

GC1g16

43, 1937

UNIVERSITY OF LONDON
W.C.1.

In the University Council.

INSTITUTE OF ADVANCED
LEGAL STUDIES

No. 72 of 1936.

VOL. 6

CANADIAN
LAW
LIBRARY

ON APPEAL

FROM THE COURT OF KING'S BENCH FOR THE
PROVINCE OF QUEBEC

BETWEEN

WILLIAM I. BISHOP LIMITED and
THE BANK OF MONTREAL

(Plaintiffs and Cross-Appellants before Court of
King's Bench) *Appellants*

AND

THE JAMES MACLAREN COMPANY LIMITED

(Defendant and Cross-Respondent before Court of
King's Bench) *Respondent*

RECORD OF PROCEEDINGS.

VOLUME 6.—EXHIBITS AND JUDGMENT OF SUPERIOR COURT.

BLAKE & REDDEN,

17, Victoria Street, S.W.1,

For the Appellants.

CHARLES RUSSELL & CO.,

37, Norfolk Street,

Strand, W.C.2,

For the Respondent.

INDEX

VOLUME I

Vol. I

PART I — PLEADINGS

Plaintiff's Declaration	4th Dec. 1930	2
Particulars furnished by Plaintiff pursuant to Judgment of Court of King's Bench on Defendant's motion for particulars	1st Sept. 1931 ..	19
Defendant's Plea	16th Sept. 1931	22
Plaintiff's answer to Defendant's Plea	26th Nov. 1931 ..	37
Reply of Defendant to answer to Plea	3rd Dec. 1931 ..	41

PART II — WITNESSES

PLAINTIFF'S EVIDENCE

Deposition of Thomas F. Kenny,—		
Examination in chief	15th Feb'y. 1933	42
Cross-examination		47
Deposition of Daniel W. O'Shea,—		
Examination in chief	15th Feb'y. 1933	49
Cross-examination		52

Deposition of William I. Bishop,—

Examination in chief	15th Feb'y. 1933	54
“ “ “	16th “ 1933	84
Cross-examination		123

Deposition of Adhemar Mailhiot,—

Examination in chief	16th Feb'y. 1933	137
Cross-examination		139
Re-examination		144
Re-cross examination		145

Deposition of William I. Bishop, (continued)—

Cross-examination	17th Feb'y. 1933	147
Re-examination		162

Deposition of Alan B. McEwen,—

Examination in chief	17th Feb'y. 1933	168
Cross-examination		185
Re-examination		209

Deposition of John McGurn,—

Examination in chief	20th Feb'y. 1933	210
Cross-examination		215

— III —

VOLUME II

PLAINTIFF'S EVIDENCE (continued)

Vol. II

Deposition of Harry A. Lindskog,—

Examination in chief 20th Feb'y. 1933 218

Deposition of William I. Bishop, (recalled)—

Cross-examination 21st Feb'y. 1933 264

Deposition of Harry E. Lindskog,—

Examination in chief 21st Feb'y. 1933 266

Cross-examination 267

Re-examination for Plaintiff 308

Re-examination for Defendant 316

Deposition of James J. Steele,—

Examination in chief 21st Feb'y. 1933 322

Cross-examination 332

Re-examination 337

Deposition of Marshall C. Small,—

Examination in chief 22nd Feb'y. 1933 338

Cross-examination 349

— IV —

Vol. II

Deposition of John C. Reiffenstein,—

Examination in chief	22nd Feb'y. 1933	354
Cross-examination		387
“ “	23rd Feb'y. 1933	403
Re-examination		409

Deposition of Daniel W. O'Shea, (recalled)—

Examination in chief	23rd Feb'y. 1933	412
Cross-examination		421

VOLUME III

PLAINTIFF'S EVIDENCE (continued)

Vol. III

Deposition of Henry G. Acers,—

Examination in chief	23rd Feb'y. 1933	424
Cross-examination		438

Deposition of Thomas F. Kenny, (recalled)—

Examination in chief	23rd Feb'y. 1933	440
----------------------------	------------------	-----

Deposition of Henry Crawford Griffith,—

Examination in chief	23rd Feb'y. 1933	442
----------------------------	------------------	-----

Deposition of Henry Crawford Griffith, (recalled)—

Examination in chief	15th March 1933	458
Cross-examination		477

DEFENDANT'S EVIDENCE

Deposition of Daniel W. O'Shea,—

Examination in chief	27th Feb'y. 1933	498
Cross-examination		541
“ “	28th Feb'y 1933	553
Re-examination		572
Re-cross examination		583

Deposition of Stanley C. Stratton,—

Examination in chief	28th Feb'y. 1933	584
Cross-examination		590
Re-examination		614

Deposition of John C. McIntosh,—

Examination in chief	6th March 1933	616
Cross-examination		646
Re-examination		669

VOLUME IV

DEFENDANT'S EVIDENCE (continued)

Deposition of Hardy S. Ferguson,—

Examination in chief	7th March 1933	671
Cross-examination		694
Re-examination		728

Déposition de Lorenzo Larocque,—

Examen en chef	8 Mars 1933	731
Contre-interrogé		733

Déposition de Pierre Bergeron,—

Examen en chef	8 Mars 1933	737
Contre-interrogé		744

Deposition of John Boyd,—

Examination in chief	8th March 1933	760
Cross-examination		774
Re-examination		803
Re-cross examination		804

Deposition of John E. McCabe,—

Examination in chief	8th March 1933	807
Cross-examination		808

Deposition of Alfred Gingras,—

Examination in chief	9th March 1933	810
Cross-examination		812
Re-examination		814

Deposition of William T. Owens,—

Examination in chief	9th March 1933	814
Cross-examination		816

Deposition of Joseph Skerl,—

Examination in chief	9th March 1933	817
Cross-examination		822

Deposition of Daniel W. Jamer,—

Examination in chief	9th March 1933	829
Cross-examination		833
Re-examination		838

Deposition of John T. Coyle,—

Examination in chief	9th March 1933	838
Cross-examination		845

Deposition of Richard E. C. Chadwick,—

Examination in chief	9th March 1933	848
Cross-examination		859
Re-examination		867

Déposition de Jean C. Chagnon,—

Examen en chef	9 Mars 1933	873
“ “ “	10 Mars 1933	882
Contre-interrogé		883

VOLUME V

DEFENDANT'S EVIDENCE (continued)

