Canada – Newfoundland
Flood Damage Reduction
Program

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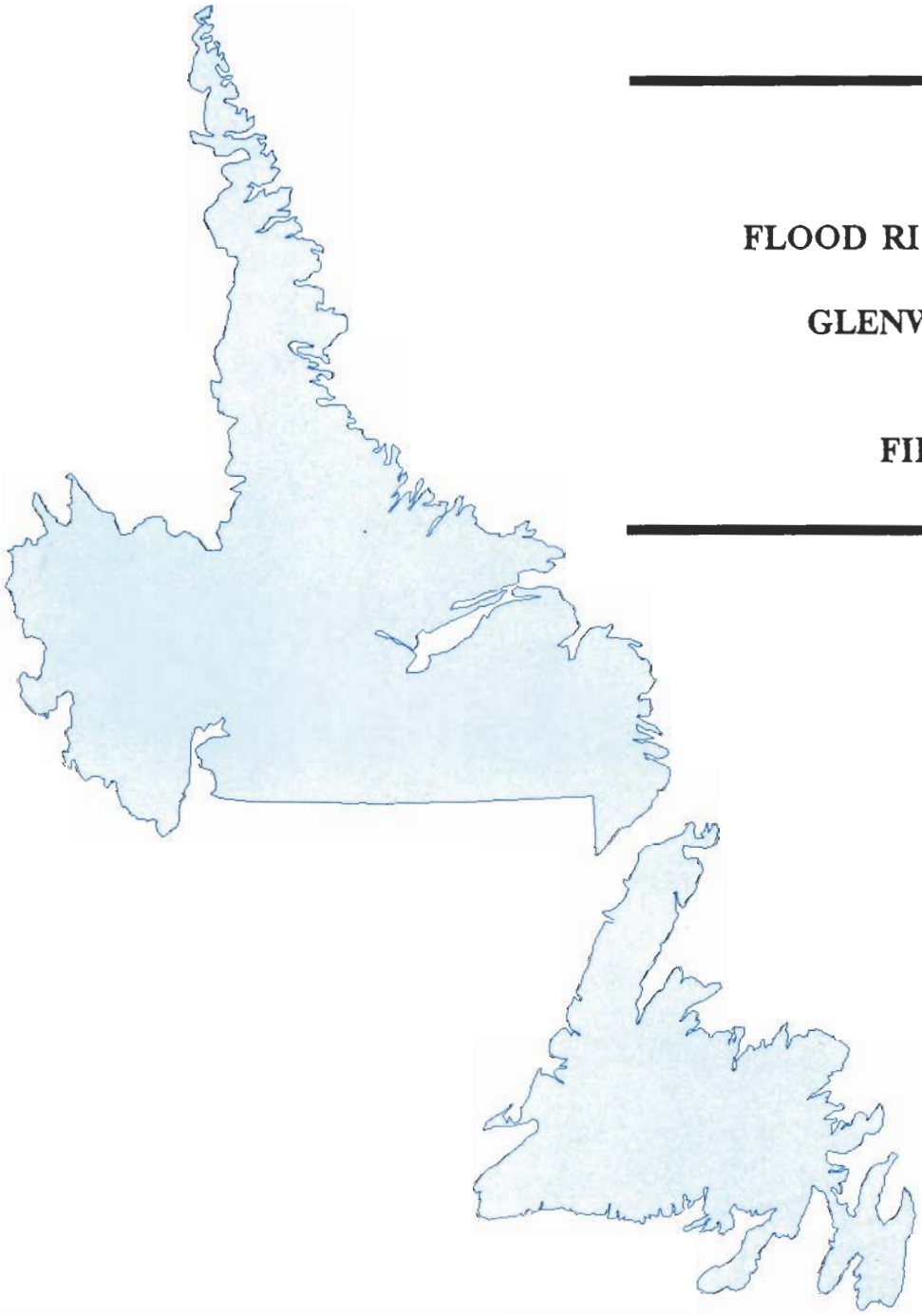

FLOOD RISK MAPPING STUDY

GLENWOOD/APPLETON

FIELD REPORT

ShawMont Newfoundland Limited

Department of Environment and Lands

Environment Canada

CANADA-NEWFOUNDLAND FLOOD
DAMAGE REDUCTION PROGRAM

FLOOD RISK MAPPING STUDY

GLENWOOD/APPLETON

FIELD REPORT

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PART ONE

INTRODUCTION

1.0 INTRODUCTION

1.1 The major purposes of the field program were:

- to obtain an appreciation of site conditions, as these relate to flood problems, and

- to obtain physical measurements for verification and calibration of analytical models.

The scope of work for this program is outlined in the following paragraphs. Details on the work done and data collected are given in Section 2.

1.1.1 Site Inspection

A site inspection visit by R. Picco of the Department of Environment and Lands, P.C. Helwig and H.J. Keats, SNL was carried out on November 14, 1988. The purpose of the visit was to meet municipal authorities, assess site conditions and to select locations for river cross-sections.

1.1.2 Topographic Survey

No cross-sectional data was available for the Glenwood/Appleton section of the Gander River. After a review of aerial photos, discussions with people familiar with this stretch of the river and a walk-over of the site it was decided that ten cross-sections, including sections at the highway and railway bridges were required for mathematically modelling the river. Temporary bench marks were also established at strategic locations along the river

1.1.2 Topographic Survey (Cont'd)

and the main road in Appleton for use in measuring water levels from a possible fall flood. Information on water levels from historic flood was sought from residents of both Glenwood and Appleton.

1.1.3 Interview Survey

During the field program, local officials and residents were approached informally at their residences. They were informed about the purpose of the study and the methods employed. They were also asked to recollect any information on previous floods that would also be a benefit to the study. House to house interview surveys of residents within flood prone areas were then performed to identify high water levels, as well to note resident's observations on the behaviour of the rivers during past flooding events.

1.1.4 Fall Flood Water Level Program

A local resident of the area was engaged by the surveyor as boatman/rodman and was also instructed on marking water levels.

The plan was to measure water levels for a significant fall (or spring) flood, should such an event occur during the life of the study. Unfortunately no significant event occurred, and this option was not implemented.

1.1.5 Other Information

Plans for the Trans Canada Highway and CNR bridges are provided in Appendix I.

1.2 JOB DIARY

November 15

Weather: Sunny, temperature 3°, light winds in the am, winds started to pick up in the afternoon.

Work Done: Completed all of the river sections.

November 16

Weather: Miserable day - rained the whole day with northerly winds and 1° temperatures.

Work Done: Work progressed very slowly due to the weather. Established bench marks at most of the cross-sections on Gander River.

November 17

Weather: Sunny with cold temperatures, light winds.

Work Done: Measured water elevations at rest of cross-sections, picked up most of the historical flood data from the residents of Glenwood. Two more river cross-sections were also done.

November 18

Weather: Miserable day with heavy rain in the morning and cold northerly winds.

Work Done: Obtained the remaining historical flood data in both Glenwood and Appleton. Finished up the field program for Glenwood/Appleton.

PART TWO

FIELD PROGRAM

2.0 FIELD PROGRAM AT GLENWOOD/APPLETON

2.1 SETTING UP

The field program for Glenwood/Appleton was carried out from November 14 to November 18, 1988. The first objective after we had arrived at the site was to do a complete walk-over of the river banks to select optimum locations for river cross-sections. In attendance for the walk-over was a representative of the Department of Environment and Lands, Mr. Robert Picco; the study manager, Mr. Philip Helwig; the surveyor, Mr. Hayward Keats; and a local resident of Appleton, who was familiar with the river, Mr. Danny Stiles. Mr. Stiles was later engaged to serve as a boatman, for the river cross-section survey and as rodman for the water level and historical flood level surveys.

Upon completion of the walk-over, eight cross-sections were located by the study manager. Two additional cross-sections were later requested by the Study Manager, after reviewing the requirements for a HEC-2 model.

Meetings were arranged with the mayors of Appleton and Glenwood, Dr. David Prior and Mrs. Iris Warren, respectively. Both officials were visited at their residences and informed about the purpose of the study. They were also asked for information on past flooding events.

2.2 RIVER CROSS-SECTIONS

A level survey was performed to obtain water elevations at each of the ten cross-sections and to establish temporary bench marks near each cross-section to facilitate a fall

2.2 RIVER CROSS-SECTIONS (Cont'd)

flood level survey. Geodetic bench marks were used for vertical control [a bench marks description and elevation having been obtained form the Department of Crown Lands, surveys division before the field program had begun]. Two bench marks were used, one on the Canadian National Railway bridge, [Monument #50F279K] on the Appleton side, with an elevation of 27.674 m and the other near St. Ann's Church, [Monument #76F395] on the Glenwood side, with an elevation of 31.662 m. The bench mark survey was a complete loop with a closure error of 0.005 m in a traverse distance of 3.8 km, which meets the normal standards for second order level transfer.

Sections 1-5, 7 and 9, were measured using a depth sounder. These sections were initially marked on a 1:2500 scale map during the walk-over and were subsequently relocated and aligned with the advice of the boatman. The boatman controlled alignment by steering towards a series of range poles that were placed on the opposite bank of the river such that they were in the boatman's view at all times.

