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PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

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1969 HYDROMETRIC PROGRAMME

ON

THE RED RIVER, ASSINIBOINE RIVER, AND RED RIVER FLOODWAY

IN THE

METROPOLITAN WINNIPEG AREA

Winnipeg, Manitoba.
June, 1970.

Prepared by:
Planning Division.

MNR-pl-23

DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER RESOURCES BRANCH

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SYNOPSIS

The Red River Floodway became operational for the first time during the spring flood of 1969. In order to gauge its effect on the Red-Assiniboine River system in the Metropolitan Winnipeg area a hydrometric programme was carried out by the Water Resources Branch of the Department of Mines and Natural Resources in April and May of 1969.

This report contains recorded observations of water levels on the Floodway, the Red River, the Assiniboine River and several tributaries of these rivers. This data will prove useful in establishing new water level profiles along these waterways, in verifying assumptions employed in the initial hydraulic design of the Floodway, and in providing a basis for any future changes in the mode of operation of the Floodway.

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INTRODUCTION

The construction of the Red River Floodway was officially completed in 1968. Just one year later, in the spring of 1969, runoff conditions were sufficiently high that this large diversion had to be made operational for the first time.

The maximum discharge through Winnipeg in the spring of 1969 was about 54,000 cfs. (at Redwood Bridge). Of this amount 20,000 cfs. was contributed by the Assiniboine River and the remainder passed through the inlet control gates on the Red River upstream of Winnipeg. At this time the Floodway was carrying its maximum flow in the spring of 1969, amounting to approximately 22,000 cfs.

Because this was the first time that the Floodway was used it was deemed important to gauge and record water levels on those waterways affected by the Floodway as well as water levels on the Floodway itself. Thus, a hydrometric programme was set up by the Water Resources Branch of the Department of Mines and Natural Resources.

In addition to water level measurements on the Red River, Assiniboine River, and the Red River Floodway, the programme included flow measurements on the La Salle River and Sturgeon Creek. Also, various water level readings were taken on the Seine River at Marion Street and at the Trans-Canada Highway during the flood period.

An attempt was made to study the velocity distribution in the Red River Floodway. This work comprised extensive velocity measurements in the Floodway near P.T.H. #59 South, where the channel base width is 540 feet.

The programme carried out by the Water Resources Branch was done to supplement work done by the Inland Waters Branch of the Energy, Mines and Resources Department of the Government of Canada. This

programme in part consisted of numerous discharge measurements along the Red and Assiniboine Rivers, the Red River Floodway, and Sturgeon Creek. Further description of the work done by the Federal Government is not included in this report. Such information might, however, be obtained from the Water Survey of Canada's official publication, "Surface Water Data", for the 1969 water year when this publication is released.

The purpose of this report is to tabulate the water level records taken in 1969 on the Red River from Selkirk to St. Norbert on the Assiniboine River upstream to Headingley, and on the Red River Floodway. Also included are discharge measurements on the La Salle River and on Sturgeon Creek, and water levels on the Seine River at the Trans-Canada Highway and at Marion Street. As well, the report includes the results of the velocity distribution studies on the Floodway and water level records to determine head losses at several bridges.

PROGRAMME AND RESULTS

1. Red and Assiniboine Rivers

Twenty-six gauging sites were selected along the Red River. Working upstream from Selkirk these are indicated on the Bench Mark sheets and gauge sheets as R1 to R6, R8 to R24, R31, and R25, in that order. These locations are shown on the location plan (fig. 1). Meanwhile, eight gauging sites were utilized along the Assiniboine River, these being indicated as A18 to A27, A28a, A28b, A29, and A30, beginning at the Red River and working upstream to Headingley. The numbering system in this report was derived from and is consistant with the numbering system used by the field crews in their field books in the work related to this programme. Detailed descriptions of all gauging stations on the Red River and on the Assiniboine River are indicated respectively in Table 1(a), pages 1 to 5, and in Table 1(B), pages 6 to 7.

For the above described gauges, there are corresponding gauge sheets which list the dates, times, and river stages for each gauge reading. Please refer to Tables 2(A) and 2(B), pages 1 to 37 for this information.

In the case of the Perimeter Highway bridge over the Assiniboine River, gauges were read both upstream and downstream of the bridge to assess any backwater effect caused by the bridge. This information is recorded on the gauge sheets for gauge #A28b, Table 2. It can be observed from the results that the bridge caused a backwater effect of approximately 0.2 feet.

2. Red River Floodway

Twenty-two gauging sites were selected along the Floodway. For the purposes of this programme these have been labelled F1 to F22 working upstream from the outlet structure at Lockport (approximate chainage -34+00) to St. Mary's Road Bridge at St. Norbert (approximate chainage 1480+00). These gauging station locations are shown on Fig. 1. For detailed descriptions of all gauging station and bench mark locations please refer to Table 3 in

this report.

During the 1969 flood period gauge readings were taken daily with a few exceptions, when crews or equipment were not available or when weather and road conditions made certain sites inaccessible. In many cases two readings had been taken daily. The dates, times, and water levels of the gauge readings on the Floodway have been tabulated in Table 4 of this report.

Two gauging sites were located both upstream and downstream of bridges specifically to enable assessment of the drop in water level caused by the bridges. The first site was gauges F13 and F14 where there are two bridges, C.N.R. Railroad Bridge and P.T.H. #15 Bridge, just over one thousand feet apart. The second site was F16 and F17, F16 being downstream of the Trans-Canada Highway Bridge andF17 being upstream of the adjacent C.N.R. Bridge.

From the information provided on the gauge sheets in Table 4 it can be observed that the drop in water surface caused directly by the bridges, though somewhat inconsistent over the period, can be considered negligible. The drop caused by the bridges between gauges F13 and F14 was averaged out to approximately 0.02 feet, while that caused by the bridges between gauges F16 and F17 was approximately 0.04 feet.

3. Floodway Inlet Structure

An intensive gauging system had been set up at the Floodway inlet at St. Norbert. Gauge readings were taken and recorded approximately every three hours at five locations. Tables 5, 6 and 7 list the inlet gate settings, and also the times, dates,and river stages for the five locations as follows:

1) Table 5 --- Bubbler gauge --- U/S gauge --- located on the upstream face of the centre pier of the inlet structure.

ii) Table 5 --- Bubbler gauge --- D/S gauge --- located in the wing walls downstream of the gates.

iii) Table 6 --- Staff gauge --- D/S gauge #2 --- located on the west bank of the Red River, approximately 800 feet downstream of the inlet gates.

iv) Table 6 --- Staff gauge --- Floodway inlet --- located on the west bank of the Red River, just opposite the inlet of the Red River Floodway.

v) Table 7 --- Floodway --- St. Mary's Road Bridge.

4. Velocity Distribution Study - Red River Floodway

For the purpose of illustrating cross-sectional flow patterns in the Floodway channel detailed velocity measurements were done at one location. The site chosen was station 1357+80 where the base width is 540 feet. Vertical sections were chosen 40 feet apart near the centre of the channel and 20 feet apart near the sloping sides. At each vertical section five velocity measurements were taken, the first four being at 0.8 depth, 0.6 depth, 0.4 depth, and 0.2 depth, and the fifth being taken just below the water surface. Figure 2 shows a plot of the velocity distribution.

The date of the metering was May 13th, 1969. The flow calculated by the standard method of averaging the velocities at the 0.2 depth and 0.8 depth was 9890 cfs. The flow was calculated by a second method also, whereby the area between adjacent constant velocity lines (see Fig. 2) is multiplied by the mean velocity. By this method the flow was determined to be 9260 cfs.

Two more sets of velocity distribution measurements were taken at the end of April when the flow was near its peak. However, a malfunctioning current meter caused these results to be greatly erroneous.

Therefore because only one valid test was done, the only observations that can be made regarding velocity distribution are:

a) In the shallower sections the greatest velocity occurs at the surface.

b) In the deeper pilot channel sections the highest velocities occur at between 0.2 and 0.3 depth.

c) For a flow of about 9,500 cfs. in the 540 foot wide section of the Floodway, the highest velocities are between 3 and 3.4 feet per second and occur above the pilot channel section of the Floodway. The mean velocity was 1.83 feet/sec.

d) More intensive testing should be done in the future if our present flow metering practices and methods of flow calculation are to be correctly evaluated.

5. La Salle River and Sturgeon Creek

Two smaller streams which contributed significant discharge to the Red-Assiniboine River system in the Winnipeg area were Sturgeon Creek flowing into the Assiniboine River and the La Salle River flowing into the Red River. For purposes of measuring this local inflow between established metering points on the Red-Assiniboine System, detailed discharge measurements were done in these two minor streams during their peak flow periods. Table 8 and Table 9 show the results of the flow metering on Sturgeon Creek and on the La Salle River respectively.

6. Seine River

Water levels were read at two points on the Seine River in April and May of 1969. Gauges were placed at Marion Street and at the Trans-Canada Highway. Please refer to Table 10 for these results.

It should be noted that during the high water period these water levels were the same as the water levels on the Red River at its confluence with the Seine River. The greatest portion of the flow in the Seine River is now diverted into the Floodway. Local inflows downstream of the Floodway are small, and therefore the gradient in the Seine River in this reach is very slight.

CONCLUSIONS AND RECOMMENDATIONS

It would be premature, in this report, to form any conclusions on the effect of the Floodway on the Red-Assiniboine-Floodway waterway system, on the mode of operation of the Floodway, and on the validity of design and hydraulic assumptions pertaining to the Floodway. This report does, however, serve as an inventory of flood water levels in the Red River, Assiniboine River, and the Red River Floodway, and does provide a necessary part of the information required for such studies as noted above.

The supplementary information required for such studies would consist of daily flow data in the Red-Assiniboine-Floodway waterway system. Detailed work regarding flow measurement has been done by the Inland Waters Branch of the Energy, Mines and Resources Department of the Government of Canada. Personnel of this Federal agency have been contacted to obtain complete information on the 1969 spring flood flows at:

1. Red River above Floodway inlet.
2. Red River below Floodway inlet.
3. Red River Floodway at St. Mary's Road.
4. Assiniboine River at Headingley.
5. Red River at Redwood Bridge.
6. Red River at Lower Fort Garry.

Although much of this information has recently been received by the Water Resources Branch none of it has yet been analysed.

It is further recommended that, if studies are to be pursued regarding the mode of operation of the Floodway and its effect on the water levels in the Red-Assiniboine River system in the vicinity of Winnipeg, then these studies should await complete compilation and analysis of the supplementary information being supplied by the Federal Inland Waters Branch.

Data regarding flow measurements in the La Salle River and in Sturgeon Creek was included in this report to provide information on the most significant local inflow into the Red and Assiniboine Rivers in the Winnipeg area. This material, however, should be also used to supplement the Federal Government's Inland Waters Branch's data on discharge measurements, and therefore does not by itself merit discussion in this report.

TABLE I (A)

RED RIVER

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO.	LOCATION	GAUGE & B.M. DESCRIPTION
R1	Selkirk Bridge U/S	GAUGE: Located 150 ft. U/S of bridge on west bank of Red River.
		PBM: Elevation 742.504 Geod. #1067-C Tablet in N/W face of S/W abutment of Selkirk lift bridge; 4'-6" below top of abutment.
R2	Lower Fort Garry	GAUGE: Located in Lot 128 in Parish of St. Andrews, on west bank of Red River (J. Porkowniк's yard). This is the Fed. metering station gauge.
R3	Lockport D/S	GAUGE: Located approx. 1200' north of dam on west bank of river.
		TBM: Elevation 739.71. Nail in fence post approx. 25' N. of minnow shed approximately 1000' D/S of dam.
		PBM: Elevation 737.534 Geod., No. MDI, West concrete abutment of St. Andrews Dam. Bolt set horiz. in W. face of abutment, 8'-6" from U/S end and 10" above coping of canal lock.
R4	Lockport Bridge U/S	GAUGE: Placed on S/W abutment of dam, on west side of Red River.
		PBM: Elevation 737.534 Geod., No. MDI, west concrete abutment of St. Andrews Dam - Bolt set horiz. in W face of abutment, 8'-6" from U/S end and 10" above coping of canal lock.
R5	St. Andrews Church	GAUGE: Located 50' N. of coulee and 100' E. of River Road., W. bank of Red River.
		PBM: Elevation 751.79 Geod., 4" spike in power pole, W. side of River Road. (First pole N. of coulee, approx. 1000' N. of old St. Andrews Church). B.M. established by W.C.C. in 1968.
R6	St. Andrews Parish Lot 22	GAUGE: Located 500' E. of two storey house on W. bank of Red River.
		PBM: Elevation 747.55 Geod., 4" spike in W. side of power pole just N. of driveway to brown & white two storey house. (lot 22). B.M. established by W.C.C. in 1968.

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE I (A)

RED RIVER

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO.	LOCATION	GAUGE & B M. DESCRIPTION
R8	Rivercrest	GAUGE: Located on W. bank of Red River, approx. 500' N/E. of Deepdale Blvd. TBM: Elevation 746.63. Nail in big tree 400' N/E of end of Deepdale Blvd. PBM: Elevation 758.65 Geod. 4" spike in N. side of power pole on E. side of #24, Deepdale Blvd., Riverside. (established by W.C.C. in 1968).
R9	Middlechurch	GAUGE: Located 200' S/E of old folks home and 50' N. of Grassmere Drain, W. bank of Red River. TBM: Elevation 745.92 Geod. Nail in large tree approx. 25' N. of structure on Grassmere Drain outlet. PBM: Elevation 754.19 Geod. 4" spike in power pole, S. end of Evelyn Ave., N. of Grassmere Drain.
R10	North Perimeter Hwy. Bridge U/W	CAUGE: Located 100' S. of bridge on E. side of river. TBM: Elevation 755.80 Geod. Top of N/E corner of first conc. light standard base E. of Red River and W. side of Henderson Hwy. and N. of N. Perimeter Bridge. PBM: Elevation 780.17 Geod. Brass plug, top of N/E conc. rail of Perimeter Hwy. Bridge in N. Kildonan Bridge Plan No. 3064. Plug is approx. 6' from E. end of bridge.
R11	Bergen's Cutoff D/S	GAUGE: Located 100' N. of bridge on W. bank of Red River. TBM: Elevation 743.35 Geod. 4" nail in tree approx. 75' E. of S/E corner of shed N. side of bridge & W. side of river. PBM: Elevation 759.55 Geod. 4" nail in 4th power pole N. of Bergen's Cutoff and W. side of Henderson Hwy. (B.M. was established by W.C.C. in 1968).

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE I (A)

RED RIVER

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO.	LOCATION	GAUGE & B.M. DESCRIPTION
R12	Scotia Street At Smithfield	GAUGE: Located 100' E. of house #241 Scotia Street., and on W. bank of Red River. TBM: Elevation 747.93 Geod. 4" spike in big tree 100' E. of house #241 Scotia St. (Nail is bent round) End of hedge line between #241 Scotia and #239 Scotia. PBM: Elevation 753.33 Geod. 4" nail in W. side of power pole on E. side of Scotia at Smithfield.
R13	Redwood Bridge U/S	GAUGE: Located 10' S. of bridge on E. side of Red River. TBM: Elevation 750.59 Geod. Nail in stump of old tree approx. 30' W. of S/E corner of Redwood Bridge. PBM: Elevation 754.56 Geod. Top of N/W corner of second step at entrance to #26 Hespeller (City of Wpg. BM).
R14	Disraeli Bridge D/S	GAUGE: Located 100' E. of bridge on N. bank of Red River. TBM: Elevation 753.29 Geod. Top of S/E corner of concrete light standard base; first light E. of Disraeli Bridge on S. side of Midwinter Ave. PBM: Elevation 757.26 Geod. S/E corner of bottom conc. step @ W. entrance to Mennonite Bible College @ #77 Henderson Hwy. Bench Mark is 300' N/E of bridge. (City of Wpg. BM).
R15	Louise Bridge U/S	GAUGE: Located 100' S. of The Millionaire Drive Inn, on N. bank of Red River. TBM: Elevation 742.02 Geod. Top of 3" iron pin in concrete, 12' N. of N/E corner of River Rouge ticket office. PBM: Elevation 755.10 Geod. (City of Wpg. BM). Top of concrete pile holding 2nd steel beam from E. end of Millionaire Drive Inn menu sign.