	Vol. V
Déposition de Louis Adrien Dubreuil,—	
Examen en chef .....10 Mars 1933	889
Contre-interrogé	896
Déposition de Olivier Lefebvre,—	
Examen en chef .....10 Mars 1933	906
Contre-interrogé	911
Deposition of Thomas F. Kenny,—	
Examination in chief .....10th March 1933	916
Cross-examination	926
Re-examination	934
Deposition of L. A. Dubreuil (recalled)—	
Examination in chief .....10th March 1933	934
Cross-examination	935
Deposition of Thomas F. Kenny, (recalled)—	
Examination in chief .....11th March 1933	936
Cross-examination	936
Re-examination	939

Deposition of John L. Allison, (recalled)—

Examination in chief14th March 1933 1008

Cross-examination 1010

Deposition of John C. Reiffenstein, (recalled)—

Examination in chief14th March 1933 1013

Deposition of William I. Bishop,—

Examination in chief14th March 1933 1014

Cross-examination 1018

Deposition of Nicholas J. Kayser,—

Examination in chief14th March 1933 1018

Cross-examination 1025

Deposition of George C. Clarke,—

Examination in chief14th March 1933 1030

Cross-examination 1033

Deposition of Henry G. Acers,—

Examination in chief14th March 1933 1035

Deposition of Harry Lindskog, (recalled)—

Examination in chief15th March 1933 1037

Cross-examination 1038

Deposition of William I. Bishop, (recalled)—

Examination in chief	15th March 1933	1041
Cross-examination		1042
Re-examination		1043

Deposition of Harry Lindskog, (recalled)—

Examination in chief	16th March 1933	1044
Cross-examination		1044

DEFENDANT'S EVIDENCE IN SUR-REBUTTAL

Deposition of John C. McIntosh,—

Examination in chief	16th March 1933	1045
----------------------------	-----------------	------

VOLUME VI

PART III — EXHIBITS

PLAINTIFF'S EXHIBITS WITH RETURN

P-1.—Letter from Defendant	15th Nov. 1928	1065
P-2.—Original Contract, together with plans (see Book of Plans)	23rd May 1929	1085
P-3.—Copy of letter from Plaintiff to Hardy S. Ferguson	22nd Feby 1929	1080
P-4.—Copy of letter from Plaintiff to Defendant, with report attached	20th June 1929	1133
P-5.—Copy of letter from Plaintiff to Defendant	25th June 1929	1137

- P-6.—Original letter with memorandum attached from Defendant's resident Engineer2nd Oct. 1929 .. 1146
- P-7.—Copy of memorandum made by Plaintiff 1st & 2nd Oct. 1929 .. 1147
- P-8.—Copy of letter from Plaintiff to Defendant's Engineer20th June 1929 1135
- P-9.—Copy of letter from Plaintiff to Defendant's resident Engineer ...22nd Aug. 1929 1143
- P-10.—Copy of letter from Plaintiff's to Defendant's Engineer17th March 1930 1225
- P-11.—Draft Agreement and Submissions with copy of letter dated December 9th 1929, forwarding same and addressed by Plaintiff's Attorneys to Defendant's Attorneys9th Dec. 1929 .. 1161
- P-12.—Original letter from Defendant's Attorneys acknowledging receipt of documents contained in exhibit P-1112th Dec. 1929 .. 1173
- P-13.—Copy of letter from Plaintiff's Attorneys to Defendant's Attorneys 6th Jan. 1930 .. 1210
- P-14.—Original letter from Defendant's Attorneys7th Jan. 1930 .. 1211
- P-15.—Copy of letter from Plaintiff's Attorneys to Defendant's Attorneys 21st Feb'y. 1930 1212
- P-16.—Original letter from Defendant's Attorneys to Plaintiff's Attorneys 28th Feb'y. 1930 1213
- P-17.—Copy of letter from Plaintiff's Attorneys to Defendant's Attorneys 1st March 1930 1223
- P-18.—Copy of Notification from Plaintiff to Defendant6th Nov. 1930 .. 1233

- P-19.—Original of Statement made by
Plaintiff registered under date ...26th June 1930 1227
- P-20.—Copy of Notification of registra-
tion of Statement as to privi-
lege28th June 1930 1231

PLAINTIFF'S EXHIBIT WITH PARTICULARS

- P-21.—Copy of letter from Plaintiff, Wil-
liam I. Bishop Limited, to Hardy
S. Ferguson21st Nov. 1928 .. 1068

PLAINTIFF'S EXHIBITS AT ENQUETE

- P-25.—List of equipment on Job8th Feb. 1933 .. 1235
- P-28.—Letter from Mr. Ferguson to Mac-
Laren Company28th Nov. 1928 1069
- P-29.—Letter from William I. Bishop
Limited to Hardy S. Ferguson ...8th April 1929 .. 1083
- P-30.—Letter from Hardy S. Ferguson to
William I. Bishop Limited11th April 1929 1084
- P-31.—Letter from Mr. Lindskog to Mr.
O'Shea30th July 1929 .. 1139
- P-32.—Letter from James MacLaren Com-
pany Ltd. to William I. Bishop
Ltd.3rd Aug. 1929 .. 1140
- P-33.—Letter from William I. Bishop
Ltd. to Mr. R. M. Kenny13th Aug. 1929 .. 1141
- P-34.—Letter from James MacLaren Com-
pany Ltd. to William I. Bishop
Ltd.21st Aug. 1929 .. 1141
- P-35.—Letter from James MacLaren Com-
pany Ltd. to William I. Bishop
Ltd.21st Aug. 1929 .. 1142

— XIV —

Vol. VI

- P-36.—Letter from Mr. Lindskog to James
MacLaren Company Ltd.23rd Aug. 1929 1144
- P-40.—List of visits by Bishop to works
from 1928 1079
- P-41.—Telegram from William I. Bishop
to Hardy S. Ferguson26th Sept. 1929 1145
- P-42.—Copy of letter from William I.
Bishop to Hardy S. Ferguson4th Oct. 1929 .. 1150
- P-43.—Copy of letter from William I.
Bishop Ltd. to H. S. Ferguson17th Oct. 1929 .. 1155
- P-44.—Letter from D. W. O'Shea to Wil-
liam I. Bishop Ltd.8th Oct. 1929 1154
- P-45.—Copy of letter from William I.
Bishop Ltd. to H. S. Ferguson ... 17th Oct. 1929.. 1158
- P-46.—Letter from D. W. O'Shea to Wil-
liam I. Bishop Ltd.18th Oct. 1929 .. 1159
- P-47.—Copy of letter from William I.
Bishop to H. S. Ferguson 23rd Nov. 1929 .. 1160
- P-48.—Copy of letter from William I.
Bishop to H. S. Ferguson16th Dec. 1929 .. 1174
- P-49.—Statement additional cost of work
under winter conditions14th Feb. 1933 .. 1240
- P-50.—Letter from Mr. O'Shea to William
I. Bishop Ltd.7th July 1929 .. 1138
- P-51.—Letter from D. W. O'Shea to Wil-
liam I. Bishop Ltd.27th March 1930 1226
- P-56.—Original letter of tender29th July 1928 1063
- P-57.—Final letter of tender10th Aug. 1928 1064
- P-58.—Memo of extracts from diary of
Mr. McEwen from July 1928 1072