A Sitex, Model HE203-MK2 depth sounder was used with the transducer securely strapped to the side of the river boat. For traversing the boatman would start as close as possible to the water's edge (typically 1 to 2 meters from shore), and maintain a constant speed and direction. Coordination of this aspect of the work involved close cooperation of boatman and surveyor. Elapsed time, distance travelled and cross-section identification were recorded on the depth sounder tape to facilitate data reduction. Three traverses were made at each section and data reduced each evening. Comparison of the cross-section plots enable a check to be

2.2 RIVER CROSS-SECTIONS (Cont'd)

performed on accuracy of the work. Satisfactory agreement was obtained at all cross-sections. No resurveys were required. Water surface width were measured by stadia. Calibration checks on the depth sounder were made at the start and finish of each day's work. One test was made in shallow water and a second test in deep water, both of known depth. No significant changes in the calibration factor were observed.

Table 2.1 summarizes the bench marks elevations established during the field program. River cross-section data is summarized in Table 2.2 to 2.11, and plotted up to Figure 2.1 to 2.11. Figure 2.12 shows cross-section locates.

Water levels were established at each of the river section from each of the temporary bench marks that were set out during the bench mark transfer survey. Flows measure at Big Chute (2YQ001) remained essentially constant from day to day, as below:

Date	Daily Flow
Nov. 16	107 m^3/s
Nov. 17	109 m^3/s
Nov. 18	117 $m^{3/s}$

2.3 VERIFICATION OF AERIAL PHOTO CONTOURS

Difficulties were encountered in extending cross-section lines, as requested in the Terms of Reference. The main difficulty being necessity of cutting lines across private property. Experience on other ShawMont projects indicated ground contours can be established with the desired accuracy

2.3 VERIFICATION OF AERIAL PHOTO CONTOURS (Cont'd)

(± 0.3 m) by photogrammetric mapping based on low level photography. Accordingly it was decided that the objectives of the Terms of Reference could be achieved if the accuracy of the map contours could be verified allowing on land cross-section to be determined from base mapping contours. Elevations shown on the maps were checked at strategic points as below:

Location	Map Elevation	Field Elevation
Highway Bridge East Abutment	30.4	30.514
Vertical Control Point V-21	30.0	29.924
Vertical Control Point V-1	28.4	28.342

2.4 INTERVIEW SURVEY

During the field survey some of the residents in the flood prone areas were questioned about past flood events. They were asked to indicate to the best of their recollection the height reached by flood waters during the 1983 flood and any other floods that they could remember. These elevations were duly record and used in the calibration of the HEC 2 model.

Data collected in this survey is plotted on base mapping of the study area (in envelope package at end of the report). A collection of photos of the 1983 flood is shown in Figures 2.13 and 2.14.

LIST OF TABLES

TABLE 2.1

BENCH MARK LOCATIONS

B.M. #'s	ELEVATION	REMARKS
BM #1	27.674	Geodetic Bench Mark #50F279K - Appleton
TBM #1	31.164	Top of Hydrant Near Ford Simms House - Appleton
TBM #2	33.934	Top of I-Beam South Entrance - Dave Parrot's Driveway - Appleton
TBM #3	34.474	Spike in Hydro Pole on Salmon River Road - Appleton
TBM #4	31.534	Spike in Guy Pole #4645 Near Lou Marche's Cabin - Appleton
TBM #4.5	30.704	Spike in Guy Pole $4688 Near Maidment's Garage - Appleton
TBM #5	28.564	Top of Concrete Wall at Pumphouse - Appleton
TBM #6	30.744	East Abutment D/S Side of Queen Elizabeth Bridge - Glenwood
TBM #7	30.729	West Abutment D/S Side of Queen Elizabeth Bridge - Glenwood
TBM #8	29.509	Base of Municipal Pump Near Robert Coates - Glenwood
TBM #9	27.129	Top of Rock 30 m From Shore Near Cross-Section 10 - Glenwood
BM #2	31.662	Geodetic Bench Mark #76F395 - Glenwood
TBM #10	28.842	Top of Hydrant Corner of Adams and Main - Glenwood

GLENWOOD / APPLETON FLOOD RISK MAPPING

Section #1
Water level = 25.389
FLOW (M^3/S) = 109

TABLE 2.2

STA.	Elevation (Geodetic)	WATER ELEVATION
0	30.20	
10	29.40	
40	29.40	
50	29.75	
60	29.51	
70	29.25	
80	29.00	
90	29.10	
100	29.10	
110	28.90	
120	28.80	
130	28.75	
140	28.60	
150	28.90	
160	29.30	
170	29.30	
180	28.30	
190	28.00	
200	27.55	
210	27.45	
220	27.30	
230	27.20	
240	27.10	
250	27.00	
260	27.00	
270	26.75	
280	26.50	
290	26.00	
300	25.39	25.389
310	22.08	25.389
320	21.99	25.389
330	21.99	25.389
340	22.17	25.389
350	22.34	25.389
360	22.25	25.389
370	22.08	25.389
380	21.91	25.389
390	21.91	25.389
400	22.34	25.389
410	22.51	25.389
420	22.34	25.389
430	22.43	25.389
440	22.95	25.389
450	23.12	25.389
460	23.30	25.389
470	23.47	25.389
480	23.39	25.389
490	23.39	25.389
500	23.21	25.389
510	22.86	25.389
520	22.78	25.389
530	22.51	25.389
540	22.17	25.389
550	21.64	25.389
560	21.64	25.389
570	21.38	25.389
580	20.95	25.389
590	20.77	25.389
600	20.69	25.389
610	20.69	25.389
620	20.69	25.389
630	20.69	25.389
640	20.60	25.389
650	20.42	25.389
660	20.25	25.389
670	20.34	25.389
680	20.08	25.389
690	19.81	25.389
700	19.73	25.389
710	19.55	25.389
720	19.47	25.389
730	19.47	25.389
740	19.55	25.389
750	19.81	25.389
760	19.73	25.389
770	19.47	25.389
780	19.29	25.389
790	19.47	25.389
800	19.47	25.389
810	19.55	25.389
820	19.73	25.389
830	19.90	25.389
840	20.77	25.389
850	20.77	25.389
860	20.86	25.389
870	21.21	25.389
880	21.73	25.389
890	21.91	25.389
900	22.34	25.389
910	22.43	25.389
920	22.69	25.389
930	22.86	25.389
940	23.04	25.389
950	23.21	25.389
960	25.39	25.389
970	26.50	
980	27.20	
990	27.75	
1000	29.00	
1010	30.20	

Section # 2
Water Level=25.379
FLOW (M^3/S) = 109

TABLE 2.3

STA.	Elevation (Geodetic)	WATER ELEVATION
900	30.00	
890	29.75	
880	29.00	
870	27.50	
860	27.40	
850	28.00	
840	28.50	
830	28.70	
820	28.90	
810	28.50	
800	26.50	
790	26.35	
780	26.20	
770	26.00	
760	24.51	25.379
750	24.42	25.379
740	24.51	25.379
730	23.99	25.379
720	23.55	25.379
710	23.72	25.379
700	23.38	25.379
690	23.11	25.379
680	22.77	25.379
670	22.77	25.379
660	22.68	25.379
650	23.11	25.379
640	23.20	25.379
630	23.38	25.379
620	23.72	25.379
610	23.81	25.379
600	23.72	25.379
590	23.90	25.379
580	24.42	
570	24.40	
560	25.60	
550	25.40	
540	25.75	
530	28.00	
520	28.20	
510	28.20	
500	28.20	
490	27.80	
480	27.70	
470	26.50	
460	25.40	
450	25.00	
440	25.00	
430	27.00	
420	27.20	
410	26.80	
400	26.70	
390	26.60	
380	26.10	
370	26.10	
360	26.10	
350	26.20	
340	26.30	
330	26.40	
320	26.50	
310	26.50	
300	26.60	
290	26.50	
280	26.30	
270	26.10	
260	26.10	
250	26.10	
240	26.10	
230	26.20	
220	26.20	
210	26.20	
200	26.30	
190	26.40	
180	26.60	
170	26.70	
160	26.80	
150	27.00	
140	27.70	
130	28.30	
120	28.60	
110	28.80	
100	29.10	
90	29.10	
80	28.90	
70	29.10	
60	28.60	
50	29.00	
40	29.40	
30	29.50	
20	29.50	
10	29.50	
0	30.50	

Section # 3
Water Level=25.359
FLOW (M^3/S) = 109

TABLE 2.4

STA.	Elevation (Geodetic)	WATER ELEVATION
740	30.50	
730	29.40	
720	28.80	
710	28.50	
700	28.20	
690	27.50	
680	27.00	
670	26.80	
660	26.60	
650	26.20	
640	25.80	
630	25.50	
620	25.20	25.359
610	25.30	25.359
600	24.14	25.359
590	23.62	25.359
580	23.62	25.359
570	23.09	25.359
560	22.83	25.359
550	22.83	25.359
540	22.92	25.359
530	23.09	25.359
520	23.36	25.359
510	23.62	25.359
500	23.79	25.359
490	24.66	25.359
480	25.01	25.359
470	24.90	25.359
460	25.20	25.359
450	25.40	25.359
440	26.00	
430	27.10	
420	27.20	
410	27.00	
400	26.80	
390	26.60	
380	26.40	
370	26.30	
360	26.20	
350	26.35	
340	26.50	
330	26.40	
320	26.40	