NOTE TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE I (A)

RED RIVER

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO	LOCATION	GAUGE & B.M. DESCRIPTION
R16	C.P.R. Bridge U/S	GAUGE: Located 100' U/S of bridge on E. side of Red River.
		PBM: Elevation 758.16 Geod. Top of hydrant E. of Archibald St. and 150' S. of C.P.R. underpass.
R17	C.N.R. Bridge U/S	GAUGE: Located 75' S. of bridge on E. side of Red River.
		TBM: Elevation 754.83 Geod. Top of N/W corner of smaller of two conc. blocks, 20' W. of S/W corner of 2nd pillar.
		PBM: Elevation 757.83 Geod. Nail in first power pole S. of C.N.R. overpass, on W. side of Tache - nail in S/W side of pole, 4' above curb. (City of Wpg. BM).
R18	Provencher Bridge U/S	GAUGE: Located 20' S. of bridge on E. side of Red River.
		PBM: Elevation 761.86 Geod. Black mark on N/E corner of Provencher Bridge - Located at joint of conc. sidewalk ramp and steel section of bridge, on most northerly section of conc. ramp (City of Wpg. Eng. BM).
R19	Norwood Bridge U/S	GAUGE: Located 150' U/S of bridge and 50' W. of new pump house, on S. bank of Red River.
		PBM: Elevation 757.04 Geod. Top of red mark on conc. slab between old and new pumphouse 50' W. of Lyndale Dr. & 100' W. of St. Mary's Rd. @ S. end of Norwood Bridge. Conc. slab is 6' X 6' X 2' with manhole in centre.
R20	Osborne St. Bridge U/S	GAUGE: Located 80' W. of bridge on N. bank of Red River.
		TBM: Elevation 748.66 Geod. 4" spike in tree approx. 150' S/S/W of N/W corner of bridge and 30' S. of light standard W. of Churchill Drive underpass.
		PBM. Elevation 764.56 Geod. Top of bolt in guard rail in N/W corner of Osborne St. Bridge.

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE I (A)

RED RIVER

1969

GAUCE & BENCHMARK DESCRIPTION

CAUCE NO.	LOCATION	GAUGE & B M. DESCRIPTION	
R21	Elm Park Bridge D/S	GAUGE:	Nailed on E. side of N. abutment of bridge.
		PBM:	Elevation 763.03 Geod. Nail, 2' above ground in E. side of power pole, approx. 15' N. of N/E corner of Elm Park Bridge.
R22	Crescent Drive Fort Garry	GAUGE:	Located approx. 300' S. of Crescent Drive Park sign on N. bank of Red River.
		TBM:	Elevation 747.56. 4" nail in tall thin tree on N. bank of Red River.
		PBM:	Elevation 758.79 Geod. 4" spike in N. side of power pole at entrance to Wpg. Archery Club on S. side of Crescent Drive.
R23	University of Manitoba	GAUGE:	Located on W. bank of river, opposite Bison Gardens.
		PBM:	Elevation 763.20 Geod. Top of nut @ N/E corner of sluice gate valve, 3' above ground, approx. 100' N. of Bison Gardens, University of Manitoba.
R24	South Perimeter Highway Bridge D/S	GAUGE:	Located 100' N. of bridge on W. bank of Red River.
		PBM:	Elevation 746.88 Geod. Ramset stud in 2nd pier from W. end of bridge, on N. side of bridge and facing west.
R31	St. Norbert River Lot #78 Turnbull Drive	GAUGE:	Located 100' N. of house and along E/W FL on W. bank of Red River.
		PBM:	Elevation 766.07 Geod. Nail in S. side of telephone pole on N. side of entrance to Lot 78, E. side of Turnbull Drive.
R25	Turnbull Drive U/S of Floodway	GAUGE:	Located approx. 0.7 mi. U/S of Floodway gates, and on W. bank of Red River at pipeline crossing on Turnbull Drive.
		TBM:	Elevation 763.91 Nail in first hydro pole N. of pipeline and on W. side of Turnbull Drive.
		PBM:	Elevation 791.90 Geod. Top of blue paint mark on extreme S/W corner of inlet structure, on S. sidewal approx. 2' S. of edge.

NOTE- TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE I (B)

ASSINIBOINE RIVER

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO	LOCATION	GAUGE & B M DESCRIPTION	
A18	Main Street Bridge U/S	GAUGE.	Located 25' U/S of bridge on N. bank of Assiniboine River.
		TBM:	Elevation 762.69 Geodetic. Top of N/E corner of 2' X 12' X 8' concrete block just S. of pumphouse on N. bank of Assiniboine River and 40' W. of Main Street Bridge. B.M. is marked with green paint.
		PBM:	Same as for R19.
A25	St. James Bridge U/S & D/S	GAUGE:	There are three sets of gauges at the two bridges. One is 50' D/S of N. bound bridge. The second is midway between the two bridges. The third is 50' U/S of the S. bound bridges.
		PBM:	Elevation 760.61 Geod. S/E corner of bottom step to pumphouse between N. and S. bound bridges and on N. side of river.
A26	Conway Street	GAUGE:	Located 200' S. from pumphouse on Conway Street St. on N. side of river.
		TBM:	Elevation 769.83. Top of lip of manhole ring on the N. bank of Assiniboine River at Conway Street.
		PBM:	Elevation 768.55 Geod. Top of N/E bolt on hydrant at N/W corner of Sharp & Portage (St. James Eng. Dept.).
A27	St. Charles Country Club	GAUGE:	Located 50' E of pumphouse on W. side of river.
		PBM:	Elevation 764.41 Geod. Top of 8" pipe with cap approx. 20' S. of pumphouse E. of clubhouse.
A28a	Glendale Golf Course	GAUGE:	Located 200' S. of church on W. bank of river.
		PBM:	Elevation 783.85 Geod. Top of highest point of hydrant S. end of St. Charles St. at Assiniboine R., at front of church. (St. James Eng. Dept.)
A28b	West Perimeter Bridge U/S & D/S	GAUGE:	Two gauges, one 100' U/S, the second 100' D/S of W. Perimeter Hwy. Bridge.
		PBM:	Elevation 781.31 Geod. Top of N/W corner of metal catch basin frame on N/E corner of W. Perimeter Hwy. Bridge (Highway's Department).

NOTE TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE I (B)

ASSINIBOINE RIVER

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO	LOCATION	GAUGE & B M DESCRIPTION
A29	Manitoba Boys' Camp	GAUGE: Located 150' W. of Fanset barn on P.R. #241, on S. bank of river. TBM: Elevation 780.93. Railroad spike in 3rd hydro pole W. of N/S transmission line and on N. side of P.R. #241. PBM: Elevation 781.31 Geod. Top of N/W corner of metal catch basin frame on N/E corner of W. Perimeter Hwy. bridge (Highway's Dept.)
A30	Headingley Bridge	GAUGE: Staff gauge located in shed on S/E corner of bridge, and on N. side of river. A second gauge consists of a reel type water level recorder mounted on the bridge. Gauge zero is elevation 750.00 Geod. (Fed. metering station).

NOTE TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Selkirk Bridge, 150' U/S

Gauge # R1

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9·00	723.01			1
2			9:00	722.95			2
3			8:40	722.95			3
4			8:40	722.98			4
5			10·00	722.63			5
6			9:10	722.71			6
7			9:00	722.75			7
8			8:55	722.53			8
9			9·00	722.35			9
10							10
11							11
12			10:03	721.48			12
13			8:48	721.33			13
14	10:20	720.52	9:00	720.88			14
15	9:10	720.30	9.08	720.69			15
16	9:04	719.83	9:18	720.92			16
17	9:00	720.21					17
18	9:00	720.73					18
19	8:30	720.69					19
20	8:28	721.30	9:15	719.19			20
21	9:15	721.47	10:15	716.38			21
22	9 00	721.68					22
23	8:58	721.83					23
24	8·58	721.90					24
25	9·00	722.08					25
26	8 45	722.33					26
27	8·45	722.73					27
28	9:55	722.73					28
29	9·15	723.01					29
30	9:00	722.95					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT Lower Ft. Garry, Lot 128

Gauge #R2

DAY	APRIL		APRIL		MAY		DAY
	TIME a.m.	ELEV	TIME p.m.	ELEV	TIME a.m.	ELEV	
1					8:45	727.88	1
2					8:50	727.79	2
3					8:30	727.75	3
4					8.30	727.59	4
5					8:50	727.39	5
6					9·57	727.45	6
7					8:52	727.26	7
8					8 43	727.06	8
9					8·50	726.70	9
10					8:30	726.35	10
11							11
12					9·50	725.55	12
13					8.45	725.42	13
14	10:00	723.58			8·50	725.40	14
15	8:40	722.77	2:37	723.07	8.55	725.25	15
16	8:50	723.51	2 05	723.71	9:08	724.52	16
17	8·45	724.07	2·07	724.32	9:00	723.52	17
18	8:45	724.47	2:30	724.97			18
19	8:20	725.10	1·35	725.19			19
20	8.15	725.42	1:00	725.42	9:00	722.22	20
21	9.03	726.02	2:30	726.05			21
22	8:45	726.12	1:12	726.12			22
23	8:45	726.25					23
24	8:45	726.45					24
25	8·50	726.73					25
26	8·40	726.96			10·00	718.57	26
27	8·35	727.39					27
28	9·40	727.58					28
29	9·00	727.77					29
30	8 45	727.81					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69.

AT Lockport, 1200' D/S of Bridge

Gaure # R3

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9:13	729.74			1
2			9.15	729.67			2
3			8·45	729.59			3
4			8:47	729.41			4
5			10:20	729.15			5
6			9:25	729.22			6
7			9:15	729.02			7
8			9·08	728.72			8
9			9:12	728.34			9
10			8 37	727.98			10
11							11
12			10·15	727.12			12
13			9·07	727.00			13
14	10·40	724.15	9·15	726.70			14
15	9.30	724.83	9·20	726.59			15
16	9·20	725.59	9·23	726.10			16
17	9·15	726.20	9:15	725.07			17
18	9:13	727.06					18
19	8:40	727.33					19
20	8:38	727.62	9:40	723.32			20
21	9·28	727.74					21
22	9·15	727.88					22
23	9·13	728.05					23
24	9 15	728.22					24
25	9 15	728.51					25
26	9 04	723.73	10:25	719.43			26
27	8:55	729.21					27
28	10 03	729.41					28
29	9 25	729.61					29
30	9 15	729.65					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Lockport Bridge, U/S

Gauge #R4

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9 15	729.89			1
2			9·18	729.81			2
3			8·52	729.63			3
4			8:52	729.54			4
5			10:22	729.34			5
6			9:27	729.45			6
7			9:17	729.28			7
8			9·10	728.98			8
9			9:15	729.64			9
10			8·43	728.28			10
11							11
12			10:17	727.60			12
13			9·10	727.48			13
14	10·40	726.89	9:17	727.10			14
15	9:30	726.98	9:22	726.85			15
16	9:25	727.09	9:32	726.50			16
17	9:19	727.26	9:17	726.61			17
18	9.17	727.75					18
19	8 45	727.96					19
20	8 43	728.05	9:43	726.08			20
21	9:30	728.20					21
22	9:17	728.29					22
23	9:15	728.39					23
24	9 17	728.54					24
25	9:17	728.81					25
26	9·07	729.05	10.30	724.53			26
27	9·00	729.49					27
28	10 05	729.60					28
29	9:28	729.73					29
30	9:17	729.78					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT St. Andrews Church

Gauge #R5

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9·23	732.48			1
2			9:27	732.38			2
3			9·00	732.27			3
4			9·00	732.10			4
5			10:30	731.90			5
6			9.35	732.17			6
7			9:25	732.05			7
8			9:30	731.75			8
9			9·32	731.35			9
10							10
11							11
12			9·37	730.44			12
13			9·30	729.72			13
14	10·50	729.42	9:33	729.71			14
15	9:43	730.11	9:45	730.10			15
16	9·33	730.50	9·48	729.63			16
17	9:30	730.46					17
18	9 25	730.99					18
19	9·52	730.94					19
20	8·55	731.15	9·55	729.36			20
21	9 30	731.21					21
22	9 25	731.32					22
23	9.25	731.40					23
24	9·25	731.53					24
25	9 25	731.81					25
26	9:15	731.97	10.40	726.45			26
27	9 09	732.26					27
28	10·15	732.27					28
29	9·36	732.43					29
30	9:25	732.45					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 60

AT St. Andrews Parish, Lot 22

Gauge #R6

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			9:28	736.39			1
2			9:30	736.25			2
3			9:05	736.08			3
4			9:07	735.87			4
5			10:37	735.69			5
6			9:40	736.07			6
7			9:30	735.88			7
8			9.40	735.64			8
9			9:37	735.3[illegible]			9
10							10
11							11
12			10:40	734.58			12
13			9:34	734.80			13
14	10:55	734.33	9:38	734.44			14
15	9:47	734.60	9:52	734.18			15
16	9:38	735.02	9:54	733.91			16
17	9:33	735.02					17
18	9:30	735.43					18
19	9:00	735.29					19
20	9:00	735.48	10:00	733.27			20
21	9:44	735.51					21
22	9:30	735.50					22
23	9:30	735.55					23
24	9:30	735.76					24
25	9:30	736.03					25
26	9:21	735.94	10:47	730.53			26
27	9:11	736.32					27
28	10:13	736.25					28
29	9:42	736.41					29
30	9:35	736.40					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT Rivercrest

Gauge #R8

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			9:36	740.93			1
2			9:33	740.83			2
3			9.13	740.66			3
4			9:15	740.45			4
5			10.45	740.23			5
6			9:43	740.73			6
7			9:37	740.64			7
8			9:46	740.37			8
9			9:45	740.01			9
10							10
11							11
12			10:48	739.34			12
13			9:43	739.58			13
14	11:05	739.18	9:45	739.20			14
15	9:55	739.47	10:00	739.08			15
16	9:48	739.27	10:00	738.67			16
17	9:42	740.81					17
18	9:38	740.33					18
19	9:09	740.15					19
20	9:06	740.25	10.00	738.00			20
21	9 52	740.27					21
22	9 37	740.3[illegible]					22
23	9 36	740.37					23
24	9:33	740.47					24
25	9 38	740.73					25
26	9 2[illegible]	740.65	10 55	739.91			26
27	9:21	740.95					27
28	10:25	740.85					28
29	9:50	740.94					29
30	9:42	740.92					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABIE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red Raver . FOR 19 69

AT Middlechurch

Gauge #R9

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9:42	742.63			1
2			9·43	742.39			2
3			9:20	742.20			3
4			9:20	741.58			4
5			10:53	741.77			5
6			9.55	742.1°			6
7			9:43	742.16			7
8			9:53	741.90			8
9			9:50	741.49			9
10							10
11							11
12			10:52	740.78			12
13			9·47	740.67			13
14	11:10	740.72	9:50	740.66			14
15	10:00	740.97	10:05	740.59			15
16	9:55	741.54	10:06	740.09			16
17	9:46	741.35					17
18	9:45	741.90					18
19	9·15	741.70					19
20	9·12	741.82	10·13	739.33			20
21	9:57	741.85					21
22	9:43	741.87					22
23	:41	741.95					23
24	9:13	742.07					24
25	9:43	742.36					25
26	9 35	742.26	11:04	736.08			26
27	9 25	742.36					27
28	10:30	742.44					28
29	9·55	742.52					29
30	9·45	742.53					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT North Perimeter Highway, 100' U/S

Gauge #R10

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9 47	742.52			1
2			9:50	742.42			2
3			9:23	742.23			3
4			9:26	742.05			4
5			10·57	741.80			5
6			10:02	742.31			6
7			9.45	742.20			7
8			9:57	741.83			8
9			9:55	741.60			9
10			9:55	741.24			10
11							11
12			10:57	740.72			12
13			9·54	740.70			13
14	11:20	740.80	9.56	740.70			14
15	10·10	741.10	10 13	740.52			15
16	10:00	741.40	10:12	740.32			16
17	9·54	741.41	9·50	740.22			17
18	9·47	741.92					18
19	9.21	741.71					19
20	9:13	741.81	10.18	739.44			20
21	10.01	741.87					21
22	9.47	741.91					22
23	9:47	741.99					23
24	9 47	742.11					24
25	9·43	742.37					25
26	9:41	742.31	11 08	736.03			26
27	10 32	742.61					27
28	10 33	742.47					28
29	10:00	742.55					29
30	9:52	742.55					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 1969

AT Bergen's Cutoff, 100' D/S

Gauge #R11

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			9·55	743.34			1
2			9:57	743.23			2
3			9:30	743.04			3
4			9·34	742.80			4
5			11.05	742.59			5
6			10 10	743.12			6
7			9:54	742.99			7
8			10·05	742.71			8
9			10:03	742.28			9
10							10
11							11
12			11.05	741.33			12
13			11 03	741.85			13
14	11·35	741.65	10·07	741.33			14
15	10·18	741.81	10:23	741.21			15
16	10:10	742.21	10 19	741.16			16
17	10:04	742.13					17
18	9:53	742.69					18
19	9:23	742.49					19
20	9:25	742.59	10·27	740.31			20
21	10 03	742.64					21
22	9·57	742.69					22
23	9·55	742.76					23
24	9:57	742.86					24
25	10·00	743.17					25
26	9:50	743.10	11.20	736.66			26
27	9:40	743.43					27
28	10:47	743.27					28
29	10:03	743.35					29
30	10:00	743.34					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Smithfield & Scotia St.