P-66.—Statement of experience of H. E. Lindskog from	1905	1051
P-102.—Summary of professional qualifications of witness Acers from	1903	1047
P-114.—Calculation of witness Bishop re-cost of bringing steam-shovel to Cedar from	1928	1057
P-115.—Estimate of cost of digging 12,395 yards hardpan	13th March 1933	1247
P-116.—General Statement of amounts charged for labor and material, taken from semi-monthly payrolls and vouchers from	1929	1177
P-117.—Statement showing charge of \$8,811.15; standby and over-head expenses plant rental on equipment for cofferdams and unwatering	5th March 1933	1242
P-118.—Certificate No. 17 for February 1930, with respect to unwatering and showing amount of work done to that date appears to be credited at \$60,000.00 and in by-pass at \$15,000.00 from	Feb. 1930	1214
P-119.—List of amounts extracted from various estimates	29th Sept. 1930	1232
P-120.—Calculations of W. I. Bishop as to cost of forms, etc.	7th March 1933	1247

DEFENDANT'S EXHIBITS WITH PLEA

D-1.—Copy of letter from Hardy S. Ferguson to Plaintiff William I. Bishop Limited	22nd March 1929	1081
D-2.—Copy of letter from Defendant to said Plaintiff	21st June 1929	1136

D-3.—Copy of letter from H. S. Ferguson
to said Plaintiff7th Oct. 1929 .. 1151

DEFENDANT'S EXHIBITS AT ENQUETE

D-6.—Explanatory Statement21st Feby. 1933 1241

D-7.—Original note of witness O'Shea,
and certified transcript of same ...31st May 1928 .. 1060

D-8.—Statement of experience of witness
D. W. O'Shea from 1915 1055

D-30.—Copy of letter from Mr. O'Shea to
Bishop Company, in connection
with pouring of concrete without
plums instead of concrete with
plums9th March 1930 1224

D-31.—List of qualifications of witness
John C. McIntosh from 1918 1057

D-32.—Statement showing dates orange-
peel delayed on account of break
downs from Nov. 1928 1078

D-35.—Statement of experience of Hardy
S. Ferguson from 1889 1046

D-36.—Statement of experience of witness
John A. Boyd from 1908 1054

D-37.—Statement of experience and train-
ing of witness R. E. Chadwick
from 1906 1052

D-44.—Statement giving dates at which
various items of work were begun
and completed, filed by witness Mc-
Intosh from 1929 1175

PART IV — JUDGMENT

Judgment of The Superior Court rendered
by the Honourable Mr. Justice Chas. D.
White, the first day of June one thou-
sand nine hundred and thirty four 1249

VOLUME VII

VOLUME OF PHOTOS

PLAINTIFF'S EXHIBITS AT ENQUETE

- P-67.—Showing Logs Jammed against cribs, 23rd July 1929.
- P-68.—Showing log Jam above cofferdam, 23rd July 1929.
- P-69.—Cofferdam before placing closing crib.
- P-70.—Cofferdam after closing crib in place.
- P-71.—Cofferdam after closing crib in place.
- P-72.—Logs Jammed against piers in By-pass.
- P-73.—Logs Jammed against piers in By-pass.
- P-74.—Logs looking upstream.
- P-75.—Cofferdam after sinking centre crib.
- P-76.—West end of by-pass showing material classed as earth,
27th July 1929.
- P-77.—Cofferdam showing crib pushed out of position by logs,
23rd July 1929.
- P-78.—Opening up By-Pass, 8th July 1929.
- P-79.—Showing Seamy Rock under Stoney Gates — 15th May
1929.
- P-80.—“Hardpan” in Stoney Gate Section Excavation, 6th
February 1929.

— XVIII —

- P-81.—East end of by-pass and derrick working on Excavation in Stoney Gate Section, 18th March 1929.
- P-82.—Excavation North end of Stoney Gate Section, 8th April 1929.
- P-83.—Showing Seamy Character of Rock Encountered in Excavation, 23rd April 1929.
- P-84.—Excavation in Non-Spilling Section, 15th May 1929.
- P-85.—Looking South from Pier 13, showing Progress of Excavation, 15th May 1929.
- P-86.—Rock Excavation Non-Spilling Section Showing character of rock, 27th July, 1929.
- P-87.—West end of by-pass showing material classed as earth, 27th July 1929.
- P-88.—Cofferdam after sheeting but before placing toefill.
- P-89.—Placing toefill.
- P-90.—Placing toefill.
- P-91.—Lower cofferdam showing pumps.
- P-92.—Four Photos — Views of completed development.
- P-105.—Photograph showing location of dam.
- P-107.—Photograph taken from right bank of river upstream of dam, 16th Nov. 1929.
- P-108.—Cofferdam after placing #1 crib on north side.
- P-109.—Cofferdam showing placing #2 crib in centre.
- P-113.—Photograph showing damages to bridge and cribs.

DEFENDANT'S EXHIBITS AT ENQUETE

- D-11.—Photograph showing north shore of river.
- D-12.—Photograph of travelling derrick and Orange peel for by-pass.

- D-13.—Photograph of river where dam was to be built.
- D-14.—Photograph showing condition of by-pass, 22nd August 1929.
- D-15.—Photograph showing by-pass looking downstream.
- D-16.—Photograph showing cofferdam at lower end of by-pass.
- D-17.—Photograph showing shore crib on south shore.
- D-18.—Photograph showing suspension bridge and south shore crib.
- D-19.—Photograph showing north shore crib and bridge downstream.
- D-20.—Photograph showing cribs and beginning of sheeting taken from downstream, also showing sloping sheeting.
- D-21.—Photograph showing sheeting from upstream and Slanting.
- D-22.—Photograph taken from downstream showing beginning of downstream crib not completed, also upstream crib, and crib No. 3.
- D-23.—Photograph showing all the cribs in exhibit No. 4.
- D-24.—Photograph showing same view from closer range.
- D-25.—Photograph showing two abutment piers with sheeting and bridge.
- D-26.—Photograph showing upper cofferdam from downstream partly unwatered ,etc.
- D-27.—Photograph showing same thing, from a slightly greater distance.
- D-28.—Photograph looking from upstream showing pile of loose rock.
- D-29.—Photograph showing view from upstream.