STA.	Elevation (Geodetic)	WATER ELEVATION
310	26.70	
300	26.90	
290	27.10	
280	27.40	
270	27.40	
260	27.30	
250	27.40	
240	27.40	
230	27.40	
220	27.40	
210	27.80	
200	28.10	
190	28.10	
180	28.10	
170	28.30	
160	28.10	
150	28.15	
140	28.20	
130	28.25	
120	28.30	
110	28.35	
100	28.40	
90	28.45	
80	28.50	
70	29.00	
60	29.10	
50	29.20	
40	29.40	
30	29.55	
20	29.70	
10	29.90	
0	30.00	

Section # 4
Water Level=25.334
FLOW (M^3/S) = 109

TABLE 2.5

STA.	Elevation (Geodetic)	WATER ELEVATION
660	30.00	
650	29.30	
640	28.90	
630	28.65	
620	28.40	
610	27.90	
600	27.35	
590	26.80	
580	26.30	
570	25.50	
560	24.64	25.334
550	24.29	25.334
540	23.94	25.334
530	23.85	25.334
520	23.77	25.334
510	23.77	25.334
500	23.94	25.334
490	23.94	25.334
480	24.20	25.334
470	24.20	25.334
460	24.20	25.334
450	24.46	25.334
440	25.50	
430	25.60	
420	25.90	
410	26.10	
400	26.60	
390	26.60	
380	26.50	
370	25.50	
360	25.40	
350	25.30	
340	25.60	
330	24.70	
320	24.70	
310	24.70	
300	25.00	
290	25.50	
280	25.50	
270	25.90	
260	26.25	
250	26.70	
240	27.00	
230	27.30	
220	27.50	
210	27.60	
200	27.70	
190	27.80	
180	28.10	
170	28.40	
160	28.10	
150	28.20	
140	28.25	
130	28.30	
120	28.40	
110	28.50	
100	28.70	
90	28.85	
80	29.00	
70	29.15	
60	29.30	
50	29.40	
40	29.50	
30	29.60	
20	29.75	
10	29.85	
0	30.10	

TABLE 2.6

Section # 5
Water Level=24.999
FLOW (M^3/S) = 109

STA.	Elevation (Geodetic)	WATER ELEVATION
570	30.35	
560	29.95	
550	29.60	
540	29.25	
530	29.00	
520	28.75	
510	28.25	
500	27.80	
490	27.50	
480	27.20	
470	26.75	
460	26.00	
450	24.22	24.999
440	23.95	24.999
430	23.78	24.999
420	23.69	24.999
410	23.34	24.999
400	22.91	24.999
390	23.17	24.999
380	23.00	24.999
370	22.73	24.999
360	22.82	24.999
350	23.87	24.999
340	25.00	
330	25.50	
320	25.70	
310	25.50	
300	25.00	
290	23.61	
280	23.26	
270	22.82	
260	22.12	
250	22.47	
240	22.56	
230	23.08	
220	25.00	
210	25.70	
200	26.00	
190	26.60	
180	27.00	
170	27.25	
160	27.40	
150	27.70	
140	27.85	
130	28.25	
120	28.50	
110	28.90	
100	28.60	
90	29.10	
80	29.20	
70	29.20	
60	29.20	
50	29.20	
40	29.00	
30	28.90	
20	29.00	
10	29.00	
0	30.00	

TABLE 2.7

Section # 6
at CN Bridge

Water Level=24.479
FLOW (M^3/S) = 109

STA.	Elevation (Geodetic)	WATER ELEVATION
370	30.05	
360	29.90	
350	29.80	
340	29.70	
330	29.50	
320	29.49	
310	29.47	
300	29.44	
290	29.41	
280	29.38	
270	29.34	
260	29.31	
250	29.28	
240	29.25	
230	29.22	
220	29.19	
210	29.16	
200	29.13	
200	28.03	
199	26.13	
195	25.13	
190	24.03	24.479
185	23.63	24.479
180	23.73	24.479
175	23.73	24.479
170	23.83	24.479
165	24.13	24.479
161	24.48	
161	27.88	
159	27.88	
159	24.38	24.479
155	23.38	24.479
150	23.43	24.479
145	23.38	24.479
140	22.93	24.479
135	22.13	24.479
130	22.88	24.479
125	23.13	24.479
121	24.48	
121	27.88	
119	27.88	
118	24.03	24.479
115	22.63	24.479
110	21.83	24.479
105	22.88	24.479
100	23.63	24.479
95	23.88	24.479
90	24.38	
85	25.53	
81	26.38	
81	28.03	
80	29.13	
70	29.20	
60	29.30	
50	29.40	
40	29.50	
30	29.65	
20	29.75	
10	29.85	
0	30.05	

Section # 7
Water Level=24.224
FLOW (M^3/S) = 109

TABLE 2.3

STA.	Elevation (Geodetic)	WATER ELEVATION
320	30.50	
310	29.00	
300	29.50	
290	29.00	
280	28.90	
270	28.80	
260	28.65	
250	28.60	
240	27.90	
230	27.75	
220	27.60	
210	27.45	
200	26.95	
190	24.25	
180	22.57	24.224
170	22.31	24.224
160	22.05	24.224
150	21.87	24.224
140	21.96	24.224
130	22.05	24.224
120	22.13	24.224
110	23.61	24.224
100	25.70	
90	26.40	
80	26.00	
70	25.00	
60	25.00	
50	27.00	
40	28.10	
30	28.25	
20	28.40	
10	28.75	
0	30.00	

TABLE 2.9

Section # 8
at TCH Bridge

Water Level=24.221
FLOW (M^3/S) = 109

STA.	Elevation (Geodetic)	WATER ELEVATION
128	30.72	
128	25.47	
123	24.52	
118	24.07	24.221
113	23.07	24.221
108	22.22	24.221
103	21.87	24.221
102	22.07	24.221
101	30.98	
99	31.01	
99	22.49	24.221
98	22.62	24.221
93	23.49	24.221
88	23.25	24.221
83	23.32	24.221
78	23.09	24.221
73	23.35	24.221
68	22.92	24.221
66	22.95	24.221
65	31.40	
63	31.39	
63	22.99	24.221
63	22.99	24.221
58	23.35	24.221
53	23.57	24.221
48	23.29	24.221
43	23.35	24.221
38	23.32	24.221
33	22.90	24.221
30	23.51	24.221
29	31.10	
27	31.08	
27	23.75	24.221
23	23.42	24.221
18	23.70	24.221
13	23.99	24.221
8	24.22	24.221
0	24.61	
0	30.71	

Section # 9
Water Level=24.024
FLOW (M^3/S) = 109

TABLE 2.10

STA.	Elevation (Geodetic)	WATER ELEVATION
620	30.25	
610	29.95	
600	29.80	
590	29.70	
580	29.50	
570	29.40	
560	29.25	
550	29.10	
540	28.90	
530	28.85	
520	28.80	
510	28.70	
500	28.60	
490	28.50	
480	28.30	
470	28.15	
460	27.95	
450	27.80	
440	27.70	
430	27.60	
420	27.40	
410	27.25	
400	26.80	
390	26.60	
380	26.25	
370	25.80	
360	25.25	
350	24.02	24.024
340	22.46	24.024
330	22.11	24.024
320	21.59	24.024
310	21.32	24.024
300	20.98	24.024
290	21.15	24.024
280	20.98	24.024
270	21.41	24.024
260	21.67	24.024
250	21.93	24.024
240	22.37	24.024
230	21.67	24.024
220	22.80	24.024
210	24.02	24.024
200	25.75	
190	26.75	
180	27.50	
170	27.50	
160	27.50	
150	28.10	
140	28.60	
130	28.75	
120	29.00	
110	29.00	
100	29.70	
90	29.50	
80	29.60	
70	29.65	
60	29.70	
50	29.75	
40	29.80	
30	29.90	
20	30.00	
10	30.00	
0	30.10	

Section # 10
Water Level=24.024
FLOW (M^3/S) = 109

TABLE 2.11

STA.	Elevation (Geodetic)	WATER ELEVATION
480	30.00	
470	29.60	
460	29.60	
450	29.60	
440	29.60	
430	29.50	
420	29.50	
410	29.40	
400	29.40	
390	29.25	
380	29.10	
370	29.10	
360	29.10	
350	29.00	
340	28.75	
330	28.40	
320	28.25	
310	28.20	
300	28.00	
290	27.75	
280	27.50	
270	26.50	
260	25.00	
250	24.40	
240	24.20	
230	22.02	24.024
220	21.50	24.024
210	21.24	24.024
200	21.24	24.024
190	21.24	24.024
180	21.06	24.024
170	21.32	24.024
160	21.24	24.024
150	22.02	24.024
140	22.28	24.024
130	22.89	24.024
120	23.15	24.024
110	23.59	24.024
100	25.25	
90	25.70	
80	26.50	
70	27.00	
60	27.90	
50	28.90	
40	29.10	
30	29.25	
20	29.40	
10	29.50	
0	30.10	

TABLE 2.12

Section # 11
Water Level=23.5
FLOW (M^3/S) = 109

STA.	Elevation (Geodetic)	WATER ELEVATION
0	30	
250	23.5	23.5
276	22.7	23.5
310	22.7	23.5
335	23.5	23.5
425	30	