Gauge #R12

DAY	APRIL		MAY				DAY
	TIME p.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			10:06	743.86			1
2			10.06	743.69			2
3			9·40	743.51			3
4			9 41	743.28			4
5			11:15	743.09			5
6			10 18	743.66			6
7			10:00	743.51			7
8			10:13	743.25			8
9			10·11	742.88			9
10							10
11							11
12			11:23	742.16			12
13			10:14	742.29			13
14	11:45	741.96	10.15	741.85			14
15	10:30	742.05	10:27	741.66			15
16	10:20	742.63	10:28	741.15			16
17	10:12	742.55					17
18	10:00	743.14					18
19	9:36	742.93					19
20	9:34	743.03	10:36	740.09			20
21	10:16	743.11					21
22	10·05	743.16					22
23	10:03	743.26					23
24	10:05	743.39					24
25	10·10	743.53					25
26	10 00	743.57	11:28	736.76			26
27	9 50	743.97					27
28	10:50	743.80					28
29	10.15	743.93					29
30	10 10	743.86					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Redwood Bridge , U/S

Gauge #R13

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			10·11	744.47			1
2			10 11	744.35			2
3			9:45	744.18			3
4			9.45	743.84			4
5			11:22	743.64			5
6			10:25	744.27			6
7			10:08	744.13			7
8			10:20	743.78			8
9			10:17	743.35			9
10			9:28	742.60			10
11							11
12			11·27	742.61			12
13			10:19	742.64			13
14	11:50	742.34	10:22	742.64			14
15	10:35	742.51	10:32	742.37			15
16	10.23	743.16	10:35	741.42			16
17	10.18	743.07	10:00	741.11			17
18	10.08	743.38					18
19	9·42	743.47					19
20	9 40	743.89	10:43	741.11			20
21	10·43	743.63					21
22	10:10	743.62					22
23	10:03	743.79					23
24	10:10	743.95					24
25	10:15	744.27					25
26	10:05	744.21	11:38	737.32			26
27	9:53	744.51					27
28	10:56	744.37					28
29	10:24	744.16					29
30	10:15	744.47					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Disraeli Bridge, U/S

Gauge #R14

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV.	
1			10·14	744.97			1
2			10.15	744.78			2
3			9:47	744.60			3
4			9:50	744.35			4
5			11:24	744.17			5
6			10:27	744.74			6
7			10:10	744.55			7
8			10:23	744.26			8
9			10:20	743.75			9
10							10
11							11
12			11:30	743.1?			12
13			10:22	743.32			13
14	1.00 Pm	742.89	10:24	743.02			14
15	10:40 am	743.21	10·35	742.75			15
16	10:32	743.85	10:37	742.16			16
17	10:21	743.61					17
18	10:20	744.20					18
19	9:45	743.96					19
20	9:43	744.15	10:45	741.16			20
21	10:30	744.13					21
22	10:15	744.22					22
23	10:15	744.28					23
24	10:15	744.49					24
25	10:17	744.75					25
26	10:03	744.66	11:40	737.42			26
27	10:00	745.00					27
28	11:00	744.86					28
29	10:27	744.97					29
30	10:17	744.96					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Louise Bridge, U/S

Gauge #R15

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			10:16	744.23			1
2			10:17	744.18			2
3			9·50	744.03			3
4			9 53	743.75			4
5			11·27	743.41			5
6			10·30	744.03			6
7			10·15	743.99			7
8			10:26	743.62			8
9			10:23	743.01			9
10							10
11							11
12			11:32	742.31			12
13			10:26	742.59			13
14	1·10 pm	741.58	10 26	742.11			14
15	10·47 am	742.67	10:37	741.61			15
16	10:38	743.01	10:40	741.06			16
17	10·25	743.00					17
18	10·32	743.64					18
19	9:52	743.47					19
20	9:43	743.82	10:50	740.44			20
21	10·45	743.46					21
22	10:20	743.41					22
23	10:17	743.61					23
24	10:20	743.32					24
25	10:23	744.12					25
26	10:13	744.06	11:45	736.97			26
27	10·05	744.37					27
28	11·03	744.21					28
29	10:30	744.39					29
30	10:20	744.29					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT C.P.R. Bridge , U/S

Gauge #R16

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			10:19	745.58			1
2			10·20	745.43			2
3			9:54	745.21			3
4			9:56	744.91			4
5			11·30	744.77			5
6			10·33	745.32			6
7			10 18	745.16			7
8			10·28	744.83			8
9			10.25	744.05			9
10							10
11							11
12			10·35	743.62			12
13			10·30	743.92			13
14	1·08 pm	743.52	10 29	743.32			14
15	10·53 am	743.59	10·40	743.12			15
16	10 42	744.18	10 45	742.96			16
17	10:30	744.15					17
18	10 35	744.79					18
19	9:55	744.53					19
20	9.52	744.65	10·55	741.74			20
21	10 17	744.79					21
22	10 22	744.84					22
23	10 21	744.87					23
24	10:23	745.01					24
25	10 27	745.33					25
26	10.15	745.22	11:50	737.92			26
27	10·07	745.66					27
28	11·09	745.48					28
29	10:33	745.57					29
30	10 23	745.57					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT C.N.R. Bridge, U/S

Gauge #R17

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			10:25	745.85			1
2			10:25	745.74			2
3			10:00	745.64			3
4			10:01	745.27			4
5			11:35	745.11			5
6			10:40	745.64			6
7			10:23	745.49			7
8			10:34	745.15			8
9			10:30	744.70			9
10							10
11							11
12			11:38	743.93			12
13			10:35	744.16			13
14	1:15 pm	743.83	11.35	743.71			14
15	10:58 am	743.99	10:45	743.45			15
16	10:45	744.64	10:55	743.13			16
17	10·34	744.16					17
18	10·40	745.14					18
19	10.00	744.89					19
20	9:52	745.01	11:00	742.00			20
21	10·52	745.03					21
22	10 27	745.14					22
23	10·26	745.23					23
24	10:26	745.11					24
25	10·32	745.74					25
26	10:20	745.52	11·55	737.92			26
27	10·10	745.96					27
28	11:12	745.85					28
29	10·32	746.03					29
30	10:29	745.92					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABIE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Provencher Bridge , U/S

Gauge #R18

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV.	TIME a.m.	ELEV	TIME	ELEV	
1			10:30	746.34			1
2			10:30	746.17			2
3			10:03	745.95			3
4			10·05	745.66			4
5			11·38	745.48			5
6			10:45	746.07			6
7			10·26	745.94			7
8			10:36	745.55			8
9			10·35	745.06			9
10			9:35	744.75			10
11							11
12			11·40	744.36			12
13			10·40	744.57			13
14	1·20pm	744.28	10:40	744.15			14
15	11·02am	744.11	10.50	743.76			15
16	10:50	745.05	10:58	743.37			16
17	10·33	744.87	10.10	743.59			17
18	10:45	745.46					18
19	10:04	745.21					19
20	10:00	745.44	11:05	742.34			20
21	10·56	745.52					21
22	10:30	745.54					22
23	10:30	745.64					23
24	10:32	745.85					24
25	10:35	746.16					25
26	10:27	746.04	11:58	738.17			26
27	10:13	746.42					27
28	11:15	746.21					28
29	10:43	746.35					29
30	10:32	746.34					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Norwood Bridge, U/S

Gauge #R19

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10·37am	746.54			1
2			10·37	746.39			2
3			10:10	746.15			3
4			10·13	745.90			4
5			11·47	745.73			5
6			10·53	746.31			6
7			10·33	746.12			7
8			10·45	745.80			8
9			10 43	745.30			9
10							10
11							11
12			11·47	744.64			12
13			10·50	744.80			13
14	1:35pm	744.50	10:47	744.34			14
15	11:10am	744.54	10·58	744.13			15
16	10:58	745.26	11·07	743.73			16
17	10:47	745.13					17
18	1:56pm	745.83					18
19	10:13am	745.52					19
20	10:09	745.64	11:18	742.65			20
21	11:04	745.71					21
22	10·37	745.74					22
23	10·37	745.85					23
24	10:39	746.02					24
25	10·43	746.33					25
26	10:35	746.16	12·07pm	741.05			26
27	10·21	746.59					27
28	11:23	746.44					28
29	10:51	746.57					29
30	10:42	746.56					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Osborne St. Bridge, U/S

Gauge #R20

DAY	APRIL		MAY				DAY
	TIME a.m.	ELEV	TIME a.m.	ELEV	TIME	ELEV	
1			10·54am	746.93			1
2			10:47	746.80			2
3			10:27	746.60			3
4			10.23	746.32			4
5				746.22			5
6			11·00	746.81			6
7			10·46	746.55			7
8			10·55	746.33			8
9			11 10	745.90			9
10							10
11							11
12			11:54	745.2[illegible]			12
13			11·23	745.33			13
14	1·45pm	745.18	10 52	744.90			14
15	11:25am	745.2[illegible]	11·30	744.76			15
16	11·15	745.96	11 15	744.26			16
17	11·03	745.61					17
18	1·45pm	746.28					18
19	10·26am	745.87					19
20	10:13	746.02	11 30	743.02			20
21	11:20	746.06					21
22	10·45	746.15					22
23	10:51	746.24					23
24	10·48	746.42					24
25	11·00	746.65					25
26	10·45	746.57	12 20pm	739.10			26
27	10:35	747.04					27
28	11:33	746.82					28
29	11:07	746.93					29
30	10:52	746.93					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT Elm Park Bridge , D/S

Gauge #R21

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10·58am	747.15			1
2			10·50	747.06			2
3			10:29	746.85			3
4			10:26	746.58			4
5			12:05pm	746.51			5
6			11:04am	747.08			6
7			10·50	746.95			7
8			11:00	746.61			8
9			11·13	746.10			9
10							10
11							11
12			11:57	745.53			12
13			11·25	745.63			13
14	1:50pm	745.46	10·58	745.18			14
15	1:30	745.56	11·32	744.91			15
16	11:18am	746.23	11:17	744.56			16
17	11:06	745.66					17
18	1:42pm	746.54					18
19	10:32am	746.15					19
20	10:21	746.26	11:35	743.26			20
21	11·23	746.33					21
22	10:47	746.11					22
23	10:54	746.36					23
24	10:52	746.66					24
25	11:02	746.87					25
26	10·47	746.84	12·23pm	738.58			26
27	10·40	747.27					27
28	11:37	747.05					28
29	11:12	747.15					29
30	10·55	747.16					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Crescent Drive, Fort Garry

Gauge #R22

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			1:15pm	747.97			1
2			1·10	747.94			2
3			10·40am	747.73			3
4			10:35	747.48			4
5			2.33pm	747.58			5
6			1·15	748.07			6
7			1:08	747.95			7
8			1:08	747.59			8
9			1:30	747.18			9
10							10
11							11
12			1:58	746.82			12
13			2·15	746.69			13
14	2:00pm	746.96	1·03	745.26			14
15	11 37am	747.00	1.50	745.39			15
16	11 25	747.57	1·38	745.97			16
17	11 15	746.81					17
18	1 35pm	747.45					18
19	10 30am	745.94					19
20	10 29	747.03	2·00	744.17			20
21	1 45pm	747.17					21
22	10 53am	747.15					22
23	11 01	747.35					23
24	10·58	747.56					24
25	1·20pm	747.48					25
26	10 55	747.57	2:45	740.35			26
27	10.45	748.04					27
28	1.45pm	747.36					28
29	1·25	747.96					29
30	1·15	747.98					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT University of Manitoba, Bison Gardens

Gauge #R23

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			1 08pm	748.54			1
2			1·05	748.50			2
3			10·45am	748.37			3
4			10·43	748.14			4
5			2·26pm	748.32			5
6			1·08	748.23			6
7			1 00	748.20			7
8			1:00	748.37			8
9			1·24	748.73			9
10							10
11							11
12			1:52	747.68			12
13			2.03	747.32			13
14	2 05pm	748.16	1:00	746.67			14
15	11:45am	748.20	1:24	746.74			15
16	11 34	748.51	1.30	746.39			16
17	11·23	747.32					17
18	1:2 pm	748.18					18
19	10:47am	747.55					19
20	10·33	747.70	1:55	744.54			20
21	1:37pm	747.20					21
22	11·00am	747.87					22
23	11:10	747.96					23
24	11.05	748.15					24
25	1:12pm	748.01					25
26	11·02pm	748.22	2:26	739.92			26
27	10.53	748.53					27
28	1.37pm	748.42					28
29	1·15	748.21					29
30	1:08	748.50					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(1)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River . FOR 19 69

AT South Perimeter Bridge , D/S

Gauge #R24

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			1:03pm	749.30			1
2			1:00	749.24			2
3			10:58am	749.11			3
4			10:47	748.91			4
5			2:0-pm	749.12			5
6			1 03	749.[illegible]8			6
7			12·56	749.52			7
8			12·57	749.14			8
9			1:20	748.73			9
10			9·51am	748.33			10
11							11
12			1:15pm	748.53			12
13			1:57	748.30			13
14	2·10pm	749.09	12·57	747.93			14
15	11 50am	748.11	1:37	747.53			15
16	11:33	748.43	1·2[illegible]	747.63			16
17	11.30	748.35	10·2[illegible]am	747.31			17
18	1:23p[illegible]	748.89					18
19	10.52am	748.21					19
20	10:54	748.35	1:47pm	745.46			20
21	1.22pm	748.[illegible]					21
22	11:04am	748.59					22
23	11:15	748.[illegible]8					23
24	11·10	748.83					24
25	1·0[illegible]pm	748.70					25
26	11:07am	748.93	2 20pm	740.63			26
27	10:58	749.20					27
28	1:30pm	749.11					28
29	1:10	749.27					29
30	1:05	749.30					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT St. Norbert, #128 Turnbull Drive

Gauge #R31

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			12:57pm	754.57			1
2			12.54	754.54			2
3			11:00 am	754.38			3
4			10:53	754.24			4
5			2:03pm	754.57			5
6			12:53	754.14			6
7			12:52	754.03			7
8			12:50	754.58			8
9			1:14	754.20			9
10							10
11							11
12			1:40	754.07			12
13			1:50	753.73			13
14	2.20pm	754.97	12:51	753.47			14
15	11:55am	754.84	1.30	753.82			15
16	11:45	754.80	1.21	753.10			16
17	11:35	753.71					17
18	1·17pm	754.24					18
19	10·53a	753.47					19
20	10.50	753.55	1:10	750.73			20
21	11:15	753.73					21
22	11:03	753.73					22
23	11:20	753.90					23
24	11·30	754.11					24
25	11:00	753.91					25
26	11:13	754.13	2·25	745.29			26
27	11:03	754.37					27
28	1:25p.	754.37					28
29	1:04	754.51					29
30	12:53	754.56					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(A)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Red River FOR 19 69