VOLUME VIII

VOLUME OF PLANS

PLAINTIFF'S EXHIBITS AT ENQUETE

- P-2.—Contract Plans — B 2444 (Topography at site of Dam)
and B 2571 (General Plan).
- P-22.—Same as P-2.
- P-24.—Progress schedule.
- P-26.—Plan Quebec Streams Commission. — General Plan
downstream view.
- P-27.—Plan showing comparison with contract drawing.
- P-37.—Plan cofferdam, cribs, sheeting and steel piling, 10th
Dec. 1929.
- P-38.—Plan profile sheet piling, 11th Dec. 1929
- P-39.—General layout plan.
- P-95.—Chart showing effect of water level by placing of crib.
- P-96.—Details of quantity of concrete poured in 1929 and 1930.
- P-97.—Cross sections of river bed showing over-burden.
- P-98.—Chart showing water levels inside enclosed space between
upstream cofferdam and lower stream cofferdam.
- P-99.—Progress schedule showing actual dates when each block
of concrete, separately coloured, was poured.
- P-100.—Cross section plan.
- P-101.—Plan of cross sections of by-pass proper.

- P-103.—Blue print of exhibit D-10 — composite plan February 1932 and February 1933.
- P-110.—Quebec Stream Commission plan produced by witness Reiffenstein showing general lay-out.
- P-111.—Plotted notes of witness Reiffenstein showing depth to which lower sheets were inserted.
- P-112.—Plotted field notes showing soundings taken by witness Reiffenstein.
- P-121.—Sketch showing where work was done which is not now claimed for and which was put in original claim.

DEFENDANT'S EXHIBITS AT ENQUETE

- D-5.—Progress Schedule.
- D-9.—Sketch indicating bottom of steel sheet piling and Stratton's levels.
- D-10.—Plan showing steel sheet piling, wood sheeting, cribs, piers, line of dam, lower sheeting, levels, appearing on B-2444, and also cofferdam.
- D-33.—Diagram showing periods of operation and periods when work was closed down.
- D-34.—Copy of plan B-2444 showing extent of work at end of November and same for December.
- D-38.—Six sheets — Cross-Sections (from Quebec Streams Commission).
- D-39.—Plan of Cofferdams and Steel sheet piling.
- D-40.—Plan of Flume and opening through Lower Cofferdam.
- D-41.—Sketch produced by witness Dubreuil.
-

Part III — EXHIBITS

10 **DEFENDANT'S EXHIBIT D-35 AT ENQUETE**

Statement of experience of Hardy S. Ferguson.

HARDY S. FERGUSON AND COMPANY
Consulting Engineers
200 Fifth Avenue
New York

20 A Statement Pertaining to the Professional Training and
Experience of Hardy S. Ferguson, Consulting Engineer, address
200 Fifth Avenue, New York, N. Y.

Graduated from: **DARTMOUTH COLLEGE** in 1889,
and from **THAYER SCHOOL OF CIVIL ENGINEERING** in
1891.

Member of: **The Engineering Institute of Canada, 1903**
American Society of Civil Engineers, 1897
30 **American Society of Mechanical Engineers, 1899.**

Since graduation have practiced the profession of engin-
eering continuously, and since 1911 have been established in New
York City as a Consulting Engineer.

Have specialized principally in pulp and paper mill
designs, steam and hydro-electric power development work, and
the design of dams and other hydraulic structures.

40 Have been directly responsible for the design and con-
struction of reservoir dams, and of water power developments
most of which involved the construction of dams, built in Can-
ada and in the United States.

Have designed between twenty (20) and thirty (30) dams
which have been constructed, and have been consulted with
regard to others.

Twice to Russia, 1929-1930. Went at request of Soviet
Government re pulp and paper mills.

PLAINTIFF'S EXHIBIT P-102 AT ENQUETE

Summary of professional qualifications of witness Acers.

10 BIOGRAPHICAL AND PROFESSIONAL RECORD
of
HENRY GIRDLESTONE ACRES, NIAGARA FALLS,
ONTARIO

Born — Paris, Ontario, Canada, May 1st, 1880 .

Graduate in Applied Science, University of Toronto. 1903;
with degree of Mechanical and Electrical Engineer in 1916;
Doctor of Science, University of Toronto, 1924, "Honoris Cau-
sa".

Member - Engineering Institute of Canada (Past Vice-President).
" - Institution of Civil Engineers, Great Britain.
" - American Society of Civil Engineers.
" - American Institute of Electrical Engineers.
" - Association of Professional Engineers of Ontario.
" - Association of Professional Engineers of Alberta.
" - National Club of Toronto.
" - Engineers' Club of Toronto.
30 " - Engineers' Club of New York City.

Specialist in Hydraulic and Hydro-Electric Engineering,
and previous to 1924 Chief Hydraulic Engineer of the Hydro-
Electric Power Commission of Ontario.

On three occasions Technical Adviser of General Counsel
in references argued between Canada and the United States be-
fore the International Joint Commission re International Wa-
ters.

40 Has directed design and construction of the following:
Transmission line, 110,000-132,000 volt 370 miles
Storage designed and built 20
Plants designed and built 26
Total installation 1,005,000 E.H.P.
Capital investment \$139,600,000.
Estimated cost of projects now being con-
sidered for clients \$ 26,750,000.

- 1903 - 1905 — Assistant Mechanical Engineer, Canadian Niagara Power Company, Niagara Falls, Ontario, placing in operation the first 10,000 horse-power turbines ever built.
- 10 - 1905 — Assistant Engineer, Arizona Copper Company, Morenci, Arizona, on tunnel, railway and mill construction and design.
- 1906 - 1907 — Engineer-in-charge of general water-power survey of Ontario for the Hydro-Electric Power Commission.
- 1908 — Engineer-in-charge of surveys and location of 110,000 volt lines for the original Niagara Transmission System of the Hydro-Electric Power Commission.
- 20 1909 - 1910 — Engineer-in-charge of construction of 253 miles of 110,000 volt steel tower transmission line for the Hydro-Electric Power Commission.
- 1911 - 1924 — Chief Hydraulic Engineer of the Hydro-Electric Power Commission with direct supervision over surveys, design and construction of all hydraulic and hydro-electric development.
- 1924 to date—Consulting Engineer—Hydro-Electric Power Commission of Ontario.
- 30 — New Brunswick Electric Power Commission.
- Reid Newfoundland Company.
- Niagara Falls Suspension Bridge Company.
- International Paper Company.
- Province of Alberta.
- City of Calgary.
- 40 — Sir William Arrol, Limited and Vickers, Limited - London, England.
- Saskatchewan Power Commission.
- Ontario Paper Company.
- City of Toronto, Ontario.
- City of Niagara Falls, Ontario.
- Dominion Construction Company.

