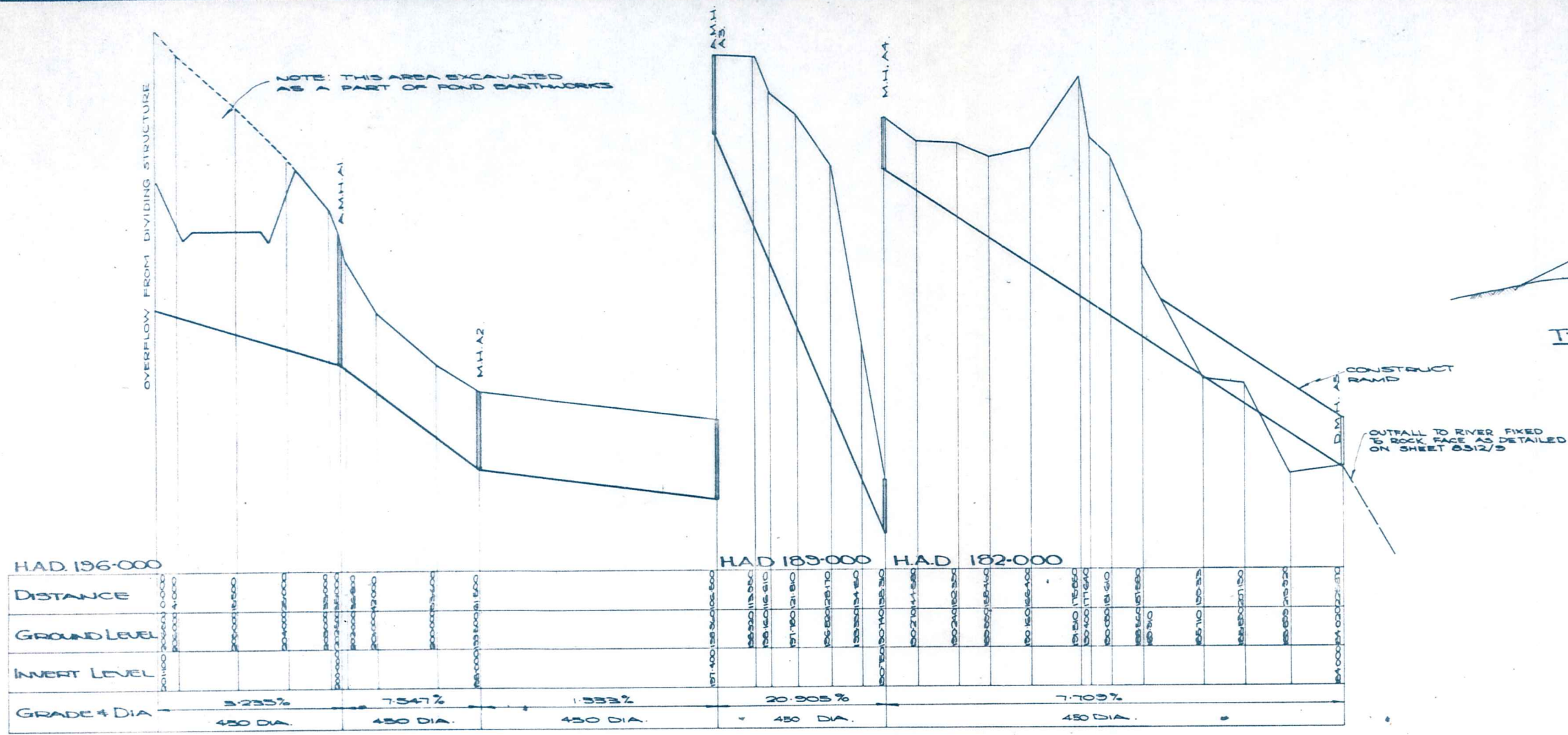
MINISTRY OF WORKS  
& DEVELOPMENT

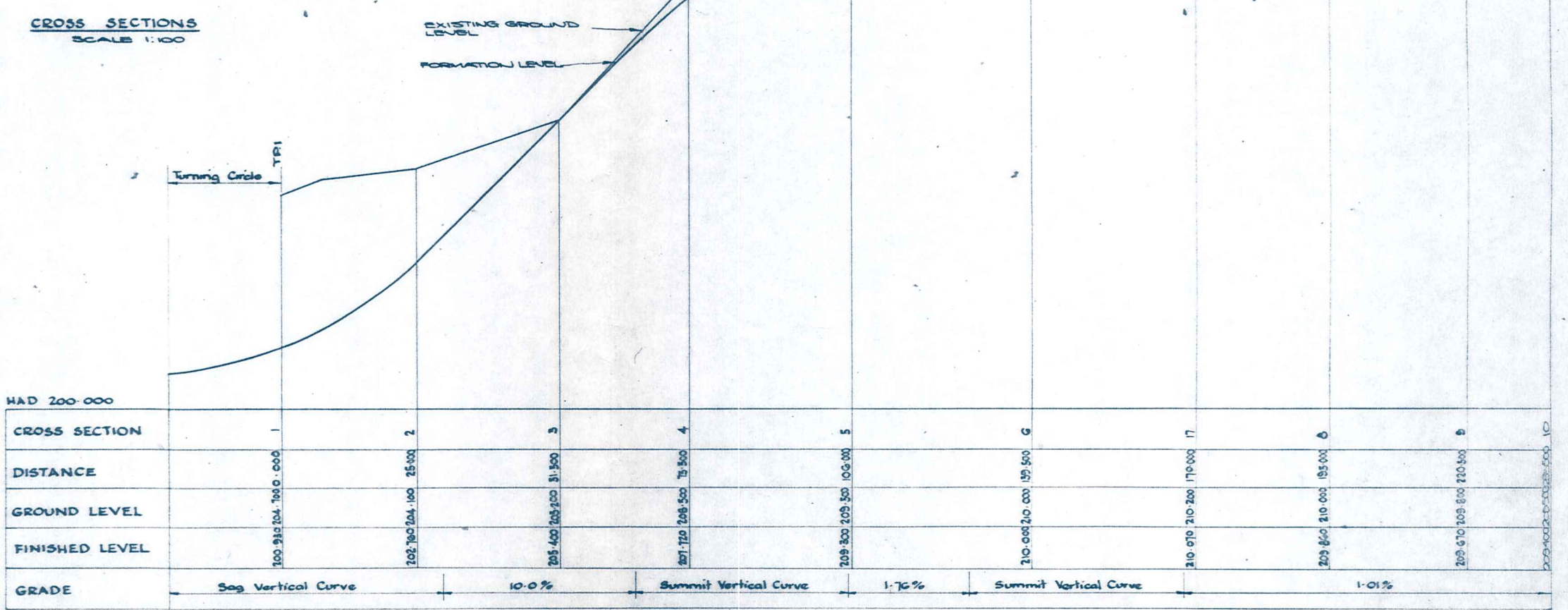