AT Turnbull Drive, Pipeline Crossing

Gaure #R25

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			12 50pm	759.59			1
2			12·45	759.59			2
3			11:05am	759.58			3
4			11.00	759.50			4
5			1:55pm	759.05			5
6			12:50	758.38			6
7			12:45	758.08			7
8			12.45	757.85			8
9			1:10	757.48			9
10							10
11							11
12			1:35	755.45			12
13			1:40	754.92			13
14			12:45	754.35			14
15	12:00am	752.58	1:25	753.80			15
16	11:45	753.25	1:15	752.43			16
17	11:40	755.44					17
18	1:15pm	755.70					18
19	11:05am	756.60					19
20	10:55	756.80	1:25	747.10			20
21	1:15pm	756.8					21
22	11.15am	757.02					22
23	11:25	757.18					23
24	11:25	757.30					24
25	12:30	757.9e					25
26	11:20	758.45					26
27	11:10	758.95					27
28	11·15	759.40					28
29	12.55	759.50					29
30	12.45	759.55					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 60

AT Main Street Bridge, U/S

Gauge #A18

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10·34am	746.71			1
2			10:34	746.50			2
3			10:07	746.27			3
4			10:10	745.99			4
5			11:45	745.81			5
6			10:50	746.32			6
7			10:30	746.21			7
8			10:43	745.90			8
9			10:40	745.32			9
10							10
11							11
12			11·45	744.10			12
13			10·45	744.73			13
14	1:30pm	744.38	10:45	744.13			14
15	11 07am	744.39	10:56	744.81			15
16	10·55	745.21	11.02	743.42			16
17	10·44	745.13					17
18	10:40	745.24					18
19	10·09	745.64					19
20	10 06	745.71	11 15	742.43			20
21	11 00	745.92					21
22	10.34	745.93					22
23	10 35	746.00					23
24	10:36	746.23					24
25	10:40	746.51					25
26	10·32	746.45	12 03pm	738.49			26
27	10:18	746.93					27
28	11:20	746.58					28
29	10·47	746.79					29
30	10.38	746.75					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 60

AT St. James Bridge , D/S

Gauge #A25

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11:09am	750.15			1
2			11·06	749.79			2
3			11:30	749.14			3
4			11:19	748.71			4
5			12·15pm	748.53			5
6			11·20am	748.66			6
7			11·07	748.44			7
8			11·12	748.10			8
9			11:25	747.34			9
10			10:30	747.00			10
11							11
12			12:13pm	746.44			12
13			11:37am	746.51			13
14	3:30pm	745.23	11·15	746.1[illegible]			14
15	1.50	744.93	11 45	746.[illegible]			15
16	1 25	746.73	11 30	745.57			16
17	1:25	745.06	11:07	745.59			17
18	11·00am	749.24					18
19	11 24	749.19					19
20	11.15	749.26	11 50	744.64			20
21	11 35	749.26					21
22	11·30	749.2[illegible]					22
23	11:45	749.[illegible]					23
24	11 50	749.61					24
25	11·15	749.9[illegible]					25
26	11 40	750.12	12 27pm	742.51			26
27	11:30	750.41					27
28	11:50	750.33					28
29	11:24	750.32					29
30	11.09	750.27					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT St. James Bridge, Centre

Gauge # A25

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11·09am	750.19			1
2			11:06	749.80			2
3			11:30	749.16			3
4			11:19	743.71			4
5			12:15pm	748.53			5
6			11:20am	748.66			6
7			11:07	748.46			7
8			11.12	748.11			8
9			11·25	747.34			9
10			10·30	747.01			10
11							11
12			12.13pm	746.46			12
13			11·37am	746.51			13
14	3:30pm	745.23	11.15	746.16			14
15	1:50	744.93	11:45	745.94			15
16	1:25	746.75	11:30	745.58			16
17	1 25	748.18	11:07	745.61			17
18	11·00am	749.01					18
19	11·24	749.21					19
20	11:15	749.25	11:50	744.66			20
21	11·35	749.24					21
22	11·30	749.28					22
23	11:45	749.34					23
24	11 50	749.59					24
25	11:15	749.97					25
26	11·40	750.17	12 27pm	742.51			26
27	11 30	750.39					27
28	11.50	750.31					28
29	11·24	750.35					29
30	11·09	750.29					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT St. James Bridge, U/S

Gauge # A25

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11:09am	750.23			1
2			11.06	749.83			2
3			11:30	749.19			3
4			11·19	748.86			4
5			12:15pm	748.55			5
6			11:20am	748.69			6
7			11·07	748.51			7
8			11 12	748.14			8
9			11:25	748.36			9
10			10·30	747.01			10
11							11
12			12·13pm	746.46			12
13			11 37am	746.54			13
14	3·30pm	745.26	11·15	746.18			14
15	1:50	745.01	11 45	745.96			15
16	1:25	744.83	11:30	745.60			16
17	1:25	743.21	11 07	745.64			17
18	11:00am	749.09					18
19	11:24	749.26					19
20	11·15	749.36	11:50	744.68			20
21	11:35	749.36					21
22	11 30	749.31					22
23	11·45	749.41					23
24	11·50	749.63					24
25	11·15	750.01					25
26	11 40	750.19	12·27pm	742.51			26
27	11.30	750.40					27
28	11 50	750.35					28
29	11·24	750.37					29
30	11 09	750.31					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT Conway Street

Gauge #A26

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11:15am	752.39			1
2			11:14	751.91			2
3			11:37	751.47			3
4			11:27	751.00			4
5			12:23pm	750.61			5
6			11:25am	750.61			6
7			11 15	750.20			7
8			11 20	749.83			8
9			11:40	749.27			9
10			12·23pm	748.88			10
11							11
12							12
13			11 45am	749.12			13
14	3:20pm	748.11	11·23	748.73			14
15	1:43	747.70	11·53	747.43			15
16	1:15	750 47	11 38	747.23			16
17	1·15	750.79					17
18	11 12am	751.35					18
19	11 32	751.53					19
20	11 21	751.72	12 00pm	746.23			20
21	11 43	751.72					21
22	11:37	751.67					22
23	11 55	751.71					23
24	11:57	751.98					24
25	11 22	752.40					25
26	11 17	752.59					26
27	11·36	752.70					27
28	11·56	752.72					28
29	11 30	752.69					29
30	11:15	752.57					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT St. Charles Country Club

Gauge # A27

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11:25am	759.24			1
2			11:21	758.81			2
3			11:45	758.35			3
4			11:34	757.82			4
5			12:30pm	757.38			5
6			11:35pm	757.34			6
7			11:23	756.97			7
8			11:30	756.82			8
9			11:47	756.32			9
10							10
11							11
12			12:30pm	755.37			12
13			12:00	755.26			13
14	3.10pm	752.25	11:34am	755.08			14
15	1:35	752.09	12:00pm	755.01			15
16	1:07	755.21	11:47am	754.87			16
17	1 07	757.44					17
18	11 30am	758.33					18
19	11:42	758.76					19
20	11 39	758.84	12:12pm	754.46			20
21	11:50	758.72					21
22	11:45	758.73					22
23	12:03pm	758.76					23
24	12:05	758.85					24
25	11.30am	759.31					25
26	11:55	759.51	12:55pm	753.97			26
27	11:43	759.55					27
28	12:00m	759.66					28
29	11.38am	759.58					29
30	11:25	759.47					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT Glendale Golf Course

GAUGE #A28a

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11:34am	763.16			1
2			11:30	762.70			2
3			11:56	762.13			3
4			11:47	761.70			4
5			12·40pm	761.22			5
6			11:43am	761.00			6
7			11·30	760.66			7
8			11:37	760.34			8
9			11.55	759.94			9
10							10
11							11
12			12:30pm	758.92			12
13			12:10	758.81			13
14	3:00pm	755.20	11·43am	758.70			14
15	1·25	755.03	12:0[illegible]pm	758.62			15
16	1·00	758.79	11:55am	758.39			16
17	1·00	761.13					17
18	11·40am	762.16					18
19	11 52	762.62					19
20	11 38	762.62	12 20pm	757.95			20
21	11 57	762.53					21
22	11 51	762.54					22
23	12 13pm	762.52					23
24	12 15	762.81					24
25	11 40am	763.23					25
26	12 05pm	763.50	1·00pm	757.10			26
27	11 53am	763 54					27
28	12·11pm	763.66					28
29	11:45am	763.56					29
30	11:32	763.43					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT West Perimeter Highway Bridge , D/S

Gauge # A28b

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11.37am	763.46			1
2			11·35	763.04			2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23	3 15pm	762.99					23
24	12·19	763.18					24
25	11 11am	763.54					25
26	12 08pm	763.71 e					26
27	11·57am	763.84 e					27
28	12 15pm	763.94					28
29	11 50am	763.84					29
30	11:37	763.76					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT West Perimeter Highway Bridge , U/S

Gauge # A28b

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11:37am	763.71			1
2			11:35	763.29			2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20							20
21							21
22							22
23	3:15pm	763.21					23
24	12:19	763.11					24
25	11:44a	763.79					25
26	12:08pm	764.01					26
27	11:57a	764.06					27
28	12:15pm	764.16					28
29	11:15am	764.09					29
30	11:37am	763.96					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT Manitoba Boys' Camp

Gauge # A29

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11·43am	767.37			1
2			11:40	767.44			2
3			12·04pm	766.83			3
4			11·52am	766.38			4
5			12 45pm	765.95			5
6			11:50am	765.71			6
7			11·37	765.34			7
8			11 43	765.10			8
9			12·00pm	764.73			9
10			10:10am	764.08			10
11							11
12			12 45pm	763.83			12
13			12·15	763.78			13
14	2·45pm	760.73	11.47am	763.73			14
15	1·45	760.47	12 12pm	763.33			15
16	12·55	763.73	11 50am	763.13			16
17	12·52	765.86	10·54	763.03			17
18	11·43am	767.03					18
19	11·57	767.42					19
20	11:11	767.11	12·26pm	762.83			20
21	12:03pm	767.34					21
22	11·57am	767.33					22
23	12·16pm	767.11					23
24	12·25	767.61					24
25	11 48am	767.03					25
26	12·11pm	766.22	1 05	762.13			26
27	12 00	768.22					27
28	12:20	768.32					28
29	11 55am	768.22					29
30	11 42	768.11					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT Headingley Bridge, Staff Gauge, D/S

Gauge # A30

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11·45am	770.41			1
2			11:45	769.97			2
3			12:10pm	769.40			3
4			12·00	768.90			4
5			12·55	768.41			5
6			11:55am	768.14			6
7			11:43	767.77			7
8			11·45	767.46			8
9			12·05pm	767.05			9
10			10:15am	766.65			10
11							11
12			12 47pm	765.02			12
13			12 20	765.89			13
14			11·53am	765.73			14
15			12 15am	765.61			15
16			12:05	765.47			16
17			11:53am	765.34			17
18	12:38pm	769.38					18
19	12·00	769.82					19
20	11·48am	769.84	12·30pm	764.99			20
21	12·07pm	769.80					21
22	12·00	769.81					22
23	12·21	769.90					23
24	12:28	770.11					24
25	11·52am	770.18					25
26	12·17pm	770.75	1:15pm	764.03			26
27	12:06	770.76					27
28	12 21	770.87					28
29	12·00	770.77					29
30	11·45am	770.67					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 2(B)

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF Assiniboine River FOR 19 69

AT Headingley Bridge, Reel

Cause # A30

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			11·15am	770.38			1
2			11 15	769.90			2
3			12·10pm	769.49			3
4			12·00	768.84			4
5			12·55	768.33			5
6			11 55am	768.09			6
7			11 43	767.73			7
8			11·45	767.45			8
9			12 05pm	767.02			9
10			10 15am	766.63			10
11							11
12			12·47pm	766.00			12
13			12·20	765.85			13
14			11·53am	765.72			14
15			12·15pm	765.61			15
16			12 05	765.40			16
17			11 53am	765.33			17
18	12·28pm	769.31					18
19	12·00	769.77					19
20	11:43am	770.62	12·30pm	764.97			20
21	12:07pm	769.75					21
22	12·00	770.71					22
23	12:21	769.82					23
24	12·2[illegible]	770.10					24
25	11 52am	770.18					25
26	12·17pm	770.76	1 15	764.07			26
27	12·0[illegible]	770.75					27
28	12·2[illegible]	770.84					28
29	12:00	770.73					29
30	11·45am	770.65					30
31							31
TOT							
MEAN							

NOTE All elevations are Geodetic

TABLE 3

RED RIVER FLOODWAY

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO.	LOCATION	GAUGE & B M DESCRIPTION
F1	Sta. -34 + 00 Lockport Outlet Structure U/S	GAUGE: Located on S/W bank of Floodway, approx. 500' D/S of outlet structure. TBM: Elevation 753.69 Geod. Top of concrete at S. end of railing on outlet structure on Winnipeg Floodway, on S/W side of Floodway. PBM: Elevation 762.15 Geod. Top of brass cap at N/E corner of bridge on P.T.H. #44 over Floodway.
F2	Sta. -24 + 00 Lockport Outlet Structure U/S	GAUGE: Located on S/W bank of floodway, approx. 500' U/S of outlet structure. TBM: Same as in F1. PBM: Same as in F1.
F3	Sta. -3 + 00 P.T.H. #44 U/S	GAUCE: Located on W. bank of Floodway, approx. 100' U/S of bridge. TPM: Elevation 762.33 Geod. Top of base of railing at S.W. corner of P.T.H. #44 bridge over Floodway. PBM: Same as for F1.
F4	Sta. 45 + 00 C.N.R. Bridge U/S	GAUGE: Located on W. bank of Floodway approximately 100' U/S of bridge. TBM: Elevation 763.41 Geod. Top of concrete at S/W corner of C.N.R. Bridge over Floodway. PBM: Elevation 756.06 Geod. B.M. #100 Red River Floodway. Deep B.M. near W. limit of Floodway Property @ chainage 100 + 00.
F5	Sta. 138 + 00 C.P.R. Bridge	GAUGE: Located on W. bank of Floodway 100' U/S of Bridge. TBM: Elevation 767.35 Geod. Top of brass cap in concrete @ S/W corner of C.P.R. Bridge on Floodway on Lac Du Bonnet Line. PBM: Floodway B.M. #100 described under F4

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE 3

RED RIVER FLOODWAY

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO	LOCATION	GAUGE & B M. DESCRIPTION
F6	Sta. 290 + 00 Lateral Drop Structure	GAUGE: Located on W. bank of Floodway. TBM: Elevation 751.56 Geod. Top of 8" spike in slope approx. 10' N. of centreline of drop structure @ Sta. 290 + 00, 40' E. of top of W. berm of Floodway. PBM: Elevation 758.03 Geod. Floodway B.M. #300 near W. limit of Floodway right-of-way @ Sta. 300 + 00.
F7	Sta. 457 + 00 Pine Ridge	GAUGE: Located approx. 1000' D/S of Pine Ridge Road. TBM: Elevation 775.08 Geod. Top of S/W corner of conc. railway base on bridge on P.T.H. #59 North over Floodway. PBM: Elevation 801.85 Geod. Floodway B.M. #500. Brass cap in concrete on W. limit of Floodway R.P.W. @ chainage 500 + 00.
F8	Sta. 490 + 00 P.T.H. #59 North D/S	GAUGE: Located approx. 500' D/S of Bridge on P.T.H. #59 North and on W. bank of Floodway. TBM: Same as for F7. PBM: Same as for F7.
F9	Sta. 496 + 00 P.T.H. #59 North U/S	GAUGE: Located on W. bank of Floodway, approx. 100' U/S of P.T.H. #59 North bridge on Floodway. TBM: Same as in F7. PBM: Same as in F7.
F10	Sta. 515 + 00 Transmission Line Brids Hill	GAUGE: Located on W. bank of Floodway below transmission line. TBM: Elevation 751.26 Geod. Top of flagged 12" spike about $\frac{1}{4}$ way up W. slope of Floodway about 10' S. of centreline of transmission line, approx. $\frac{1}{2}$ mi. S. of P.T.H. #59 North. PBM: Same as in F7 (B.M. #500).

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK.