Valuations, Arbitrations, Litigation:—

Valuation — for taxation purposes, of plant of Dominion Power and Transmission Company for the Township of Grantham.

- 10 Valuation — for power contract purposes, of plant and distribution system of the Simcoe Railway and Power Company.

Valuation — for sale purposes, of the plant and distribution system of the Lindsay Light, Heat and Power Company.

Arbitrator — Calabogie Power Company vs. Seaman Kent Company, re interpretation of power contract.

- 20 Technical Associate of Counsel — Keewatin Power Company vs. Lake of the Woods Milling Company, re appraisal of status and value of water rights; High Court of Justice of Ontario.

Technical Associate of Counsel — New Brunswick Electric Power Commission vs. Inglewood Estates, Limited, re sales value of undeveloped water-power; High Court of Justice of New Brunswick.

- 30 Expert Evidence — Hydro-Electric Power Commission of Ontario vs. B. F. Groat, re alleged patent infringement; High Court of Justice of Ontario.

Expert Evidence — I.P. Morris Company vs. S. Morgan Smith Company, re alleged infringement of turbine patents; U.S. Circuit Court, Harrisburg, Pa.

- 40 Expert Evidence — Gatineau Power Company vs. Cross, re sales value of undeveloped water-power; Public Service Commission of Quebec.

Expert Evidence — Granby Smelters, Limited, vs. West Kootenay Power and Light Company, re interpretation of power contract; Provincial Water Board of British Columbia.

Most important Piece of Work:—

Chief Engineer in charge of surveys, design and construction of the Queenston-Chippawa Power Development of the Hy-

dro-Electric Power Commission at Niagara Falls, Canada. Brought into commercial operation January, 1922, with turbines more than double the capacity of any hitherto constructed. Head 300 feet, recorded maximum peak production 563,000 E.H.P., approximate completed cost \$80,000,00 including step-up transformation. Still the largest single power development in the world.

10

Miscellaneous:—

Reports on power development to Towns of Peterborough, North Bay, Chesley, Paisley, Goderich, Sault Ste. Marie, Port Arthur, Huntsville, Renfrew, Fort Frances, Massey, Thessalon, Parry Sound and Blind River.

References:—

- 20 Honourable G. Howard Ferguson, High Commissioner for
Canada, London, England.
- Honourable Arthur Meighen, Ex-Premier of Canada,
Toronto, Ontario.
- Honourable George S. Henry, Premier of Ontario,
Toronto, Ontario.
- Sir William Hearst, Ex-Premier of Ontario, Toronto, On-
tario.
- 30 A. Munro Grier, Vice-President, Niagara Falls Power
Company, Niagara Falls, N. Y.
- Honourable C. A. Magrath, Chairman, Hydro-Electric
Power Commission of Ontario, Toronto, Ontario.
- Francis Lee Stuart, Consulting Engineer, President of
American Society of Civil Engineers, Flat Iron
Building, New York City.
- H. B. Taylor, President, Cramp Morris Industrial, Inc.,
Philadelphia, Pa.
- 40 Julian C. Smith, Vice President, Shawinigan Water and
Power Company, Montreal, Quebec.
- J. M. R. Fairbairn, Chief Engineer, Canadian Pacific Rail-
way, Past-President of Engineering Institute of
Canada, Montreal, Quebec.
- E. M. Ashworth, President, Canadian General Electric
Company, Toronto, Ontario.
- A. R. Graustein, President, International Paper Company,
New York City.

Dr. George Otis Smith, Washington, D.C.

N. C. Grover, Director, Water Power Branch, U.S. Geological Survey, Washington, D.C.

Judge Koonce, Counsellor, War Department, Washington, D.C.

10 Mr. Hackworth, Counsellor, War Department, Washington, D.C.

PLAINTIFF'S EXHIBIT P-66 AT ENQUETE

Statement of experience of H. E. Lindskog.

20 LIST OF EMPLOYMENT
MR. H. E. LINDSKOG.
February 11th, 1933.

1907 — University of Minnesota, 3 Years.

RAILWAY WORK:

1905 Grand Trunk,)
C.N.R.) Instrument Man,
to Great Northern) Resident Engineer,
30 Chicago - Milwaukee) Location Work,
Northern Pacific) Bridge Inspector,
1915 Minneapolis & St. Louis) Concrete Inspector.

1908 — Minneapolis Power Station, Stone & Webster, Resident Engineer, Unit Cost Man.

1911 — Keokuk Dam, Stone & Webster, Assistant Superintendent, General Inspector.

1913 — Coon Rapids Dam, Mississippi River, H.M. Byllesby Corporation, General Foreman, Assistant Superintendent.
40

1916 — Rapid Dam, H.M. Byllesby Corporation, General Superintendent.

1919 — A. Guthrie Co. Incorporated, Estimating Engineer.

1920 — Mesaba Iron Range, A. Guthrie Co., Incorporated, Night Superintendent.

1921 — Milwaukee Light Power & Traction Co., Winston Bros. Superintendent's Engineer.

- 1922 — Northern Lethbridge Irrigation Project, Crealman & Verga, General Foreman, General Superintendent Structures.
- 1923 — Elko Tunnel and Dam, Winston Bros. General Foreman and Superintendent.
William I. Bishop Limited, Superintendent.
- 10 1923 — West Bonnington Falls Dam, General Foreman, General Carpenter Foreman.
- 1924 — River Bend Paper Mill, William I. Bishop Limited, Night Superintendent, Day Superintendent.
- 1925 — St. John's Newfoundland Government Dry Dock, William I. Bishop Limited, General Superintendent.
- 1926 — Beaupre Paper Mill Construction, William I. Bishop Limited, Superintendent.
- 20 1926 — Cap Madeleine Wharf, William I. Bishop Limited, General Superintendent.
- 1927 — Anglo-Canadian Pulp & Paper Co. William I. Bishop Limited, General Superintendent.
- 1928 — Hudson Bay Railway Construction, J. N. Pitts, General Superintendent.
- 1929 — Cedar Rapids Storage Dam, William I. Bishop Limited General Superintendent.
- 30 1930 — Slave Falls Power Development, F. Mannix, Contractor, General Superintendent.
- 1931 — Bermuda Railway Construction, Balfour & Beatty Co., General Superintendent.

DEFENDANT'S EXHIBIT D-37 AT ENQUETE

40 *Statement of experience and training of witness R. E. Chadwick.*

EXPERIENCE OF R. E. CHADWICK

Graduate of Ontario School of Applied Science (Faculty of Applied Science of the University of Toronto) 1906.

With Canada Foundry Co. Limited on structural design, 1906-1907.