LIST OF FIGURES

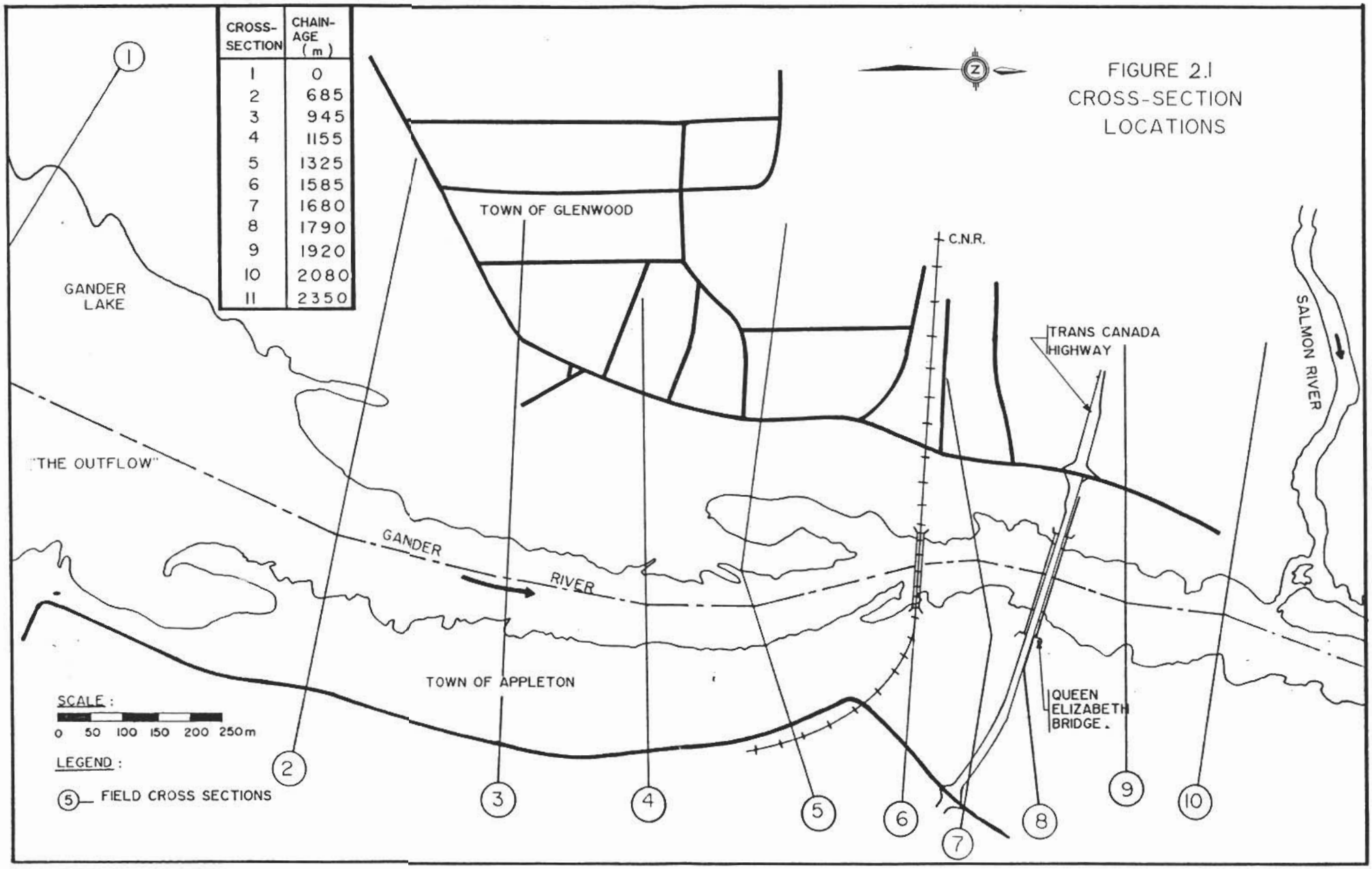
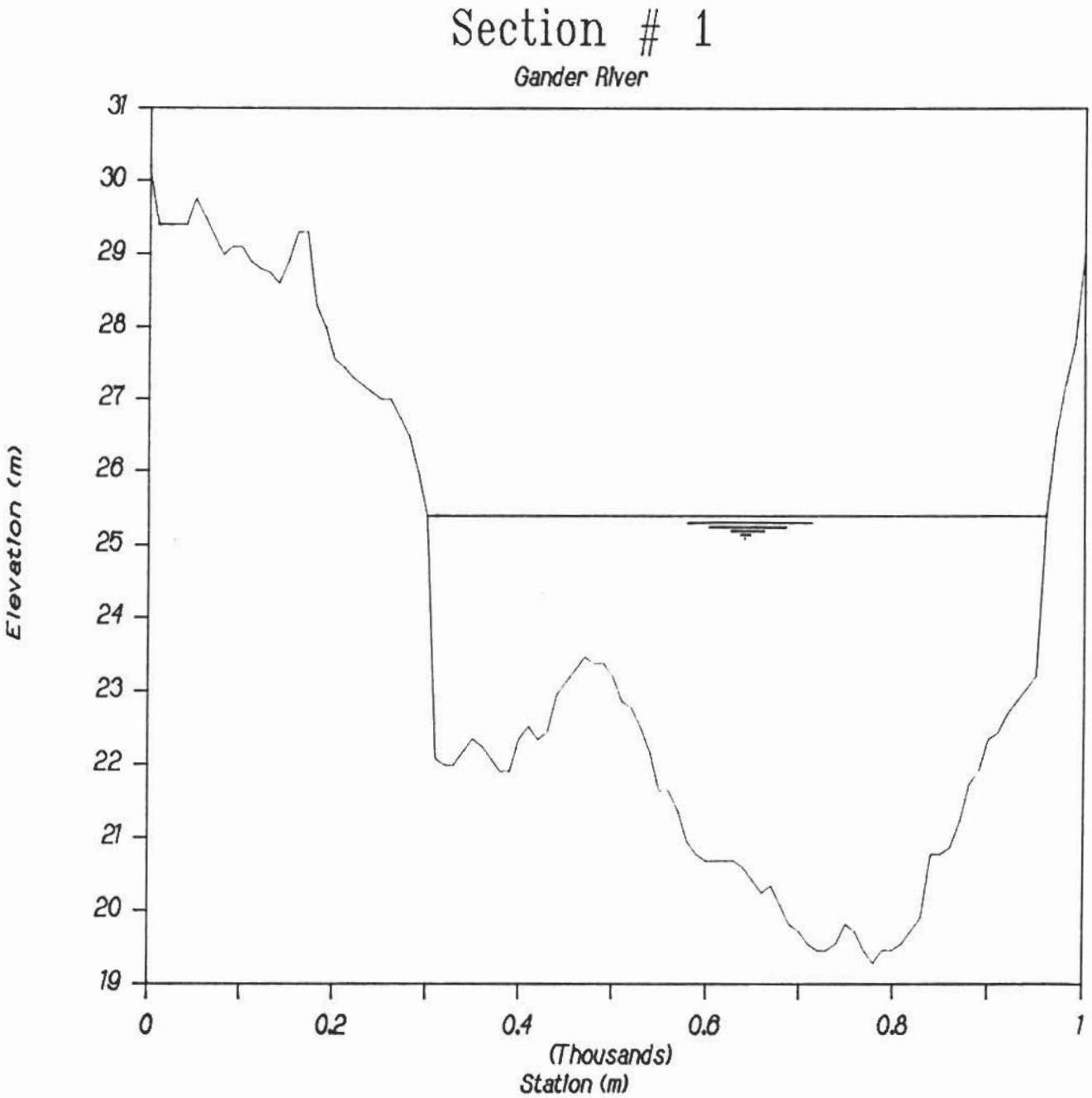