TABLE 3

RED RIVER FLOODWAY

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO.	LOCATION	GAUGE & B M. DESCRIPTION
F11	Sta. 550 + 00 Birds Hill	GAUGE: Located on W. bank of Floodway approx. 1 mile U/S of P.T.H. #59, North. TBM: Elevation 745.99 Geod. Top of 12" spike in berm at base of highest gauge approx. 1 mi. south of P.T.H. #59 North. PBM: Same as F7 (B.M. #500).
F12	Sta. 649 + 00 C.P.R. Bridge Springfield Line U/S	GAUGE: Located on W. bank of Floodway approx. 100' U/S of railroad bridge. TBM: Elevation 778.77 Geod. Top of brass cap in conc. @ N/W corner of C.P.R. main line bridge over Floodway. TBM: Elevation 767.58 Geod. Top of pipe sticking out of abutment @ S/W corner of C.N.R. Bridge. PBM: Elevation 771.72 Geod. B.M. #1473-C. Iron pipe with brass cap, 1.1 mi. E. of C.P.R. station and 0.5 mi. N. of tracks, 77' S. of centreline of road along N. boundary of 15-11-4E and 46' E. of centreline of road along E. boundary of 16-11-4E.
F13	Sta. 788 + 00 Transcona Railway Bridge D/S	GAUGE: Located 400' D/S of railroad bridge and on W. bank of Floodway. TBM: Elevation 779.78 Geod. Top of conc. railing base @ S/W corner of P.T.H. #15 bridge over Floodway. PBM: Elevation 770.66 Geod. B.M. #900, deep B.M., Red River Floodway.
F14	Sta. 801 + 00 P.T.H. #15 U/S	GAUGE: Located 100' U/S of P.T.H. #15 bridge over Floodway and on W. bank. TBM: Same as F13. PBM: Same as F13.

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK.

TABLE 3

RED RIVER FLOODWAY

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO	LOCATION	GAUGE & B M. DESCRIPTION
F15	Sta. 921 + 00 Greater Wpg. Water District Aqueduct and Railroad U/S	GAUGE: Located 100' U/S of bridge and on W. bank of Floodway. TBM: Elevation 759.48 Geod. Top of manhole cover approx. 100' S. of and in direct line with first pier from W. end of water aqueduct bridge over Floodway. PBM: Same as F13 (B.M. #900).
F16	Sta. 996 + 00 Trans Canada Highway E. D/S	GAUGE: Located approx. 400' D/S of Trans Canada Highway Bridge and on W. bank of Floodway. TBM: Elevation 776.10 Geod. Top of brass cap in concrete @ N/E corner of P.T.H. #1-E bridge over Floodway. PBM: Elevation 774.24 Ceod. B.M. #1668-C. C.N.R. iron pipe with brass cap, 16' S/E of second pole S/E of mile post 143 from Rainy River, 47' S/W of centreline of tracks and 3' below track level.
F17	Sta. 1012 + 00 C.N.R. Bridge Symington Line U/S	GAUGE: Located approximately 100' U/S of C.N.R. Bridge and on W. bank of Floodway. TBM: Same as for F16. PBM: Same as for F16.
F18	Sta. 1142 + 00 Navin Road	GAUGE: Located on W. bank of Floodway and in line with Navin Road. TBM: Elevation 774.64 Geod. Top of railway base @ S/W corner of bridge over Floodway along P.T.H. #59 South. PBM: Elevation 765.33 Geod. Top of ground wire pin between S/W and N/W legs of westerly transmission tower in Sec. 31-9-4E.
F19	Sta. 1240 + 00 P.T.H. #59 South U/S	GAUGE: Located on W. bank of Floodway approx. 100' U/S of P.T.H. #59 South. TBM: Same as in F18. PBM: Same as in F18.

NOTE: TBM = ESTABLISHED BENCH MARK
PBM = PERMANENT BENCH MARK

TABLE 3

RED RIVER FLOODWAY

1969

GAUGE & BENCHMARK DESCRIPTION

GAUGE NO	LOCATION	GAUGE & B.M DESCRIPTION
F20	Sta. 1273 + 00 C.P.R. Bridge U/S	GAUGE: Located on E. bank of Floodway 100' U/S of C.P.R. Bridge across Floodway. TBM: Elevation 777.10 Geod. Top of brass cap in conc. railing at S/W corner of C.P.R. Bridge. PBM: Same as in F18.
F21	Sta. 1358 + 00	GAUGE: Located on W. bank of Floodway approx. 1.6 mi. U/S of C.P.R. Bridge near Seine River crossing at Floodway. TBM: Elevation 765.19 Geod. Top of red and white 1" X 4" board projecting about 15" above G.L. on top N. slope at approx. Sta. 1358 + 00. PBM: Elevation 762.51 Geod. Floodway B.M. #1400. Deep B.M. near N. limit of Floodway right-of-way at chainage 1400 + 00.
F22	Sta. 1480 + 00 St. Mary's Road Bridge U/S	GAUGE: Located on W. bank of Floodway approx. 100' U/S of St. Mary's Road. TBM: Elevation 777.40 Geod. Top of railing base @ N/E corner of St. Mary's Rd. Bridge over Floodway. PBM: Elevation 791.90 Geod. Top of blue paint spot @ S/W corner of Floodway Inlet Structure on Red River at St. Norbert.

NOTE: TBM = ESTABLISHED BENCH MARK

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD WAY FOR 19 62.

AT Lockport Outlet Structure, 500' D/S

Gauge # F1 -34-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			8:50 am	729.37			1
2			10:52	729.25			2
3			3:02 pm	729.20			3
4							4
5							5
6			1.55 pm	728.75			6
7			10:50 am	728.58			7
8			10 38	728.30			8
9							9
10			8:15	727.42			10
11							11
12			2 00 pm	726.71			12
13			9 17 am	726.50			13
14	11 30 am	72[illegible].42	1:10 pm	726.25			14
15	2·10 pm	72[illegible].56					15
16	2 30	726.28	9:09 am	726.27			16
17	11 02 am	726.33					17
18	10·43	726.55					18
19	11·17	726.25					19
20	9 22	727.13					20
21	11 50	727.29					21
22	11·10	727.44					22
23	10 45	727.55					23
24	9 10	727.75					24
25	10 53	728.03					25
26	8 45	728.23					26
27	7:5[illegible]	728.[illegible]6					27
28	10 10	729.07					28
29	11·42	729.20					29
30	12:25 pm	729.22					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Lockport Outlet Structure, 500' U/S

Gauge # F2 -24+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			8:56 am	740.83			1
2			10 47	740.81			2
3			3:06 pm	740.75			3
4							4
5							5
6			1 50 pm	739.88			6
7			10 45 am	739.69			7
8			10·45	739.43			8
9							9
10			8:45	738.86			10
11							11
12			1 28 pm	738.10			12
13			9 17 am	737.22			13
14	11:00 am.	731.92	1 13 pm	736.92			14
15	2.05 pm	733.47					15
16	2:25	734.24	9 12 am	735.68			16
17	10:58 am	736.20					17
18	10:35	736.32					18
19	11:12	737.67					19
20	9:26	737.92					20
21	11: 6	738.02					21
22	11:06	738.12					22
23	10:45	738.25					23
24	9·12	738.40					24
25	10:50	738.57					25
26	8·27	739.21					26
27	7:50	739.63					27
28	10:45	740.11					28
29	11.10	740.58					29
30	12·23 pm	740.67					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 62.

AT P.T.P. 44 , 100' U/S

Gauge # F3 - 3+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			9:00 am.	741.01			1
2			10 45	741.03			2
3			3:08 pm	741.07			3
4							4
5							5
6			1:18	740.29			6
7			10:35 am.	740.03			7
8			10:18	739.69			8
9			5 45 pm	739.30			9
10			8.53 am.	739.09			10
11							11
12			1:55 pm.	738.75			12
13			9 23 am.	738.24			13
14	12 05 pm.	734.74	9 30	738.04			14
15	2:00	733.70					15
16	2:15	734.54	9 23	735.74			16
17	10:55 am.	736.46					17
18	10:24	737.32					18
19	11:10	737.99					19
20	9:20	738.05					20
21	11 10	738.33					21
22	11 24	738.59					22
23	10:14	738.69					23
24	9 23	738.66					24
25	10: 2	738.55					25
26	8:31	738.42					26
27	7:52	738.08					27
28	10:50	740.65					28
29	11:39	740.51					29
30	12 30 pm.	740.93					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.H. #1, 100' U/S

Gauge # F3 -3-00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	2 40 pm.	731.54					16
17	11.58 pm.	736.53					17
18							18
19							19
20							20
21							21
22							22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.N.R. Bridge, Gonor 100' U/S

Gauge # F4 45+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			9·07 am	741.92			1
2			10·42	741.85			2
3			3:12 pm	741.85			3
4							4
5							5
6			1:46	740.95			6
7			10:20 am.	740.67			7
8			10.50	740.43			8
9							9
10							10
11							11
12			1:50 pm.	738.93			12
13							13
14			1·20	737.57			14
15	2·20 pm.	737.11					15
16	2.12	737.01	9·38 am.	736.12			16
17	10·54 am.	737.05					17
18	10:32	737.67					18
19	11·08	738.65					19
20	9·35	738.77					20
21	11:32	739.00					21
22	11.02	739.03					22
23	10.11	739.22					23
24	9:35	739.39					24
25	10.20	739.59					25
26	8:38	740.30					26
27	8 02	740.66					27
28	10.55	741.24					28
29	11.36	741.65					29
30	12:15 pm.	741.73					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD WAY FOR 19 69.

AT C.N.R. Bridge, Gonor, 100' U/S

Gauge # F4 45+00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	2:50 pm.	734.95					16
17	12:01	737.12					17
18	11:05 a.m.	737.47					18
19	11.29	736.60					19
20							20
21							21
22							22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.P.R. Bridge, Gonor, 100' U/S

Gauge # F5 138-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			9·15 am.	743.17			1
2			10:38	743.22			2
3			3·17 pm.	743.25			3
4							4
5							5
6			1:41	742.25			6
7							7
8			10:55 am.	741.77			8
9							9
10							10
11							11
12			1:15 pm.	740.10			12
13							13
14			1:26	739.65			14
15	2·50 pm.	735.20					15
16	2:07	735.99	9:45 am.	737.55			16
17	10:49 am.	738.20					17
18	10:26	738.32					18
19	11:04	739.70					19
20	9:40	740.00					20
21	11:27	740.20					21
22	10·58	740.23					22
23	10 37	740.50					23
24	9·10	740.50					24
25	10·20	740.36					25
26							26
27							27
28	11 00	742.93					28
29	11·30	742.97					29
30	12.05 pm.	743.07					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.P.R. Bridge, Gonor, 100' U/S

Gauge # F5 138.00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	2:55 pm.	736.01					16
17	12.09	738.29					17
18	11:11 am.	738.83					18
19	11.35	739.20					19
20							20
21							21
22							22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30							30
31							31
TOT							
MEAN							

NOTE _____

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD WAY FOR 19 69.

AT Lateral Drop Structure
Gauge / P6 290.00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			9:35 am.	715.93			1
2			10.30	715.95			2
3			3 24 pm.	715.96			3
4							4
5							5
6			1:34	711.92			6
7							7
8			11.02 am.	714.36			8
9							9
10							10
11							11
12			1.10 p.m.	742.62			12
13							13
14			1:33	711.24			14
15							15
16	1.51 pm.	728.69	9·53 am.	739.97			16
17	10 11 am.	720.91					17
18	10 19	721.51					18
19	10·57	722.44					19
20	9:19	722.92					20
21	11:18	722.96					21
22	10.50	723.07					22
23	10·30	723.24					23
24	10·01	723.30					24
25	10:09	723.52					25
26	8.54	724.37					26
27	8:13	724.76					27
28	10:44	725.52					28
29	10 23	725.72					29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Lateral Drop Structure

Gauge # F6 220+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3			2 43 pm.	715.97			3
4							4
5							5
6							6
7							7
8			10:20 am.	714.36			8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17	12:17 pm.	711.01					17
18	11:21 am.	711.51					18
19	11:16	712.17					19
20							20
21	11:46	712.97					21
22	11:31	713.07					22
23							23
24							24
25							25
26							26
27							27
28	5.58 pm.	715.53					28
29	12 01	715.72					29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Pine Ridge Road

Gauge # F7 457-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10 00 am.	719.07			1
2			10.21	719.12			2
3			3·32 pm.	719.10			3
4							4
5							5
6			1:26 pm.	718.01			6
7							7
8			11·11 am.	717.50			8
9							9
10							10
11							11
12			1·30 pm.	715.66			12
13							13
14			1.40	714.11			14
15	3·20 pm.	741.39					15
16	1·44	741.92	10 02 am.	742.84			16
17	10 33 am.	741.29					17
18	10.13	744.36					18
19	10 20	745.71					19
20	9.33	745.96					20
21	11 11	746.11					21
22	10 12	746.23					22
23	10 23	746.41					23
24	10·14	746.58					24
25	11.00	746.80					25
26							26
27							27
28	10:37	718.72					28
29	11:16	718.90					29
30	11·45	718.98					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Pare Page Road

Gauge # F7 157-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			11 20 am.	749.12			2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3·11 pm.	741.95					16
17	12.29	741.38					17
18	11 32 am.	744.80					18
19	11:54	745.79					19
20							20
21	11 55	746.13					21
22	11·11	746.26					22
23							23
24							24
25							25
26							26
27							27
28	6·08 pm.	748.75					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.H. 59 North, 500' D/S

Gauge # FC 490-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10:10 am.	749.43			1
2			10:20	749.47			2
3			3.3[illegible] pm.	749.47			3
4							4
5							5
6			1.2[illegible]	748.41			6
7			9:45 am.	747.14			7
8			11:12	747.8[illegible]			8
9							9
10							10
11							11
12	2:52 pm.	729.63	1:25 pm.	746.03			12
13	1:[illegible]2	742.3[illegible]					13
14			1:4[illegible]	744.1[illegible]			14
15							15
16			10 07 am.	743.17			16
17	10 31 am.	741.72					17
18	10:10	745.16					18
19	10 18	746.19					19
20	9:35	746.37					20
21	11 10	746.49					21
22	10 10	746.71					22
23	10:22	746.76					23
24	10:16	746.97					24
25	10:59	747.15					25
26	9:20	748.01					26
27	8.25	748.23					27
28	10:35	749.16					28
29	11:15	749.27					29
30	11:15	749.37					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD WAY FOR 19 69.