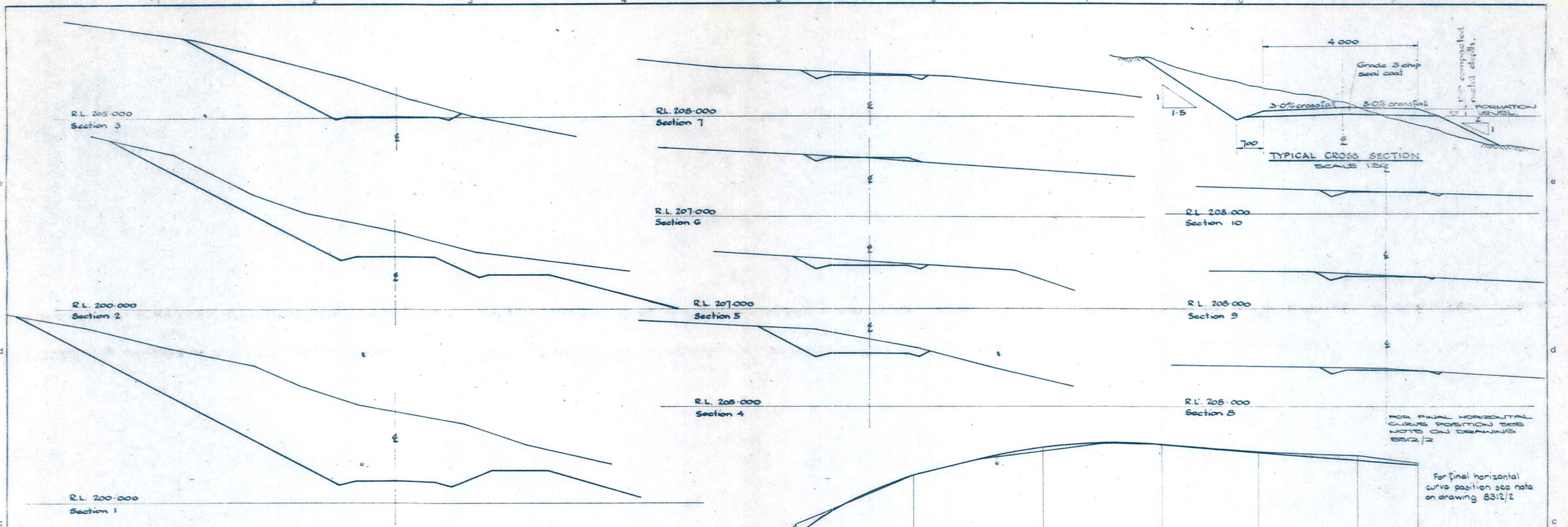
CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