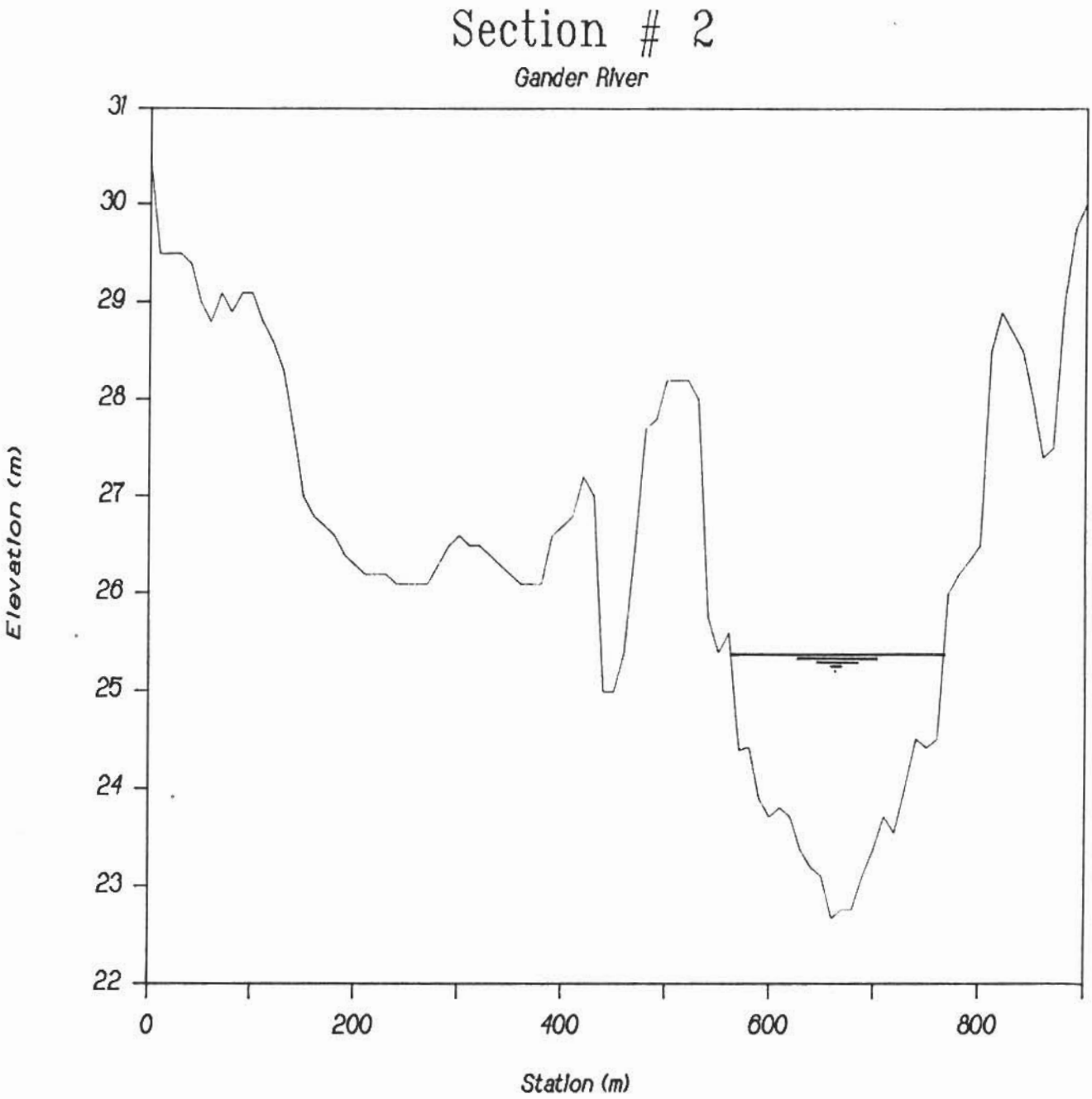
FIGURE 2.1
CROSS-SECTION
LOCATIONS



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

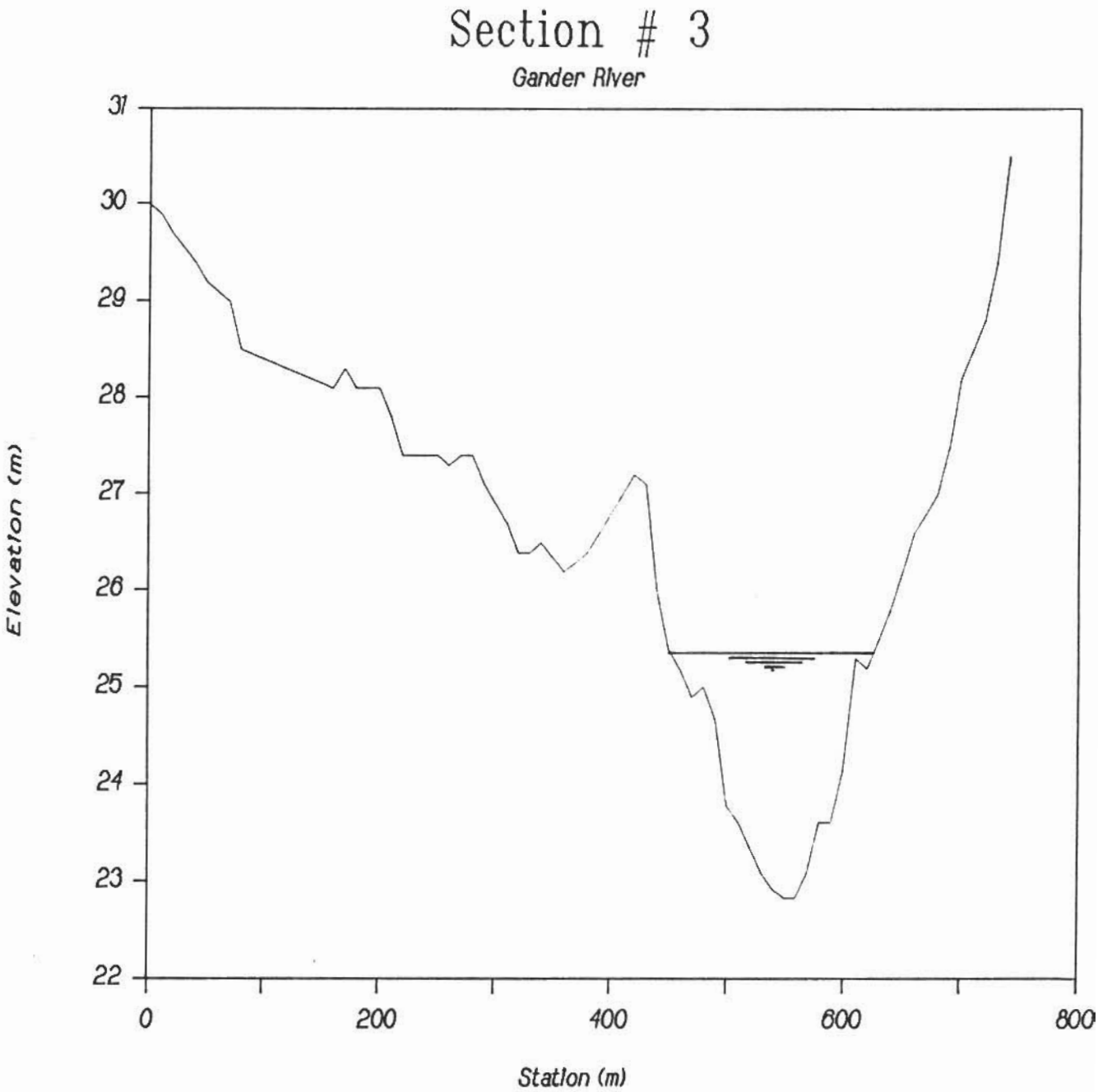
FIGURE 2.2



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

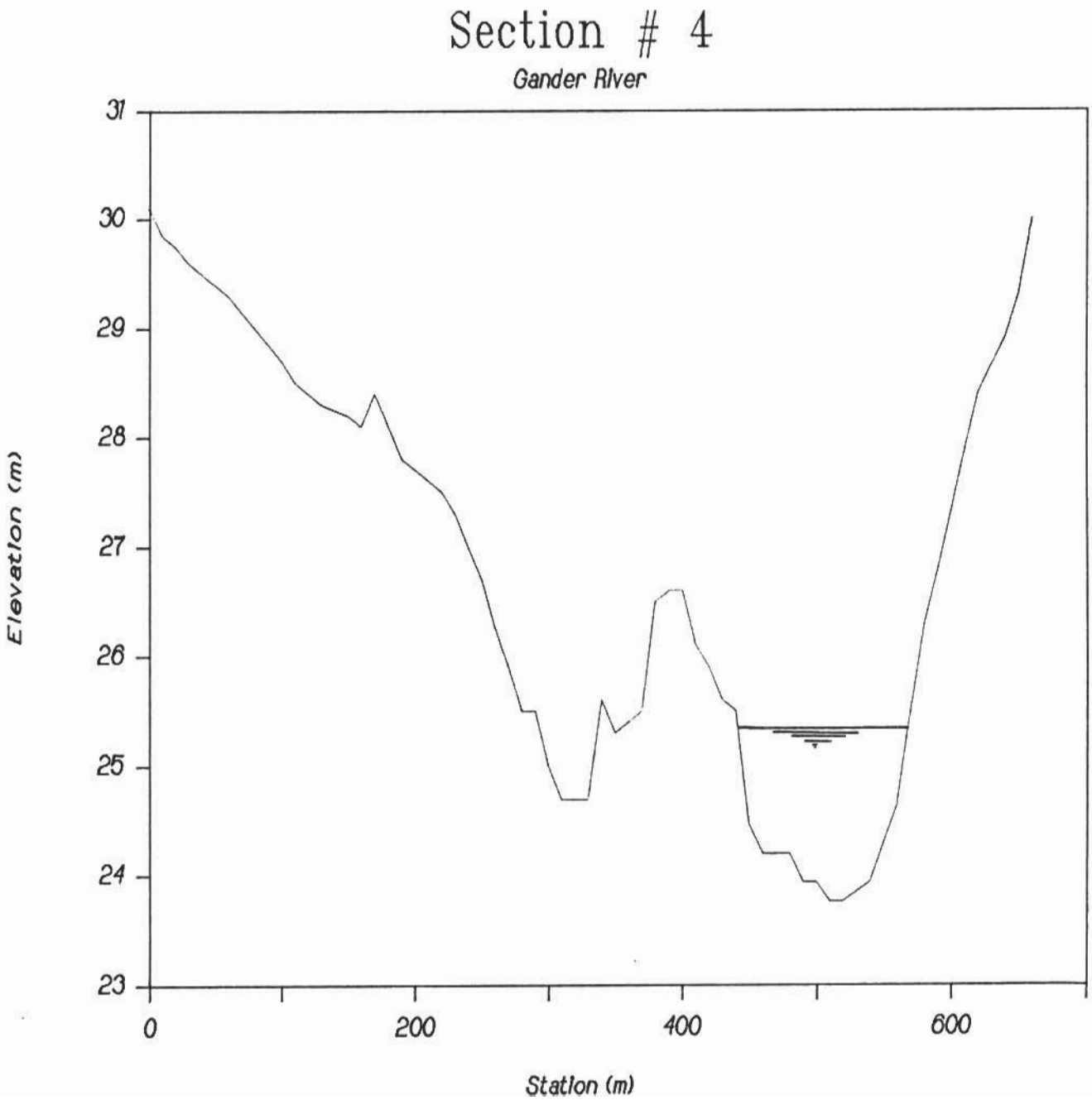
FIGURE 2.3



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

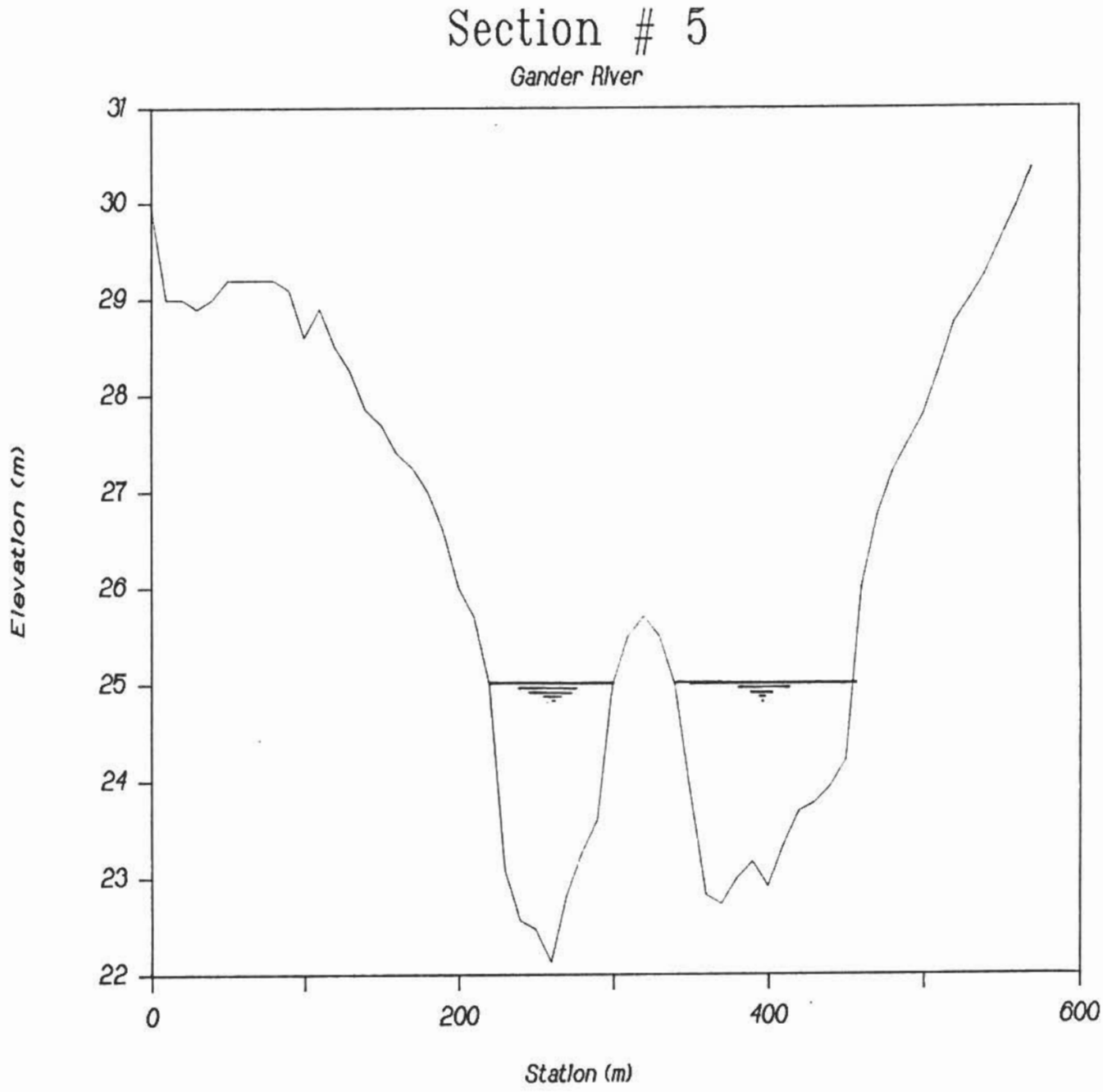
FIGURE 2.4



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