Member of firm of Oxley & Chadwick, Structural Engineers, 1907-1909, and during this period also on the staff of the University of Toronto.

With City Engineer's Office, Toronto, as Engineer in charge of Bridges and Docks, 1909-1910.

10

Joined The Foundation Company of New York as Engineer on the foundations for the Woolworth Building, January 1911. Have been with The Foundation Company since that time in the following positions.

Engineer, The Foundation Co. Limited, Montreal.

Superintendent " " "

Eastern Manager " " "

Acting Chief Engineer " " "

20

Acting Chief Engineer, The Foundation Co. New York
Manager, The Foundation Co. Limited, Montreal

Vice-President & General Manager, The Foundation Co. of Canada Limited, Montreal.

President, The Foundation Co. of Canada Limited, Montreal .

30 DAMS AND HYDRO ELECTRIC POWER PLANTS BUILT

Electric Reduction Co., Lièvre River, Buckingham, Que.

Penman's Limited, Coaticook, Que.

Southern Canada Power Co., Hemmings Falls Development,
St. Francis River, Drummondville, Que.

40

Southern Canada Power Co., Drummondville Plant Extension,
St. Francis River, Drummondville, Que.

Calgary Power Co., Lake Minnewonka Storage Dam
near Banff, Alta.

Mercier Storage Reservoir, Gatineau River, for Quebec Streams
Commission. Four large dams and several smaller cut-off
dams.

Weedon Development for City of Sherbrooke, St. Francis River,
Que.

Penmans Limited, Dam at Paris, Ont.

Can. Consolidated Rubber Co. Development, St Jerome, Que.

10 Cabonga Storage Reservoir, Gatineau River.

Trinity River Development, Trinity River, Que.

Mersey River Power Developments near Liverpool, N. S. for Nova
Scotia Power Commission.

Ghost Development for Calgary Power Co.

20 Lower St. Lawrence Power Development near Metis, Que.

Masson Power Development for Jas. Maclaren Co., Masson, Que.

Charlo River Dam, New Brunswick International Paper Co.
Charlo River, N. B.

(March 9, 1933.)

30 DEFENDANT'S EXHIBIT D-36 AT ENQUETE

Statement of experience of witness John A. Boyd

JOHN BOYD — Age 44.

High School and Technical education in Dundee, Scotland.

1908-10
in U.S. on general construction.

40 1910
Cofferdam work Trent Valley Canal.

1911-12
Bridge work, including pier foundations, sinking of cribs
in forty feet water, dock and elevator work, Lake Cham-
plain, Montreal and Port McNichol — Foreman.

1912-13-14
Bridge work on C.P.R. double track, including piers in
swift water — Superintendent.

- 1915-16-17-18
Overseas, Engineers. Mostly bridge work. Started as Corporal ended as Captain.
- 1919-20
Resident Superintendent for Province of Quebec new building. Alterations, etc. D.S.C. R. Ottawa.
- 10 1920-1921
Bridge work for C.P.R. repairs to foundations, etc. — Superintendent.
- 1922-23
Bridge work on C.N.R. deep piers foundations, etc — Superintendent.
- 1923-24-25-26-27-28-29
Power House, Dam, Bridge, Town and Factory construction — General Foreman and Field Superintendent for Duke, Price and Aluminum Company of Canada.
- 20 1930-31-32
Director and General Superintendent Duncan Construction Co.

DEFENDANT'S EXHIBIT D-8 AT ENQUETE

- 30 *Statement of experience of witness D. W. O'Shea.*
- Graduated from McGill University in 1915 in Civil Engineering.
- 1915- Summer, Instrumentman for Quebec Streams Commission, in Lake St. John.
- 1916- Winter, Instrumentman for Fraser Brace Co. - Gouin Dam Development. In employ of H. S. Ferguson & Co. since Summer of 1916.
- 40 1916- In charge of Surveys for proposed Power developments and pulp mills.
- 1917- On design of Pulp mills and Power developments.
- 1918- Six months as instrumentman on construction of Pulp Mill for Fraser Cos. at Edmunston, N. B.
- 1918-1919 Assistant to Resident Engineer on construction of Power development for Riordon Co. at Temiskaming, P. Q.

- 1920-1921 Assistant Resident Engineer on construction of bag mill for Union Bag and Paper Co. at Hudson fall, N. Y.
- 10 In charge of surveys for proposed power and pulp mill developments.
- 1922- On design of Pulp and Paper mills and Power developments.
- 1923- Resident Engineer on construction of paper mill and power development for Dryden Paper Co. at Dryden Ont.
- 20 1924- Design and surveys for paper mill and power developments.
- 1925- Resident Engineer on construction of paper mill for Beaver Board Co. at Thorold, Ont.
- 1926- Resident Engineer on construction of paper mill for Brompton Pulp and Paper Co. at Bromptonville, P. Q.
- 30 1927- Design of power developments and pulp mills.
- 1928-1930 Resident Engineer on construction of Cedar Rapids and High Falls power developments for The Jas. Maclaren Co.
- 1930- to date, Resident Engineer on construction of Masson Power Development for the Jas. Maclaren Co. Ltd.
- 40 Member of Corporation of Professional Engineers of the Province of Quebec.
- Member of the American Society of Mechanical Engineers.
-

DEFENDANT'S EXHIBIT D-31 AT ENQUETE

List of qualifications of witness John C. McIntosh

10 John C. McIntosh, B. Sc. Queens University 1925, Member Corporation of Professional Engineers Province of Quebec, Associate Member Engineering Institute of Canada.

October, 1918 -
September 1920 — Rodman and Instrumentman on Pulp Mill Construction, Temiskaming, Que.

May, 1925 -
April, 1926 — Field surveying and layout work, Welland Ship Canal.

20 April, 1926 -
February, 1927 — Assistant to Resident Engineer, Pulp Mill construction for Brompton Pulp and Paper Company at Bromptonville, Que.

April, 1927 -
June, 1928 — Chief of party on field engineering for Canadian International Paper Company, Montreal, Que.

June, 1928 to date — For the James Maclaren Company, Limited, as Assistant to Resident Engineer, Hydro Electric Developments.
30

PLAINTIFF'S EXHIBIT P-114 AT ENQUETE

Calculation of witness Bishop recost of bringing steam-shovel to Cedar

FIGURES OF 1928

40 MACLAREN'S CEDARS ACTION

March 13th, 1933.

Estimate of the probable cost of supplying revolving gasoline shovel and 4 trucks to handle hardpan excavation.

Total excavation earth 10,854 cu.yds.

Hardpan 12,935 cu.yds.

One 1¾ Cu. Yd. Shovel with 1½ cu. yd. rock bucket, gas driven, full revolving 50 tons.