AT P.T.H. 59 North, 500' D/S
Gauge # F8 490-00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3:13 pm.	742.39					16
17	12:30	744.81					17
18	11:34 am.	745.17					18
19	11:59	746.17					19
20							20
21	11:57	746.47					21
22	11:43	746.63					22
23							23
24							24
25							25
26							26
27							27
28	6:10 pm.	749.18					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.H. 59 North, 100' U/S

Gauge # F9 496+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10 12 am.	719.65			1
2			10.19	719.61			2
3			3:35 pm.	749.59			3
4							4
5							5
6			1:23	718.54			6
7			9.47 am.	713.27			7
8			11:13	718.04			8
9							9
10							10
11							11
12			1:20 pm.	746.27			12
13							13
14	1:45 pm.	739.90	1:45	711.71			14
15	1:30	717.65					15
16	1:40	712.37	10:09 am.	743.52			16
17	10:29 am.	711.73					17
18	10:09	715.29					18
19	10:17	716.19					19
20	9:36	716.42					20
21	11 09	713.77					21
22	10:39	716.71					22
23	10 21	716.80					23
24	10:17	717.01					24
25	10 57	717.21					25
26	9 17	718.07					26
27	8 08	718.16					27
28	10 34	719.22					28
29	11.14	719.37					29
30	11 40	719.46					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.H. #59 North, 100' U/S

Gauge # F9 496·00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3.15 pm.	742.41					16
17	12·21	744.85					17
18	11.37 am.	745.29					18
19	12:01 pm.	743.24					19
20							20
21	11.58 am.	746.60					21
22	11.41	746.72					22
23							23
24							24
25							25
26							26
27							27
28	6·10 pm.	749.26					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Transmission Line, Birds Hill

Gauge # F10 515+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10:17 am.	749.75			1
2			10:18	749.87			2
3			3:37 pm.	749.99			3
4							4
5							5
6			1:09 pm.	748.79			6
7			10:00 am.	748.56			7
8			11:15	748.32			8
9							9
10							10
11							11
12			1:15 pm.	746.56			12
13							13
14	5:30 pm.	739.11	1:47 pm.	744.97			14
15	3:25	742.93					15
16	1:07	742.15	10 15 am.	743.63			16
17	10:07 am.	741.89					17
18	10 07	745.52					18
19	10:12	745.47					19
20	9:43	746.65					20
21	11:07	746.93					21
22	10.37	747.07					22
23	10 20	747.22					23
24	10 19	747.41					24
25	10.55	747.60					25
26	9 10	748.30					26
27	8 31	748.72					27
28	10.32	749.18					28
29	11.13	749.62					29
30	11:25	749.77					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Transmission Line, Birds Hill

Gauge # F10 515+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			11·23 am	749.87			2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3:17 pm	742.61					16
17	12·33 pm	744.92					17
18	11·39 am	745.42					18
19	12 25 pm	746.32					19
20							20
21	12·00	746.82					21
22	11·46 am	747.62					22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Pards Fall

Gauge # Fll 550400

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			10:15 am.	750.17			2
3			3:38 pm.	750.19			3
4							4
5							5
6			1·07	742.05			6
7							7
8			11:17 am.	748.55			8
9							9
10							10
11							11
12							12
13							13
14			1:52 pm.	745.03			14
15	3:03 pm.	742.22					15
16	1·3[illegible] pm.	742.75	10·17 am.	743.73			16
17	10.25 am.	745.18					17
18	10 05	745.56					18
19	10.12	746.58					19
20	9:40	746.91					20
21	11·04	747.06					21
22	10:35	747.22					22
23	10:19	747.35					23
24	10·21	747.55					24
25	10·52	747.79					25
26							26
27							27
28	10 30	749.79					28
29	11·12	749.99					29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Emerson
Gauge # F11 550+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			2:31 pm.	750.17			1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3:18 pm.	742.83					16
17	12.26	745.25					17
18	11:41 am.	745.63					18
19	12 30 pm.	746.66					19
20							20
21	12 02	747.10					21
22	11:18 am.	747.20					22
23							23
24							24
25							25
26							26
27							27
28	6:12 pm.	749.82					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.P.R. Bridge, Springfield Lane, U/S
Gauge # F12 649-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10:50 am.	750.96			1
2			10.10	750.99			2
3			3:44 pm.	751.00			3
4							4
5							5
6			1:02	749.98			6
7							7
8			11:22 am.	749.42			8
9							9
10							10
11							11
12			1:00 pm.	747.49			12
13							13
14			1:59	745.99			14
15	3:35 pm.	713.11					15
16	1:22	713.66	10:29 am.	744.87			16
17	10:18 am.	716.01					17
18	10:01	716.59					18
19	10:06	717.40					19
20	9:45	717.77					20
21	10:58	717.92					21
22	10:20	718.02					22
23	10.13	718.27					23
24	10:27	718.31					24
25	10:17	718.60					25
26							26
27							27
28	10.25	759.59					28
29	11:07	750.83					29
30	11:10	750.89					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.P.R. Bridge, Springfield Lane, U/S
Gauge # F12 649:00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			11·31 am.	750.98			2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3·23 pm.	742.73					16
17	12:12	746.15					17
18	11.17 am.	746.52					18
19							19
20							20
21	12:08 pm.	747.97					21
22							22
23	11.52 am.	748.07					23
24							24
25	11:13	748.10					25
26							26
27							27
28	6·17 pm.	750.63					28
29	12 4.3	750.81					29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Transcona Railroad Bridge, 400' D/S

Gauge # F13 788+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10 34 am.	752.67			1
2			10:00	752.65			2
3			3:52 pm.	752.64			3
4							4
5							5
6			12:54 pm.	751.18			6
7			9:35 am.	751.33			7
8			11:24	751.03			8
9							9
10							10
11							11
12			12:55 pm.	749.09			12
13							13
14			2:11	747.82			14
15							15
16	3:30 pm.	745.64	10 43 am.	746.41			16
17	10:12 am.	747.90					17
18	9:53	748.21					18
19	9:59	749.07					19
20	9:52	749.12					20
21	10:52	749.68					21
22	10:23	749.71					22
23	10.07	749.85					23
24	10:35	749.99					24
25	10.38	750.21					25
26	9 10	750.07					26
27	8:47	751.37					27
28	10 19	752.21					28
29	10:57	752.39					29
30	10:40	752.52					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Transcona Railroad Bridge, 400' D/S

Gauge # F13 788+00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15	3:48 pm.	744.93					15
16	1:11	745.52					16
17	12:50	747.91					17
18	11:55 am.	748.22					18
19							19
20							20
21	12:20 pm.	749.64					21
22	12.03	749.74					22
23							23
24		750.00					24
25	11:22 pm.	750.20					25
26							26
27							27
28	6:24 pm.	752.25					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.F. 715, 100' U/S

Gauge # F14 801+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			10:36 am.	752.70			1
2			5:59 pm.	752.62			2
3			3:53	752.65			3
4							4
5							5
6			12:52 pm.	751.54			6
7			9:30 am.	751.34			7
8			11.25	751.12			8
9							9
10							10
11							11
12	2:35 pm.	742.71					12
13							13
14	2:35	742.13	2:15 pm.	748.26			14
15	3:50	745.10					15
16	1:09	745.57	10 52 am.	746.45			16
17	10:11 am.	747.97					17
18	9:52	748.30					18
19	9:57	749.23					19
20	9:53	749.82					20
21	10:51	749.30					21
22	10:22	749.90					22
23	10:01	750.02					23
24	10:32	750.30					24
25	10:35	750.32					25
26	9:11	751.18					26
27	8:19	751.37					27
28	10.18	752.34					28
29	10:56	752.39					29
30	10:35	752.52					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.H. #15, 100' U/S

Gauge # F14 801+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6			2:10 pm.	751.57			6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16							16
17	12:51 pm.	748.00					17
18	11:56 am.	748.30					18
19	12:57 pm.	749.31					19
20							20
21	12.21	749.50					21
22	13 04	749.90					22
23							23
24							24
25							25
26							26
27							27
28	6.25	752.33					28
29	12:32	752.36					29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Greater Winn. Water District Aqueduct and Railroad

Gauge # F15 921.00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			1:10 pm.	753.90			1
2			9:55 am.	753.94			2
3			3:58 pm.	753.94			3
4							4
5							5
6			12:46 pm.	752.83			6
7			9:25 am.	752.56			7
8			11:32	752.33			8
9							9
10							10
11							11
12			12:45 pm.	750.25			12
13							13
14			2:25	749.77			14
15							15
16	1:00 pm.	746.90	10:59 am.	747.62			16
17	10:06 am.	749.10					17
18	9:47	750.72					18
19	9:50	750.52					19
20	9:59	750.82					20
21	10:43	750.92					21
22	10 15	751.10					22
23	10 00	751.22					23
24	10:45	751.39					24
25	10 27	751.55					25
26	10 70	752.38					26
27	9 55	752.93					27
28	10 13	753.65					28
29	10:50	753.73					29
30	10:20	753.80					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Greater Winnipeg Water District Aqueduct and Railroad

Gauge # F15 921-00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3:30 p.m.	717.31					16
17	12:57	719.44					17
18	12:04	719.72					18
19							19
20							20
21	12:20	751.05					21
22	12:08	751.13					22
23							23
24							24
25							25
26							26
27							27
28	6:30 p.m.	753.68					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Trans Canada Highway East, D/S

Gauge # F16 996+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			1 35 pm.	751.49			1
2			9.51 am.	754.63			2
3			4.02 pm.	754.61			3
4							4
5							5
6			12:12	753.44			6
7			9·10 am.	752.22			7
8			11:39	752.95			8
9							9
10							10
11							11
12			11:50 am.	751.07			12
13							13
14			2·33 pm.	749.38			14
15	4.05 pm.	747.11					15
16			11.07 am.	748.22			16
17	10:02 am.	750.02					17
18	9:42	750.37					18
19	9·47	751.20					19
20	10:03	751.49					20
21	10 33	751.67					21
22	10 10	751.75					22
23	9 56	751.85					23
24	10·50	752.00					24
25	10 22	752.25					25
26	11:31	753.07					26
27	9·10	752.19					27
28	10.08	751.25					28
29	10:47	751.36					29
30	10:15	751.45					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD '69 FOR 19 69.

AT Trans Canada Hgy. East, D/S

Gauge # F16 996'00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6			11:08 am.	753.45			6
7							7
8			9 45 am.	753.00			8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3.50 pm.	747.84					16
17	1.01	750.15					17
18	12 10	750.39					18
19							19
20							20
21	12:26	751.67					21
22	12:15	751.76					22
23							23
24							24
25							25
26							26
27							27
28	6:23	751.29					28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.N.R. Bridge (Symington), U/S

Gauge #17 1012+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			1.26 pm.	754.73			1
2			9:48 am.	754.80			2
3			2.07 pm.	754.78			3
4							4
5							5
6			12:10	753.65			6
7			9:15 am.	753.40			7
8			9:43	753.20			8
9							9
10							10
11							11
12							12
13							13
14			2:10 pm.	749.67			14
15	4.06 pm.	747.30					15
16	9:00 am.	747.65	11.08 am.	748.40			16
17	8:11	750.17					17
18	8:11	750.57					18
19	8:37	751.12					19
20	10:09	751.69					20
21	9:37	752.37					21
22	9:10	752.92					22
23	8:42	753.05					23
24	10:52	752.73					24
25	9:15	752.41					25
26							26
27							27
28	10.06	751.14					28
29	9.56	751.59					29
30	9.21	751.69					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.N.R. Bridge (Symington), U/S

Gauge 17 1012+00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			9:50 a.m.	751.80			2
3			4:03 p.m.	751.78			3
4							4
5							5
6			2:52	753.68			6
7							7
8			11:41 a.m.	753.20			8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	12:50 p.m.	747.77					16
17	9:39 a.m.	750.25					17
18	9:41	750.37					18
19	9:45	751.42					19
20	11 02	751.70					20
21	10:37	751.87					21
22	10 08	751.92					22
23	9 2'	752.03					23
24	12 02 p.m.	752.19					24
25	10.20 a.m.	752.43					25
26							26
27							27
28	0.34 p.m.	751.49					28
29	10 16 p.m.	751.60					29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABIE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.N.R. Bridge (Symington), U/S

Gauge / F17 ~~1012+00~~

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			12:10 pm.	754.80			2
3			4:59 pm.	754.78			3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3:51 pm.	748.08					16
17	1:02	750.30					17
18	12:11	750.57					18
19	2 01	751.50					19
20							20
21	12.38	751.90					21
22	12 17	751.92					22
23	11:36 am.	752.30					23
24							24
25							25
26							26
27							27
28							28
29	12:44 pm.	751.58					29
30	2 32	751.70					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT Navin Pond
Gauge # FIS 111.2-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			8.56 am.	755.77			2
3			4 18 pm.	755.78			3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12			2 18 pm	750.11			12
13							13
14							14
15							15
16	9 07 am.	748.73	11:18 am.	749.18			16
17	8 53	752.31					17
18	9 26	752.66					18
19	9:20	752.54					19
20	10 36	752.77					20
21	9:44	752.91					21
22	9:18	753.07					22
23	9:49	753.13					23
24	11:03	753.27					24
25	9 22	753.47					25
26							26
27							27
28							28
29	10 03 am.	752.57					29
30	9 30	755.67					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4
PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD WAY FOR 19 69

AT Navin Road

Gauge # F18 1142-00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	11:15 am.	750.71					16
17	9 27	751.34					17
18	8:18	751.63					18
19	10.56	752.79					19
20							20
21							21
22							22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30	2:26 pm.	755.63					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD, '69 FOR 19 69.

AT P.T.H. #59 So 5h, U/S

Gauge # 119 1210 00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			2:30 pm.	756.50			1
2			9:01 am.	756.37			2
3			1:24 pm.	756.23			3
4							4
5							5
6			10:18 am.	755.63			6
7			8:51 am.	755.39			7
8			1:22 pm.	755.11			8
9							9
10							10
11							11
12	1:55 pm.	746.35	11:35 am.	753.04			12
13							13
14	2:22 pm.	744.23	2:56 pm.	751.13			14
15	3:30	742.53					15
16	9:12 am.	739.79	11:38 am.	739.23			16
17	8:57	752.13					17
18	9:21	752.82					18
19	8:53	753.35					19
20	10 22	752.[illegible]					20
21	9 51	753.22					21
22	9 24	751.00					22
23	9:55	751.13					23
24	11.14	751.26					24
25	9 28	754.56					25
26	11. 0	755.23					26
27	9:1[illegible]	755.23					27
28							28
29	10.08	756.51					29
30	9:36	756.67					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT P.T.H. #59 South, U/S

Gauge # F19 1240.00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	3:21 pm.	745.72					16
17	9:21 pm.	752.45					17
18	8:51	752.73					18
19	10:50	753.80					19
20							20
21							21
22							22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30	2:22 pm.	756.85					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT C.P.R. Bridge, U/S

Gauge / P20 1273-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			2:37 pm.	757.46			1
2							2
3							3
4							4
5							5
6			10:56 am.	755.95			6
7			9 00	755.67			7
8			1.28 pm.	755.37			8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	9:17 am.	7[illegible]					16
17							17
18	8:57	752.93					18
19	8:55	752.90					19
20	10.25	75[illegible].10					20
21	[illegible]	[illegible]					21
22	2 25	75[illegible].33					22
23	[illegible]	[illegible]					23
24	11 17	75[illegible].61					24
25	9 30	75[illegible].83					25
26	11.[illegible]	755.52					26
27	9:2[illegible]	756.13					27
28							28
29	10 10	757.35					29
30	9:33	757.[illegible]					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOOD AY FOR 19 69.

AT C.P.R. Bridge, U/S

Gauge / 720 1275.00

DAY	APRIL						DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
14							14
15							15
16	11:03 am.	719.93					16
17	1:04 p.m.	752.73					17
18							18
19							19
20							20
21							21
22							22
23							23
24							24
25							25
26							26
27							27
28							28
29							29
30							30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT 1.6 Mi. S. of Horne River

Gauge # F21 05OC-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1							1
2			9:15 a.m.	752.75			2
3			4:33 p.m.	753.72			3
4							4
5							5
6							6
7							7
8							8
9							9
10							10
11							11
12			11:25 a.m.	754.32			12
13							13
14			3:05 p.m.	753.28			14
15							15
16	10:50 a.m.	750.25	1:10 p.m.	751.25			16
17	9:06	751.23					17
18	9:03	751.33					18
19	9:04	755.52					19
20	10:33	755.84					20
21	10 02	755.92					21
22	9 33	756.09					22
23	9 05	756.27					23
24	11:26	756.29					24
25	9 39	756.50					25
26							26
27							27
28							28
29	10:36 a.m.	758.57					29
30	9:46	758.63					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 4

PROVINCE OF MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES

WATER CONTROL AND CONSERVATION BRANCH

WATER SURFACE ELEVATIONS

OF RED RIVER FLOODWAY FOR 19 69.

AT St. Jerry's Rd. Bridge, U/S

Gauge # F22 1420-00

DAY	APRIL		MAY				DAY
	TIME	ELEV	TIME	ELEV	TIME	ELEV	
1			3:03 pm.	759.31			1
2			9:00 am.	759.36			2
3			4:37 pm.	759.35			3
4							4
5							5
6			1:45 pm.	758.09			6
7			8:40 am.	757.91			7
8							8
9							9
10							10
11							11
12	1:10 p.m.	746.75	11:15 a.m.	755.35			12
13							13
14	2:10	749.10	3:15 p.m.	753.71			14
15	3:50	752.82					15
16	9:22 am.	752.11	2:07 pm.	751.62			16
17	9:20	751.69					17
18	9:08	755.15					18
19	9:11	756.11					19
20	10:39	756.35					20
21	10:03	756.4					21
22	9:33	756.62					22
23	9:11	756.70					23
24	11:30	756.92					24
25	9:42	757.12					25
26	11:59	758.09					26
27	9:31	758.32					27
28							28
29	10:20	759.17					29
30	9:51	759.25					30
31							31
TOT							
MEAN							

NOTE All elevations are geodetic.