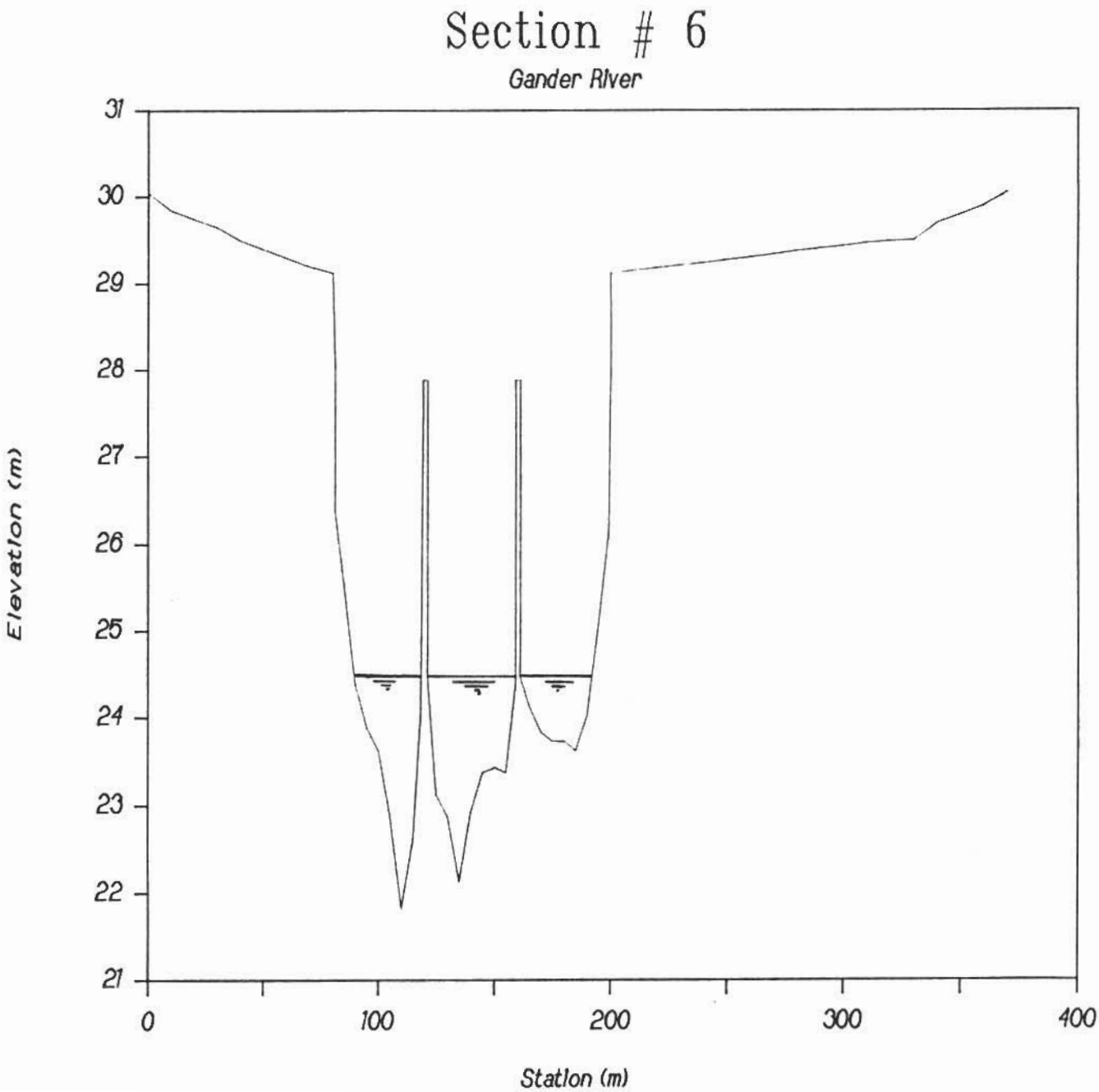
FIGURE 2.5



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

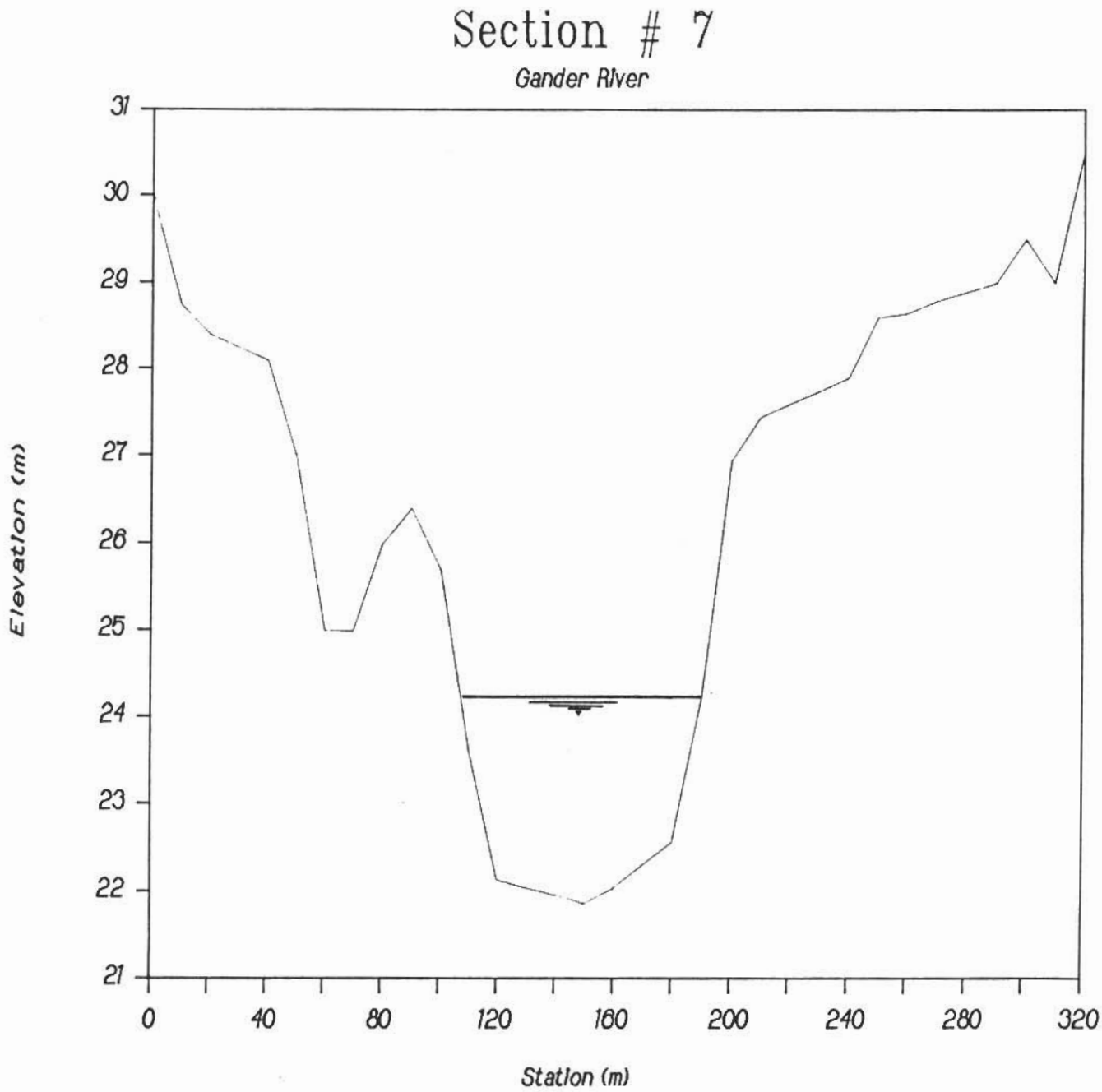
FIGURE 2.6



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

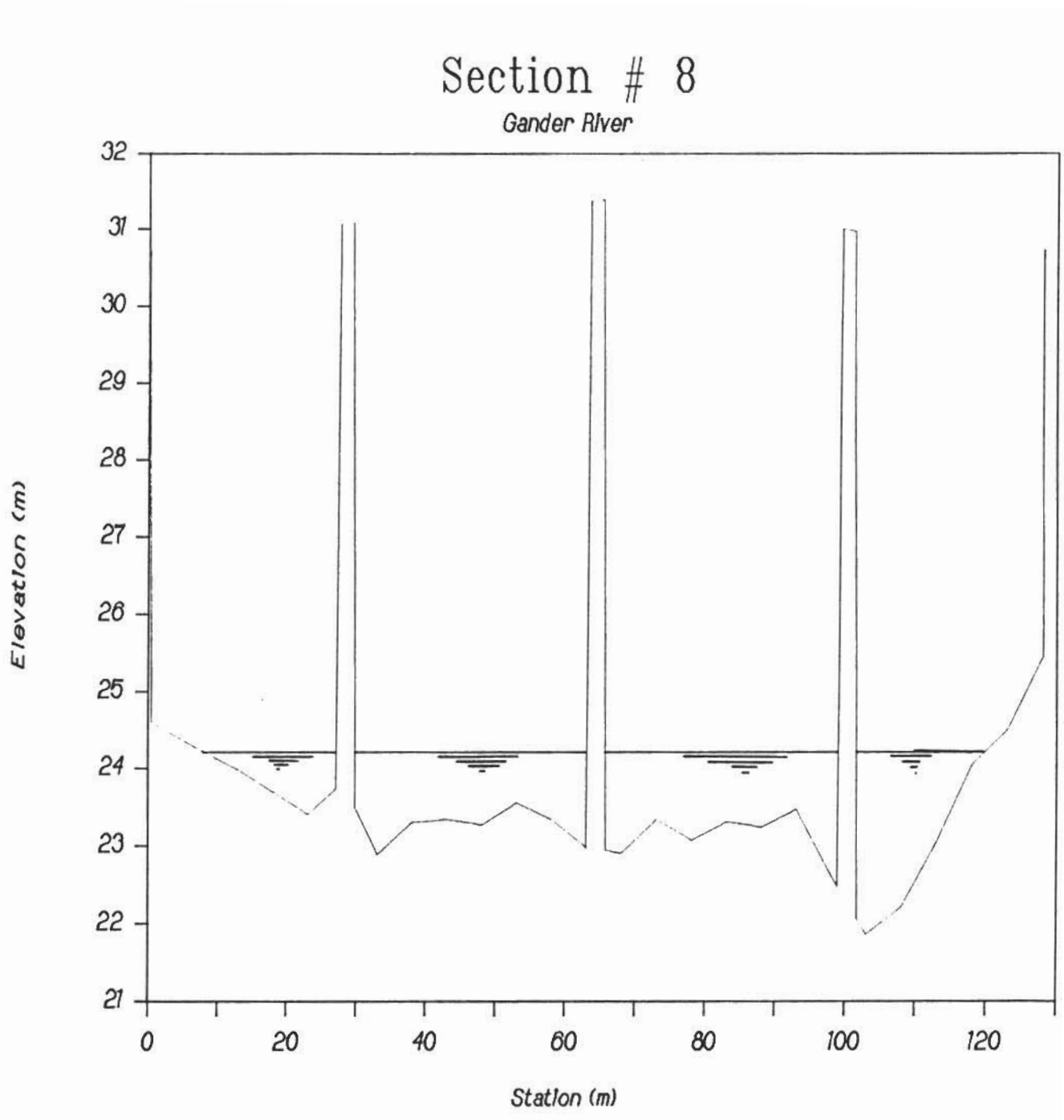
FIGURE 2.7



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

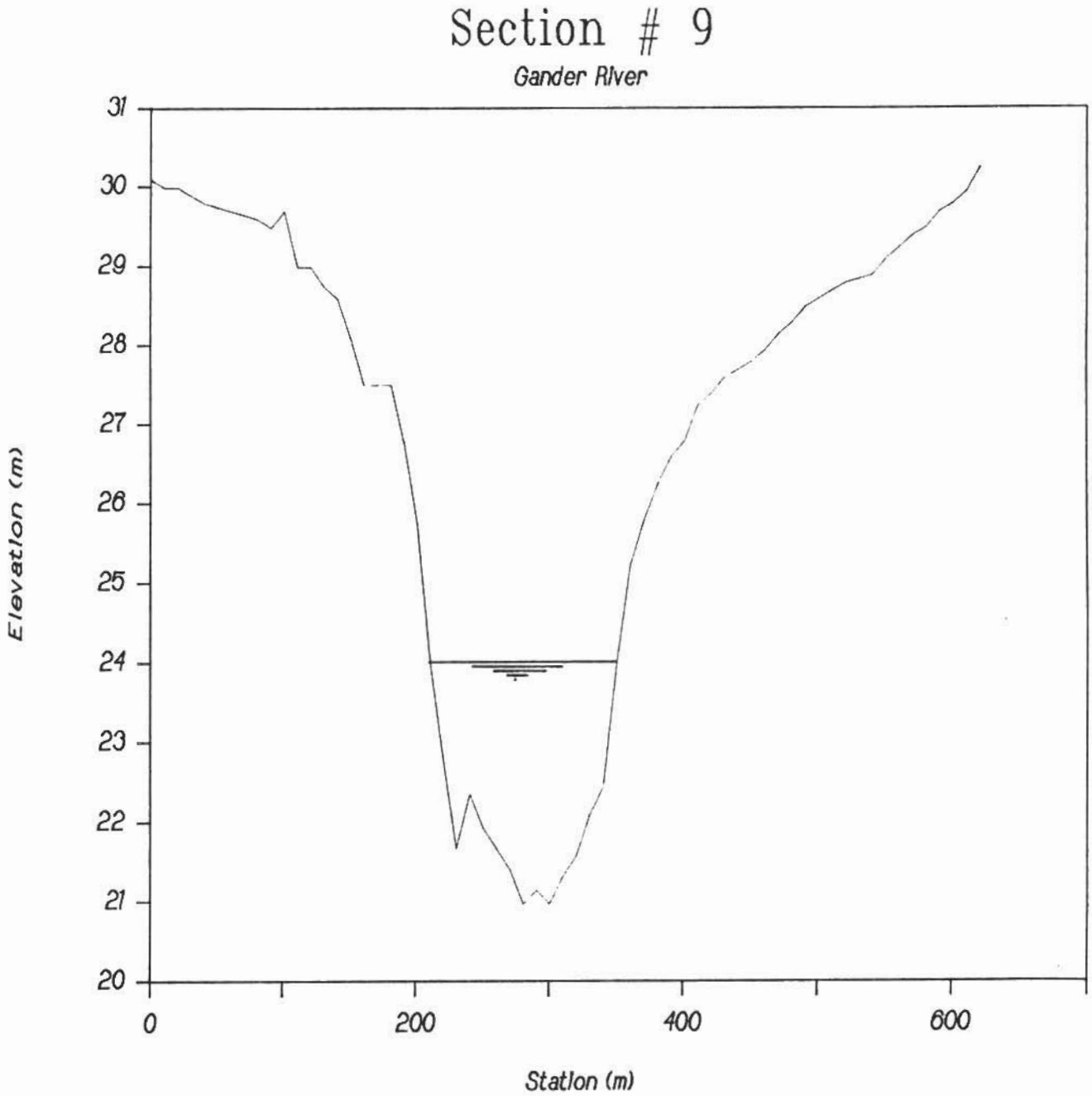
FIGURE 2.8



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