	Taking down and loading at yard.....	\$ 150.00	
	Unloading at Gracefield and loading for road transport \$150. Reloading on return \$150.	300.00	
	Road transportation		
10	50 tons, 30 miles, \$10. per ton = \$500. 2 Ways =	1000.00	
	Unloading and setting up	150.00	
	Taking down and reloading.....	150.00	
	Rental — 1 month in transit, 2 months oper- ation — 3 months @ \$1,200.00 =	3600.00	
	Freight 50 tons x 2 = 100 tons @ \$7.50.....	750.00	
		<hr/>	\$ 6,100.00
	Four gas motor dump trucks		
20	Transportation to work and return, 4 @ \$60.00 =	\$ 240.00	
	Rental 3 monthsx4 = 12 months @ \$350.00=	4200.00	
			4,440.00
			<hr/>
			<u>\$10,540.00</u>
	In via Buckingham add	1725	
30			<hr/>
			\$12,265.00

Maintenance, renewals and operation not included in above.

Drilling and blasting still required.

40 The above is figured on basis of hauling from Gracefield.
Excavation started at Cedar Rapids in October 1928. Road from
Gracefield was not ready for hauling until Jan. 1929.

Wm. I. Bishop.

MACLAREN'S CEDARS
COST OF SHOVEL TRANSPORTED IN VIA BUCKING-
HAM OUT VIA GRACEFIELD

10		March 13th, 1933.
	Yard to Yard.	
	Taking down and loading at yard	\$ 150.00
	Unloading and assembling at yard on return.....	150.00
	Tranship from flat cars to scow.....	100.00
	Water transport to High Falls,..... 50 tons @ \$2.	100.00
	Tranship scow to wharf.....	100.00
20	Haul uphill and load on wagons	100.00
	Road transport to Cedars..... 50 tons @ \$10.	500.00
	Reinforcing bridges,..... 4 @ \$400.	1,600.00
	Unload and assemble on job.....	150.00
	Take down and load for hauling.....	150.00
	Haul to Gracefield,..... 50 tons @ \$10.	500.00
30	Load on cars.....	100.00
	Freight to Buckingham,..... 50 tons @ \$6.00	300.00
	Freight from Gracefield,..... 50 tons @ \$7.50	375.00
		\$4,375.00
	Same transportation	
	Yard to Yard via Gracefield.....	2,650.00
		\$1,725.00
40	Additional cost.....	\$1,725.00
	Plus 37%.....	638.00
		\$2,363.00

+ 12,935 cu. yds. = 18¢

Wm. I. Bishop,

DEFENDANT'S EXHIBIT D-7 AT ENQUETE

Original note of witness O'Shea, and certified transcript of same.

10

COPY OF FIELD NOTES
H. S. Ferguson, Consulting Engineer
200 Fifth Avenue,
New York.

Date 5/31/28

Made by O's

Subject Test pit at Cedars Dam.

20 Old Pit south of Line

Top of ground 116.3
Drove an auger down 18.

98.3

Pit No. 1 — 117.96 Top of stake near pit.

Pit No. 2 — 118.42

30 Pit No. 3 —

SKETCH

Gr. in pit to top sheeting 16.75
2.33

14.32

.67 - To top of stake

40

15.00

118.4

15

103.4

6.0

97

Made by O's

Date 6/1/28

Subject Cedars Test Pit.

10 Pit No. 2 — Drove down in three places, two of which appeared
to be on something solid
Down to 97.0
Pit No. 1. Down to 98.0

Doubtful if ledge has been reached.

Gravel starts at about 112 plus or minus, and seems to get coarser
as hole deepens.

Much trouble from water seeping in.

20

Made by O's

Date 6/8/28

Subject Test Pit at Cedars Dam
Pit No. 1

	Ground	117 plus and minus	
	12-0	9	
		1-4	117.00
30		6-0	20.3
		3-0	
		<hr/>	<hr/>
		20-4	96.7 ledge

Ledge seems to have a high percentage of mica and is dipping
away to the East at a sharp angle.

40 Last two or three feet have been through this broken rock which
consist of broken mica, and pieces of felspar. or quartz. Very
hard and slow progress.

At opposite corner of pit drove auger down 1 foot deeper on what
is probably ledge.

Started a 4th pit at 0 plus 20 East on 2 plus 00.

Also resumed work on a pit started by Stratton last fall on up-
stream face of peninsula.

Made by O's

Date 6-15/28.

Subject Test Pit at Cedars Dam

At	20	Downstream	plus	00
	14.3		2'	loan
10	3.75		8'	mixture of boulders loam and sand, bal-
				ance in gravel.
	<u>18.05</u>			

Water flooding Pit. G.	119
	<u>18</u>
	101

Ground Water coming about as fast as pump can handle	
20 On River Bank	118.2
	<u>18.5</u>
	99.7 say 99

On account of debris in bottom last two feet 6 inches in broken felspar.

River water coming in through seam.

30	119	101.5
	<u>17.5</u>	<u>8.33</u>
	101.5	93.17
	<u>4.17</u>	
	97.33	

Pitt at 1 plus 50 bottom elevation 101.50, drove auger down to 93.2, not sure if ledge was reached.

40

PLAINTIFF'S EXHIBIT P-56 AT ENQUETE

Original letter of tender.

10 WILLIAM I. BISHOP LIMITED
Constructing Engineers
New Birks Building
Cable address Wibishlim

Montreal, July 29th, 1928.

James Maclaren Company, Limited,
Buckingham,
Que.

Gentlemen:—

20 TENDER ON CEDAR RAPIDS STORAGE
DAM AND HIGH FALLS WATER
POWER DEVELOPMENT

We hereby tender to carry out the above work, in accordance with the plans and specifications of your Engineer, Mr. Hardy S. Ferguson, on the following basis:—

30 For the Cedar Rapids Storage Dam.....\$608,592.00,
(Six Hundred and Eight Thousand, Five Hundred and
Ninety-two Dollars).

For the High Falls Water Development \$1,472,018.00
One Million, Four Hundred and Seventy-two Thousand
and Eighteen Dollars).

\$2,080,610.

We regret that we have not had time to work out the unit prices for additions and deductions ; but if our main tender is acceptable, we will present all the figures on which this was made and submit prices in line with the original tender.

40 We have the plant and organization in hand, ready to start this work on twenty-four hours notice, and are positive that we can give you satisfaction in every particular.

Yours very sincerely,

WILLIAM I. BISHOP LIMITED,
Wm. I. Bishop,
President.

WIB/HB

PLAINTIFF'S EXHIBIT P-57 AT ENQUETE

Final letter of tender.

10

WILLIAM I. BISHOP LIMITED
Constructing Engineers
New Birks Building
Cable Address Wibishlim

Montreal, August 10th, 1928.