TABLE 5

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		BUBBLER GAUGE U/S GAUGE		BUBBLER GAUGE D/S GAUGE	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 13	19:53	Start	20·30	750.48	20:30	750.26
	19:53	735.0				
	22:15	735.0	22:15	750.72	22:15	750.39
			23:15	750.77	23:15	750.41
April 14			24:30	750.86	24:30	750.52
			03:00	750.98	03:00	750.71
			06:00	751.13	06:00	750.90
			09:15	751.30	09:15	751.08
			12:00	751.45	12:00	751.24
			15·30	751 60	15·30	751 33
	16:30	737.7	17:00	752.03	17:00	751.00
			18:00	752.15	18·00	750.90
			21:00	752.21	21:00	750 85
			24:00	752.26	24:00	750 92
April 15			03:30	752.35	03·30	751.02
			06:00	752.27	06:00	751.06
			09.25	752.46	09·25	751 12
			12:15	752.49	12:15	751.20
			15·00	752.51	15.00	751 22
			18:00	752.55	18:00	751.21
			21:00	752.59	21:00	751 30
			24:45	752.63	24:45	751.35
April 16			03:30	752.65	03:30	751.39
			06:30	752.68	06:30	751 44
			09:30	752.68	09:30	751.56
	11:00	739.9	11:00	753.13	11:30	751.20
			12:30	753.21	12:30	751 15
	16:00	743.8	15·00	752.52	15:00	751.05
			17:15	753.41	17:15	749.37
			18:15	753.69	18:15	749.11

TABLE 5

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		BUBBLER GAUGE U/S GAUGE		BUBBLER GAUGE D/S GAUGE	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 16			21:20	754.02	21:20	748.67
			24.30	754.20	24·30	748.60
April 17			03.30	754.29	03·30	748.61
			06:00	754.40	06:00	748.66
			09:30	754.47	09·30	748 79
			12·15	754.51	12:15	748.90
			15:30	754.56	15:30	749.08
			18:30	754.60	18:30	749.16
			21:00	754.64	21:00	749.30
			24:30	754.66	24:20	749.27
April 18			02:45	754.70	02:45	749.31
			05:50	754.73	05:50	749.35
			09:20	754.74	09:20	749.40
			12:00	754.77	12:00	749.44
	16:30	745.4	15:20	754.78	15:20	749.50
			17:00	755.16	17:00	748.82
			18:00	755.32	18:00	748.40
			21:00	755.48	21:00	748.09
			24·00	755.58	24:00	748 03
April 19			03:00	755.64	03:00	748.04
			06:00	755.68	06:00	748.05
			09:00	755.72	09:00	747.97
			12:30	755.68	12:30	747.93
			15:10	755.75	15:10	748.06
			16:00	755.78	16:00	748.02
			21·00	755.81	21:00	748.13
			24:00	755.82	24:00	748.16
April 20			03·00	755.87	03·00	748.19
			13:30	755.90	13:30	748.24
			15:00	755.90	15·30	748.19
			18:00	755.89	18:00	748.25

TABLE 5

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		BUBBLER GAUGE U/S GAUGE		BUBBLER GAUGE D/S GAUGE	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 20			21:00	755.96	21:00	748.28
			24:00	755.96	24:00	748.27
April 21			03:00	755.97	03:00	748.27
			06:00	755.99	06:00	748.26
			09:30	755.97	09:30	748.38
			12:00	755.97	12:00	748.40
			15:30	755.97	15·30	748.44
			18:00	755.96	18:00	748.43
			21:00	756.04	21:00	748.39
			24:00	756.07	24:00	748.41
April 22			03:00	756.08	03:00	748.41
			06:00	756.09	06·00	748.42
			09:30	756.12	09:30	748.49
			12:15	756.11	12:15	748.48
			15:15	755.90	15:15	748.52
			18:00	756.15	18:00	748.46
			21:00	756.16	21.00	748.46
			24:00	756.18	24:00	748.49
April 23			03:00	756.19	03:00	748.50
			06:00	756.22	06:00	748.51
			09:30	756.22	09:30	748.52
			12:15	756.18	12:15	748.54
			15:15	755.92	15·15	748.61
			20:00	756.28	20:00	748.60
April 24			08:30	756.34	08:30	748.67
			12.30	756.39	12:30	748.78
			16:00	756.44	16:00	748.78
			20:00	756.44	20·00	748.88
April 25			08:30	756.55	08:30	749.09
	10:10	746.7	10:50	756.82	10:30	748.78

TABLE 5

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		BUBBLER GAUGE U/S GAUGE		BUBBLER GAUGE D/S GAUGE	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 25	10:10	746.7	10:30	756.82	10:30	748.78
			13:30	757.12	13:30	748.34
			16:00	757.21	16:00	748.23
			20:00	757.29	20:00	748.06
April 26			09:30	757.54	09:30	748.59
			12:30	757.57	12:30	748.73
			15:00	757.62	15:00	748.83
			16:00	757.63	16:00	748.84
			20:00	757.69	20:00	748.99
April 27			08:20	757.81	08:20	749.20
	10:00	747.5	10:30	758.00	10:30	749.05
			12:00	758.10	21:00	748.79
			16:00	758.24	16:00	748.61
			20:00	758.24	20:00	748.49
April 28			08:30	758.23	08:30	748.59
			12:00	758.23	12:00	748.62
			16:00	758.25	16:00	748.65
			20:00	758.25	20:00	748.73
April 29			09:00	758.25	09:00	748.83
			12:00	758.25	12:00	748.89
			16:00	758.25	16:00	748.79
			20:00	758.25	20:00	748.80
April 30			09:30	758.25	08:30	748 82
			12:20	758.25	12:20	748.85
			16:00	758.25	16:00	748.80
			20:00	758.25	20:00	748.80
May 1			08:30	758.25	08:30	748.82
			12:00	758.25	12:00	748.70
			16:00	758.25	16:00	748.76
			20:00	758.25	20:00	748.79

TABLE 5

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		BUBBLER GAUGE U/S GAUGE		BUBBLER GAUGE D/S GAUGE	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
May 2					08:30	748.70
			16:00	758.25	16:00	748.72
			20:00	758.25	20:00	748.73
May 3			08:00	758.25	08:00	748.68
			12:00	758.25	12:00	748.62
			16:00	758.25	16:00	748.64
			20:00	758.25	20:00	748.64
May 4			08:00	758.25	08:00	748.49
			12:00	758.25	12:00	758.46
			16:00	758.25	16:00	748.14
			20:00	758.25	20:00	758.35
May 5	09:15	746.30	08:15		08:15	
					10:00	748.19
			12:30	758.18	12:30	748.72
	16:00	745.80	16:00	758.11	16:00	748.80
			20:00	757.77	20:00	749.34
May 6			08:45	757.52	08:45	749.84
			12:00	757.34	12:00	749.81
			20:00	757.42	20:00	749.99
May 7			09:00	757.26	09:00	749.81
			12:15	757.20	12:15	749.89
			16:00	757.17	16:00	749.82
			20:00	757.21	20:00	749.83
May 8			08:45	757.03	08:45	749.55
			12:20	756.97	12:20	749.47
			16:00	756.75	16:00	749.35
			20:00	756.89	20:00	749.24
May 9	09:30	745.30	08:45	756.75	08:45	748.85
			12:15	756.58	12:15	749.02
			16:00	756.54	16:00	748.94
			20:00	756.48	20:00	748.88

TABLE 5

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		BUBBLER GAUGE U/S GAUGE		BUBBLER GAUGE D/S GAUGE	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
May 10			08:00	756.32	08:00	748.48
			12:00	756.26	12:00	748.42
			16:00	756.19	16:00	748.31
May 11			08:00	756.01	08:00	747.82
	10:25	744.20	12:00	755.66	12:00	748.22
			16:00	755.52	16:00	748.50
May 12	09:30	742.60	08:30	755.24	08:30	748.24
			12:15	754.50	12:15	748.75
			16:00	754.44	16:00	749.25
May 13			09:00	754.07	09:00	749.16
			12:00	754.03	12:00	749.07
			16:15	753.96	16:15	748.91
May 14			08:30	753.67	08:30	748.53
	11:30	741.8	12:00	753.50	12:00	748.43
			16:51	753.31	16:15	748.57
May 15			08:30	752.98	08:30	748.38
			12:00	752.91	12:00	748.20
			16:00	752.83	16:00	748.05
May 16			18:30	752.40	08:30	747.59
	09:30	739.6				
			11:45	751.62	11:45	747.93
			16:00	751.42	16:00	748.11
May 17			09:30	750.93	09:30	747.79
	12:00	Gates	11:45	740.91	11:45	747.94
	fully lowered		15:00	749.02	15:00	748.52

TABLE 6

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		STAFF GAUGE D/S GAUGE		STAFF GAUGE FLOODWAY INLET	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 13	19:53	Start		749.63		750.20
	19:53	735.0				
	22:15	735.0	22:15	749.33	22:15	750.90
			22:10	749.43	23:00	751.00
April 14			24:10	749.33	24:00	751.00
			02:30	749.43	02:30	751.10
			06:00	749.63	06:00	751.30
			09:00	749.83	09:00	751.45
			12:00	749.93	12:00	751.55
			15:00	750.08	15:00	751.70
	16:30	737.7	17:00	749.83	17:00	752.10
			18:00	749.73	18:00	752.20
			21:10	749.93	21:05	752.30
			24:10	749.93	24:05	752.40
April 15			03:00	750.03	03:00	752.50
			05:45	749.93	06:00	752.50
			09:00	750.13	09:00	752.60
			12:00	750.13	12:00	752.60
			15:00	750.13	15:00	752.60
			18:00	750.03	18:00	752.70
			18:10	750.03	18.05	752.70
			24:00	750.23	24:00	752.85
April 16			03:00	750.23	03:30	752.75
			06:00	750.38	06.00	752.80
			09:00	750.33	09:00	752.80
	11:00	739.9	11:15	750.23	11:15	753.15
			12:15	750.03	12:15	753.35
	16:00	743.8	15:00	750.13	15:00	753.50
			17:00	749.03	17:00	754.20
			18:00	748.73	18:00	754.50

TABLE 6

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		STAFF GAUGE D/S GAUGE		STAFF GAUGE FLOODWAY INLET	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 16			21:05	748.63	21:00	754.90
			24:00	748.53	24:00	755.10
April 17			03:00	748.63	03:15	755.15
			06:00	748.73	06:00	755.30
			09:00	748.73	09:00	755.40
			12:00	748.83	12:00	755.40
			15:00	748.93	15:00	755.50
			18:00	748.93	18:00	755.50
			21:10	748.93	21:05	755.55
			24:10	749.00	24:00	755.60
April 18			03:00	749.10	03:00	755.60
			06:00	749.20	06:00	755.60
			09:00	749.20	09:00	755.60
			12:00	749.20	12:00	755.70
	16:30	745.40	15:00	749.30	15:00	755.70
			17:10	748.80	17:00	756.00
			18:10	748.70	18:00	756.20
			21:10	748.50	21:00	756.35
			24:00	748.60	24:00	756.45
April 19			03:00	748.60	03:00	756.55
			06:00	748.60	06:00	756.60
			09:00	748.60	09:00	756.60
			12:00	748.60	12:00	756.60
			15:00	748.60	15:00	756.60
			18:10	748.50	18:05	756.70
			21:10	748.50	21:05	756.70
			24:10	748.60	24:05	756.75
April 20			03:00	748.60	03:00	756.80
			06:00	748.65	06:00	756.86
			09:00	748.70	09:00	756.80

TABLE 6

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		STAFF GAUGE D/S GAUGE		STAFF GAUGE FLOODWAY INLET	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 20			12:00	748.70	12:00	756.80
			15:00	748.70	15:00	756.80
			18:10	748.70	18:05	756.80
			21:10	748.70	21:05	756.85
			24:10	748.70	24:05	756.85
April 21			03:00	748.70	03:00	756.85
			06:00	748.70	06:00	756.90
			09:00	748.70	09:00	756.90
			12:00	748.70	12:00	756.90
			15:30	748.80	15:20	756.90
			18:10	748.80	18:05	756.90
			21:10	748.70	21:05	756.95
			24:10	748.70	24:05	757.00
April 22			03:00	748.70	03:00	757.00
			06:00	748.80	06:00	757.00
			09:00	749.00	09.00	757.05
			12:00	748.90	12:00	757.05
			15:00	748.90	15:00	757.05
			18:10	748.90	18:05	757.05
			21:10	748.90	21:05	757.10
			24:10	748.90	24:05	757.10
April 23			03:00	748.90	03:00	757.15
			06:00	748.90	06:00	757.15
			09:00	749.00	09:00	757.15
			12:00	749.00	12:00	757.15
			15:00	749.00	15:00	757.15
			20:10	749.00	20:05	757.20
April 24			08:15	749.10	08:15	757.30
			12:00	749.10	12:00	757.30
			16:00	749.10	16:00	757.30

TABLE 6

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		STAFF GAUGE D/S GAUGE		STAFF GAUGE FLOODWAY INLET	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 24			20:00	749.10	20:00	757.30
April 25			08:00	749.50	08:00	757.50
	10:10	746.7	10:30	749.20	10:30	757.70
	10:10	746.7	10:30	749.20	10:30	757.70
			12:00	749.00	12:00	757.90
			16:00	747.90	16:00	758.10
			20:00	748.90	20:00	758.10
April 26			08:30	749.00	08:30	758.40
			12:00	749.30	12:00	758.40
			15:00	749.30	15:00	758.40
			16:00	749.30	16:00	758.40
			20:00	749.30	20:00	758.40
April 27			08:10	749.90	08:00	758.60
	10:00	747.5	10:20	749.70	10:15	758.80
			12:10	749.70	12:05	758.90
			16:00	749.70	16:00	759.10
			20:00	749.70	20:00	759.20
April 28			08:00	749.70	08:10	759.40
			12:10	749.70	12:05	759.40
			16:00	749.80	16:00	759.40
			20:00	749.90	20:00	759.45
April 29			09:00	749.70	09:10	759.50
			12:10	749.70	12:[illegible]	759.50
			16:00	749.70	16:00	759.50
			20:00	749.80	20:00	759.50
April 30			08:30	749.80	08:30	759.60
			12:00	749.80	12:00	759.60
			16:00	749.80	16:00	759.60
			20:00	749.80	20:00	759.60
May 1			08:00	749.60	08:00	759.60

TABLE 6

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		STAFF GAUGE D/S GAUGE		STAFF GAUGE FLOODWAY INLET	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
May 1			12:00	749.80	12:00	749.60
			16:00	749.80	16:00	759.60
			20:00	749.80	20:00	759.60
May 2			08:15	749.80	08:15	759.60
			12:00	749.80	12:00	759.60
			16:00	749.80	16:00	759.60
			20:00	749.80	20:00	759.60
May 3			08:00	749.93	08:00	759.50
			12:10	749.93	12:05	759.50
			16:00	749.93	16:00	759.50
			20:00	749.93	20:00	759.50
May 4			08:10	749.83	08:10	759.50
			12:10	749.73	12:10	759.50
			16:00	749.73	16:00	759.50
			20:00	749.73	20:00	759.45
May 5	09:15	746.30	08:15	749.43	08:15	759.40
			09:30	749.73	09:30	759.25
			12:00	749.93	12:00	759.00
	16:00	745.80	16:00	750.03	16:00	759.00
			20:00	750.63	20:00	758.60
May 6			08:15	750.53	08:15	758.40
			12:00	750.63	12:00	758.40
			20:00	750.21	20:00	758.35
May 7			08:15	750.53	08:15	758.20
			12:00	750.53	12:00	758.10
			16:00	750.53	16:00	758.10
			20:00	750.63	20:00	788.10
May 8			08:15	750.13	08:15	757.90
			12:00	750.03	12:00	757.80
			16:00	750.13	16:00	757.80