STORMWATER DRAIN  
& SANITARY SEWER DETAILS

| AMENDMENTS |    |      | NAME DATE |              | JOB NO. | Sheet No |  |  |
|------------|----|------|-----------|--------------|---------|----------|--|--|
| NO.        | BY | DATE | Appvd     | Surveyed     | 8312    | 10       |  |  |
|            |    |      |           | W. KINGSTON  |         |          |  |  |
|            |    |      |           | Drawn        |         |          |  |  |
|            |    |      |           | Calculations |         |          |  |  |
|            |    |      |           | Traced       |         |          |  |  |
|            |    |      |           | Checked      |         |          |  |  |
|            |    |      |           | Approved     |         |          |  |  |

File L.B. 334 F.B.





| CROSS SECTION  | 1                  | 2               | 3               | 4                     | 5               | 6               | 7                     | 8               | 9               |
|----------------|--------------------|-----------------|-----------------|-----------------------|-----------------|-----------------|-----------------------|-----------------|-----------------|
| DISTANCE       | 100.910-204.700    | 205.700-204.100 | 205.400-205.500 | 207.120-208.500       | 209.500-209.500 | 210.000-210.000 | 210.070-210.200       | 209.800-210.000 | 210.500-210.500 |
| GROUND LEVEL   |                    |                 |                 |                       |                 |                 |                       |                 |                 |
| FINISHED LEVEL |                    |                 |                 |                       |                 |                 |                       |                 |                 |
| GRADE          | Sag Vertical Curve |                 | 10.0%           | Summit Vertical Curve |                 | 1.76%           | Summit Vertical Curve |                 | 1.01%           |

LONGITUDINAL SECTION - ACCESS RD.

Scales Horizontal: 1:500  
Vertical: 1:50

FOR FINAL HORIZONTAL CURVE POSITION SEE NOTE ON DRAWING 8312/2

For final horizontal curve position see note on drawing 8312/2

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MINISTRY OF WORKS  
& DEVELOPMENT

CLUTHA VALLEY DEVELOPMENT  
CROMWELL EXPANSION  
SEWAGE TREATMENT

ACCESS ROADING PROFILE  
& CROSS SECTIONS

| AMENDMENTS |    |      | NAME DATE |              | JOB NO.      | Sheet No. |
|------------|----|------|-----------|--------------|--------------|-----------|
| NO.        | BY | DATE | Appvd     | Surveyed     | 8312         | 12        |
|            |    |      |           | Drawn        |              |           |
|            |    |      |           | Calculations |              |           |
|            |    |      |           | Traced       |              |           |
|            |    |      |           | Checked      |              |           |
|            |    |      |           | Approved     | File 8312/15 | LB 334    |