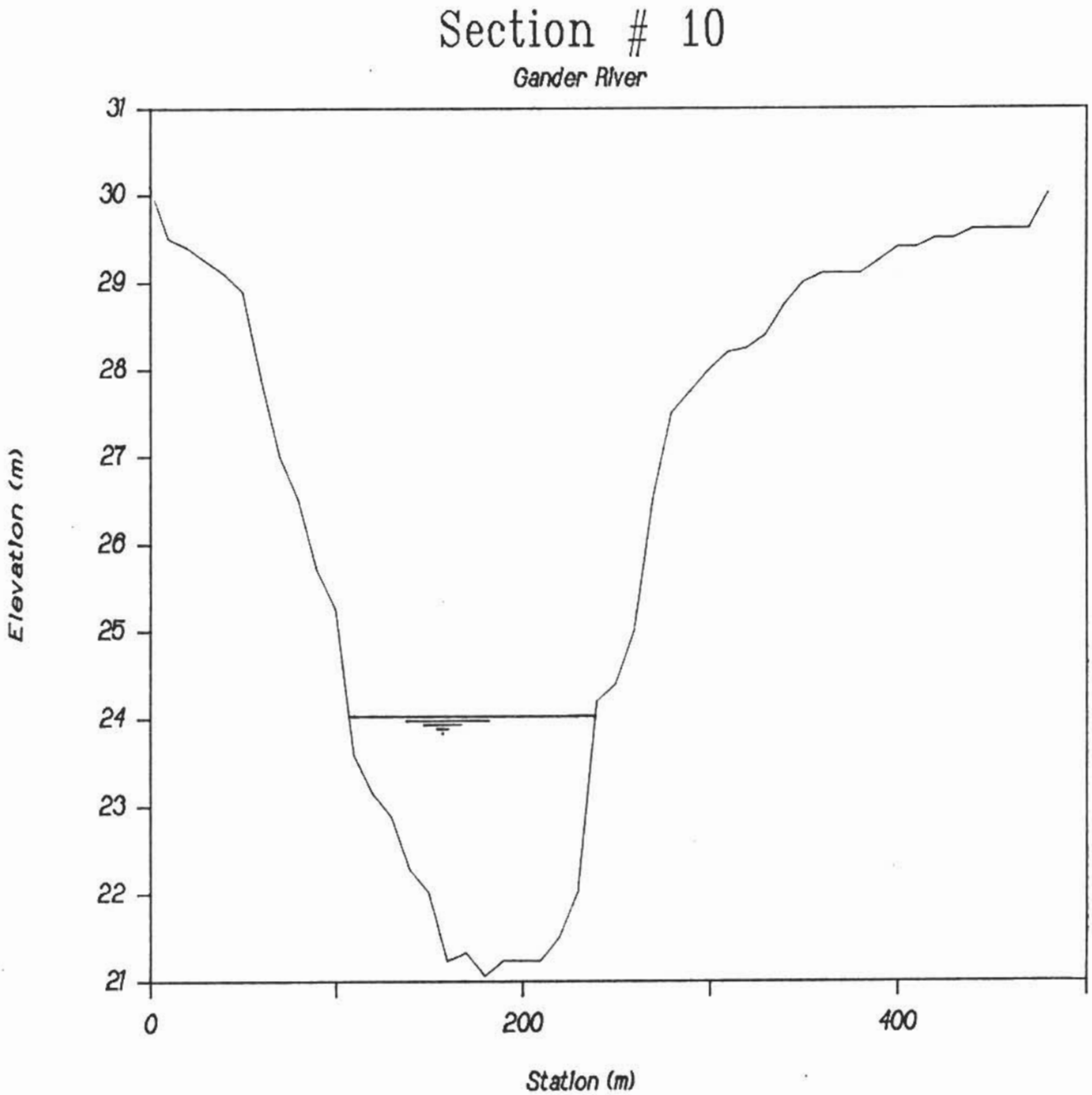
FIGURE 2.9



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

FIGURE 2.10



Notes:

1. Elevations are geodetic
2. Cross-sections are plotted looking downstream
3. Water levels at time of survey

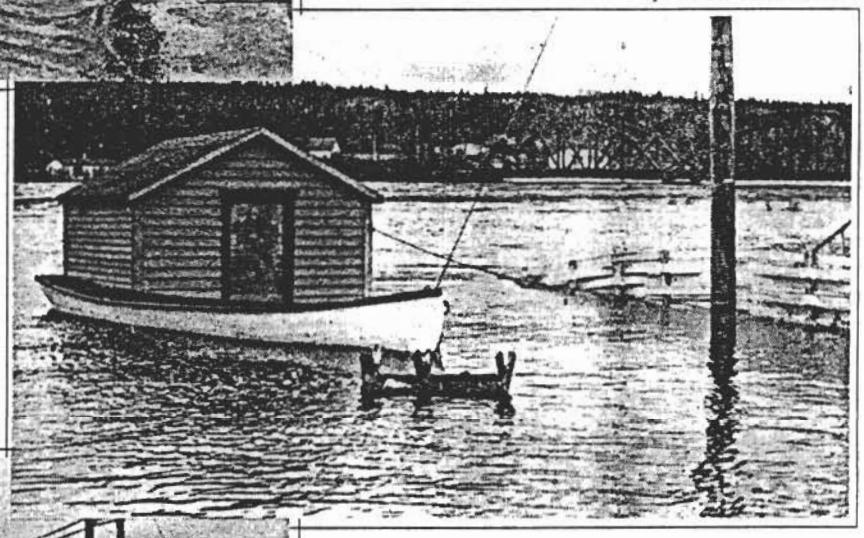
FIGURE 2.11

The Flood of 1983

THE residents of Glenwood were taken by surprise on January 14, 1983, when they awoke to find Gander Lake approximately eleven