TABLE 6

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		STAFF GAUGE D/S GAUGE		STAFF GAUGE FLOODWAY INLET	
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
May 8			20:00	750.13	20:00	757.80
May 9	09:30	745.30	08:15	749.53	08:15	757.60
			12:00	749.63	12:00	757.50
			16:00	749.73	16:00	757.50
			20:00	749.73	20:00	757.40
May 10			08:00	749.43	08:00	757.20
			12:00	749.33	12:00	757.15
			16:00	749.53	16:00	757.10
May 11			08:00	748.93	08:00	756.90
	10:25	744.20	12:00	749.33	12:00	756.60
			16:00	749.23	16:00	756.50
May 12	09:30	742.60	08:30	749.03	08:30	756.30
			10:00	749.13	10:00	755.90
			12:00	749.43	12:00	755.60
			16:00	749.63	16:00	755.40
May 13			08:30	749.43	08:30	755.10
			12:00	749.33	12:00	755.05
			16:00	749.13	16:00	754.90
May 14			08:30	748.73	08:30	754.60
	11:30	741.80	12:00	748.83	12:00	754.50
			16:00	748.83	16:00	754.30
May 15			08:30	748.53	08:30	753.90
			12:00	748.53	12:00	753.80
			16:00	748.33	16:00	753.70
May 16			08:30	748.03	08:30	753.40
	09:30	739.60	10:00	748.43	10:00	752.90
			11:45	748.63	11:45	752.60
			16:00	748.63	16:00	752.25
May 17			09:30	748.23	09:30	751.90
	12:00	Gates	11:45	748.23	11:45	751.85
	fully lowered		15:00	749.13	15:00	750.47

TABLE 7

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		FLOODWAY			
			ST. MARY'S ROAD BR.			
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 13	19:53	Start				
	19:53	735.0				
	22:15	735.0	22:10	746.45		
			23:30	746.50		
April 14			24:30	746.40		
			03:00	746.60		
			06:15	747.00		
			09:00	747.35		
			12:00	747.75		
			15:00	748.35		
	16:30	737.7	17:10	749.15		
			18:10	749.75		
			21:15	749.75		
			24:00	751.15		
April 15			03:30	751.52		
			06:00	751.57		
			09:00	751.67		
			12:00	751.72		
			15.00	751.77		
			18:00	751.77		
			18:15	751.77		
			24:00	752.07		
April 16			03:00	752.02		
			06:00	752.07		
			06:00	752.07		
	11:00	739.9	11:15	752.27		
			12:15	752.67		
	16:00	743.8	15:00	752.77		
			17:15	753.55		
			18:10	753.85		

TABLE 7

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		FLOODWAY			
			ST MARY'S ROAD BR.			
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 16			21:15	754.35		
			24:00	754.55		
April 17			03:30	754.85		
			06:00	754.95		
			09:00	754.94		
			12:00	754.94		
			15:00	755.04		
			18:15	755.04		
			21:15	755.09		
			24:15	755.14		
April 18			03:00	755.19		
			06:00	755.24		
			09:00	755.24		
			12:00	755.24		
	16:30	745.4	15:00	755.24		
			17:15	755.54		
			18:15	755.64		
			21:15	755.79		
			24:00	756.04		
April 19			03:00	756.14		
			06:00	756.14		
			09:00	756.14		
			12:00	756.14		
			15:00	756.24		
			18:15	756.24		
			21:15	756.24		
			24:15	756.34		
April 20			03:00	756.34		
			06:00	756.34		
			09:00	756.34		

TABLE 7

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		FLOODWAY			
			ST. MARY'S ROAD BR.			
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 20			02:00	756.34		
			15:00	756.34		
			18:15	756.34		
			21:15	756.39		
			24:15	756.39		
April 21			03:00	756.39		
			06:00	756.39		
			09:00	756.44		
			12:00	756.44		
			15:30	756.44		
			18:15	756.44		
			21:15	756.49		
			24:15	756.49		
April 22			03:00	756.54		
			06:00	756.54		
			09:00	756.59		
			12:00	756.59		
			15:00	756.59		
			18:15	756.59		
			21:15	756.64		
			24:15	756.64		
April 23			03:00	756.64		
			03:10	756.69		
			09:00	756.69		
			12:00	756.69		
			15:00	756.69		
			20:15	756.74		
April 24			08:15	756.89		
			21:00	756.89		
			16:00	756.94		

TABLE 7

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		FLOODWAY ST. MARY'S ROAD BR.			
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
April 24			20:00	756.94		
April 25			08:00	757.09		
	10:10	746.7	10:30	757.34		
	10:10	746.7	10:30	757.34		
			12:00	757.49		
			16:00	757.74		
			20:00	757.84		
April 26			08:30	758.14		
			12:00	758.14		
			15:00	758.14		
			16:00	758.14		
			20:00	758.14		
April 27			08:15	758.24		
	10:00	747.5	10:25	758.44		
			12.20	758.54		
			16:00	758.69		
			20:00	758.84		
April 28			08.20	759.14		
			12:15	759.14		
			16:00	759.14		
			20:00	759.11		
April 29			09:10	759.11		
			12:20	759.11		
			16·00	759.11		
			20:00	759.16		
April 30			08:30	759.26		
			12:00	759.26		
			16·00	759.26		
			20·00	759.26		
May 1			08·00	759.26		

TABLE 7

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		FLOODWAY			
			ST. MARY'S ROAD BR.			
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
May 1			12:00	759.26		
			16:00	759.26		
			20:00	759.26		
			08·15	759.36		
			12:00	759.36		
			16:00	759.36		
			20:00	759.36		
May 3			08:15	759.26		
			12:20	759.26		
			16:00	759.26		
			20.00	759.26		
May 4			08:20	759.26		
			12:20	759.26		
			16:00	759.21		
			20:00	759.21		
May 5	09:15	746.30	08:15	759.21		
			09:30	759.06		
			12:00	558.86		
	16:00	745.80	16:00	758.76		
			20:00	758.60		
May 6			08:15	758.40		
			12:00	--		
			20:00	758.05		
May 7			08·15	757.85		
			12:00	757.85		
			16:00	757.85		
			20:00	757.85		
May 8			08:15	757.65		
			12 00	757.55		
			16:00	757.55		

TABLE 7

INLET CONTROL STRUCTURE OPERATION

RED RIVER FLOODWAY

1969

DATE	GATE SETTING		FLOODWAY			
			ST. MARY'S ROAD BR.			
	TIME	ELEV.	TIME	ELEV.	TIME	ELEV
May 8			20:00	757.55		
May 9	09:30	745.30	08:05	757.35		
			12:00	757.25		
			16:00	757.15		
			20:00	757.15		
May 10			08:00	756.95		
			12:00	756.85		
			16:00	756.80		
May 11			08:00	756.65		
	10:25	744.20	12:00	756.35		
			16:00	756.05		
May 12	09:30	742.60	08:30	755.65		
			No Gauge	--		
			No Gauge	--		
			16:00	754.97		
May 13			08:30	754.77		
			12:00	754.57		
			16:00	754.42		
May 14			08:30	754.17		
	11:30	741.8	12:00	753.87		
			16:00	753.77		
May 15			08:30	753.37		
			12:00	753.27		
			16:00	753.17		
May 16			08:30	752.77		
	09:30	739.6	10:00	752.57		
			11:45	752.07		
			16:00	751.52		
May 17			09:30	750.37		
	12:00	Gates	11:45	750.27		
	fully lowered					

TABLE 8

WATER CONTROL AND CONSERVATION BRANCH
WINNIPEG, MANITOBA

Discharge measurement of Sturgeon Creek at Sturgeon Rd.
for April, 1960.

Date	Area of Section	Mean Velocity	Gauge Height	Discharge
	Sq. ft.	Ft. per sec.	Feet	Sec. ft.
April 10	615.5	2.79	10.27*	1720
11	570.9	2.81	9.75	1603
13	484.2	2.90	9.12	1405
14	438.5	2.76	8.59	1209
15	391.2	2.77	8.22	1082
17	303.2	2.63	7.70	797
18	272.2	2.77	7.47	754
19	263.2	2.31	7.43	608
21	241.9	2.01	6.35	485
23	202.2	2.20		444
24	213.0	1.80	5.03	388
25	194.2	1.84	4.57	339
28	187.7	1.96	4.24	190

* Assumed datum

TABLE 9 (A)

WATER CONTROL AND CONSERVATION BRANCH
WINNIPEG, MANITOBA

Discharge measurements of La Salle R. at LaSalle
for April, 1969 E33-C-2E

Date	Area of Section	Mean Velocity	Gauge Height	Discharge
	Sq. ft.	Ft.per sec.	Feet	Sec. Ft.
April 12	1329	2.26	753.82	3004
13	1476	2.78	755.01	4086
17	1431	2.43	754.35	3483
18	1222	1.86	753.04	2275
19	1031	1.66	751.42	1713
20	954	1.36	750.56	1296
21	902	1.11	750.26	1007
22	874	0.87	749.91	956
23	878	0.62	749.70	540
24	886	0.43	749.66	380
25	912	0.30	749.95	272
28	925	0.84	750.25	763
29	931	0.58	750.20	539

TABLE 9 (B)

WATER CONTROL AND CONSERVATION BRANCH
WINNIPEG, MANITOBA

Discharge measurement of LaSalle R. at Sanford @ PTH #3 Bridge
for April, 1969

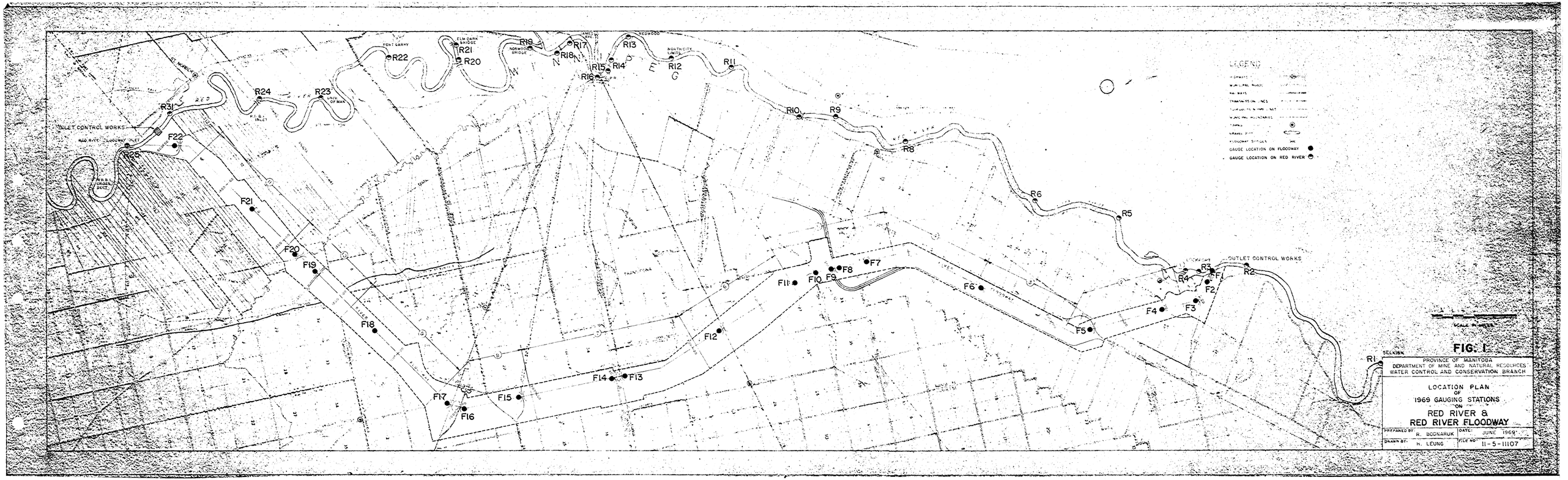
Date	Area of Section	Mean Velocity	Gauge Height	Discharge
	Sq. ft.	Ft. per sec.	Feet	Sec. Ft.
April 14	1257	2.88	17.50	3623
15	1179	2.82	16.86	3328
16	1047	2.76	15.98	2894

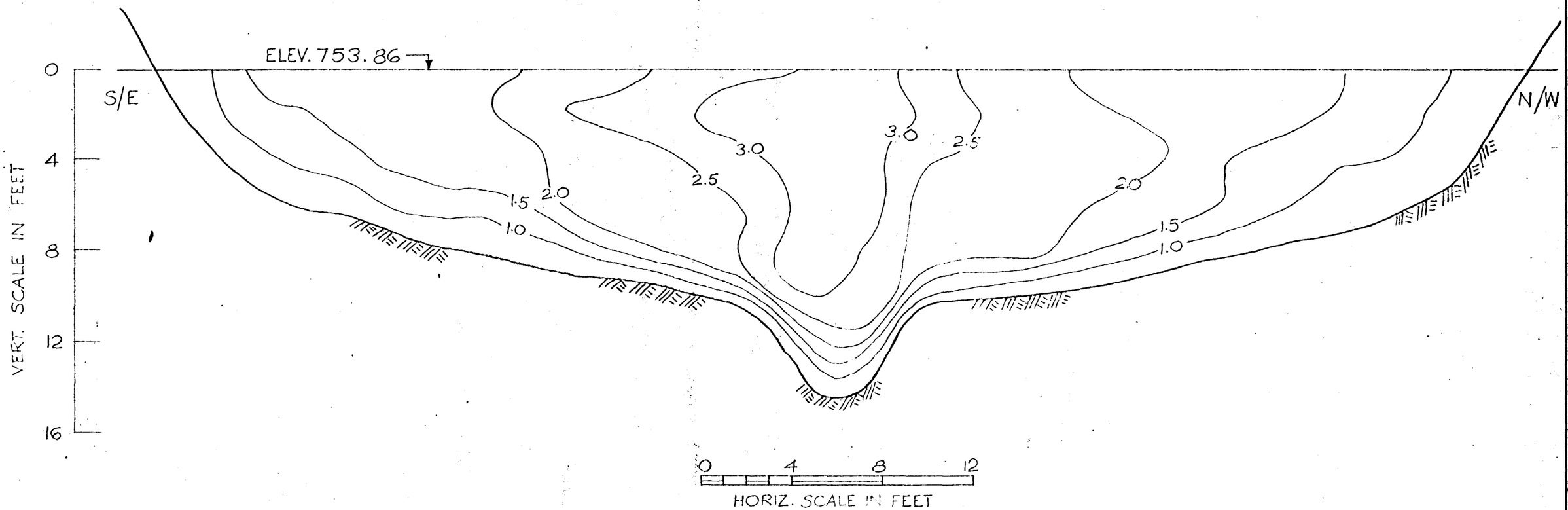
TABLE 10

WATER LEVELS ON SEINE RIVER FOR SPRING OF 1969.

Date	Seine River Water Levels At:	
	Marion Street	Trans Canada Hwy.
April 14	743.5	743.5
15	743.6	743.6
16	744.2	744.2
17	744.1	744.1
18		
19	744.5	744.5
20		
21	744.7	744.7
22		
23	744.8	744.8
24		
25	745.3	745.3
26		
27	745.6	745.6
28		
29	745.5	745.5
30		
May 1	745.6	745.6
2		
3	745.2	745.2
4		
5	744.7	744.7
6		
7	745.1	745.1
8		
9	744.1	744.1
10		
11		

Date	Marion Street	Trans Canada Hwy.
May 12		
13	743.6	743.6
14		
15	743.1	—


LEGEND
GAUGE LOCATION ON FLOODWAY
GAUGE LOCATION ON RED RIVER
INLET CONTROL WORKS
OUTLET CONTROL WORKS
R1
R2
R3
R4
R5
R6
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R31
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
F13
F14
F15
F16
F17
F18
F19
F20
F21
F22
F25
SCALE IN MILES
FIG. 1
PROVINCE OF MANITOBA
DEPARTMENT OF MINE AND NATURAL RESOURCES
WATER CONTROL AND CONSERVATION BRANCH
LOCATION PLAN
OF
1969 GAUGING STATIONS
ON
RED RIVER &
RED RIVER FLOODWAY
PREPARED BY: R. BODNARUK
DRAWN BY: H. LEUNG
DATE: JUNE 1969
FILE NO: 11-5-11107



NOTE:

FOR Q = 9500 C.F.S

ON MAY 13, 1969

AT STA. 1357+81

PROVINCE OF MANITOBA
DEPARTMENT OF MINES AND NATURAL RESOURCES
THE WATER RESOURCES BRANCH

RED RIVER FLOODWAY
VELOCITY DISTRIBUTION
FIG. 2.

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