feet above its normal level. The following photos speak for themselves.

Elam Gillingham pulls his boat along Main Street.

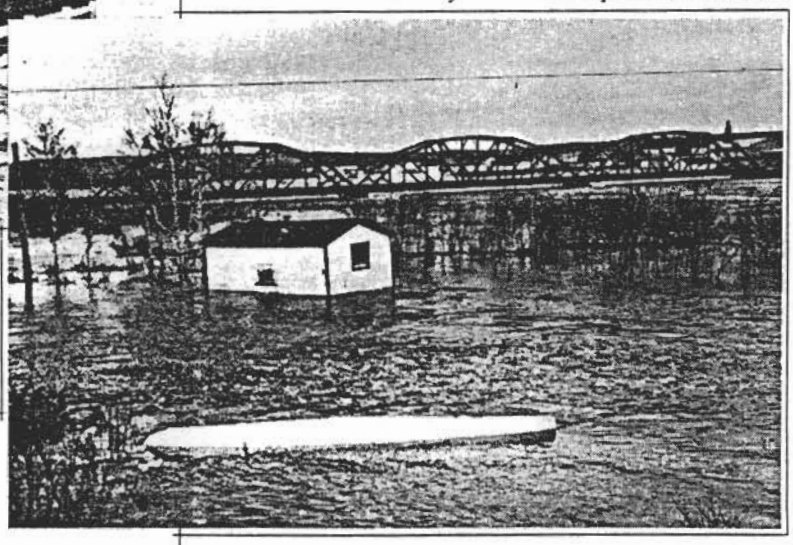
Why not tie the riverboat up to the woodshed?



Main Street

Saunders Garage and James Johnson's house. Note living room window and garage door.

Railway trestle at the peak of the flood.



Below the railway 'Y' on Kelly's Lane.

Queen Elizabeth Bridge at the peak of flood waters.