James Maclaren Company, Limited,
Buckingham,
Que.

20

Attention — Mr. R. M. Kenny, Manager.

Gentlemen:—

Referring to our proposal of July 29th, 1928, for the construction of the Cedar Rapids Storage Dam and the High Falls Power Development ; we wish to confirm the writer's conversation with you yesterday, to the effect that the prices quoted in the above mentioned proposal can be reduced by 30 \$10,000.00 each. This deduction is being made on the understanding that the work has now only to be completed in time to catch the spring flood of 1930.

As we have already advised, we are in a particularly good position to carry out this work, since we have available for immediate use not only a complete organization, but also all necessary construction plant.

40 Should we be successful in getting the contract, we can assure you that it will receive a great deal of careful supervision from this office, and that the work will be carried out to your entire satisfaction in every way.

Yours very truly,

WILLIAM I. BISHOP LIMITED,
A. B. McEwen,
Chief Engineer.

ABMcE/HB

PLAINTIFF'S EXHIBIT P-1 WITH RETURN

Letter from Defendant.

10 THE JAMES MACLAREN COMPANY, LIMITED
Manufacturers of
Sawn Lumber, &c., and Ground Wood Pulp

Buckingham, Que. Nov. 15, 1928.

Nov. 16/28

Messrs. William I. Bishop, Limited,
Montreal, Que.

Dear Sirs:

20

Making reference to our conversation with Mr. Bishop on the 12th inst. regarding construction of Cedar Rapids Storage Dam, we beg to say that with the changes made in contract and specifications after conference when Mr. Ferguson was present, and covered by re-written pages sent to you by Mr. Ferguson, we confirm that your tender for this work has been accepted.

As explained to Mr. Bishop there are some matters we would like to dispose of before signing the contract.

30

During our conversation with Mr. Bishop he brought up three matters, engineers' office, additional cement and testing cement.

The question of testing cement was cleared up during the conversation, as it was found the contract provides how this will be done.

40 With regard to additional cement, we will pay for whatever that will entail, the charge to be determined by Mr. Ferguson.

As to the other item, engineers' office, if the contract does not definitely provide for the handling of this item the writer feels it should be taken up with Mr. Ferguson.

There is one other matter, that regarding the Quebec Streams Commission's request that they be recognized in the contract to the extent that the construction of the dam shall be carried out and completed under their engineering supervision. We understood from Mr Bishop that this was quite agreeable to him.

We are enclosing three sheets, which take care of the Streams Commission's request and the change in cement. The first sheet is numbered 2, to replace the present sheet number 2 in your copy of the contract, sheet 2a to be added to your copy, and sheet No. 8 to replace sheet No. 8 in Section No. 2 Materials, in your copy.

10 With the changing of these three sheets the situation is covered insofar as the writer knows and our understanding is that they are satisfactory to you.

Yours truly,

The James Maclaren Co. Limited,
R. M. Kenny,
Manager.

RMK/M.
ENCS.

— 2 —

20

all materials, tools and appliances, labor and work of every description required for the complete construction of said dam, excepting only certain materials and equipment which are to be supplied by the Owners and which are specifically enumerated hereinafter.

Specifications and Plans

30 The Contractor further promises and agrees that all work shall be performed and that the dam shall be built in a thorough manner, and in accordance with the terms of certain specifications, entitled "GENERAL SPECIFICATIONS FOR THE CONSTRUCTION OF THE CEDAR RAPIDS STORAGE DAM" which are signed by both parties to this contract, and which are attached hereto, and form a part of this contract, and that such building and performance shall conform in every respect to the plans and drawings of details prepared by HARDY S. FERGUSON, Consulting Engineer, 200 Fifth Ave., New York City, all of which shall form a part of this contract with fully the
40 same effect as if they were embodied therein. It is further agreed that the construction of the dam shall be carried out and completed under the Engineering Supervision and to the satisfaction of the Chief Engineer of the Quebec Streams Commission, and a Resident Engineer to be appointed by him who shall be his representative on the work and have and exercise the authority granted the Engineer in this contract and specifications in all matters pertaining to and affecting the proper construction of the dam, and its safety and durability.

It is further understood and agreed, however, that the Owner shall appoint an Engineer who shall represent him during

the execution of the work and shall make all measurements and computations of the quantities and costs of work performed by the contractor for the purpose of determining the amount of compensation to be paid to the contractor, and who shall sign and
10 issue all orders for extra work, and prepare and issue all statements or certificates on which monthly and final payments to the contractor are to be based, as authorized, and provided for by the terms of this contract.

And it is understood and agreed that wherever the term Engineer or Resident Engineer is used in the following sections of this contract and specifications, it shall mean the Chief Engineer of the Quebec Stream Commission or his representative the Resident Engineer, excepting in those sections of this contract entitled:—
20

Extra Work (the first two paragraphs only) and
Time of Completion, and

Manner and time of making monthly payments.

in which sections, or portions thereof mentioned, the form Engineer shall mean, exclusively the Engineer appointed by the Owner, as provided above.
30

The drawings which have been prepared showing the general form and details of the dam and the manner of its construction, and which form a part of this contract are as follows:

Before using any of the aggregate, frost, ice, and lumps of frozen materials must be removed.

40 (7) Water

The Contractor shall provide an abundant supply of water for all purposes and shall install pumps and piping and do any construction and maintenance work necessary to ensure sufficient water for any requirements of the construction work at all times.

The water used in mixing mortar, grout, or concrete masonry shall be clean and free from salt, oil, acid alkali, organic and any foreign or injurious chemicals or substance.

(8) Units of Measurement

The unit of measurement shall be the cubic foot.

A quantity of cement weighing 100 lbs shall be considered to be one cubic foot.

10 The gallon referred to in these specifications is the standard United States gallon of 231 cubic inches. (When the Imperial gallon (277 cubic inches) is used the proper correction must be made)

(9) Reinforcing steel

20 All steel to be used as reinforcement for concrete shall be new billet stock of the intermediate grade and shall conform to the American Society for Testing Materials, Serial Designation A-15-14 and subsequent revisions. Material for spiral hooping shall have a yield point not less than that required for intermediate grade steel.

To be noted by Bishop
Received Nov. 16 1928
Answered by

PLAINTIFF'S EXHIBIT P-21 WITH PARTICULARS

30 *Copy of letter from Plaintiff, William I. Bishop Limited, to Hardy S. Ferguson.*

COPY
WILLIAM I. BISHOP LIMITED

Montreal, Nov. 21st, 1928.

Copy to Buckingham
with Mr. Bishop, Nov. 26/28.

40 Hardy S. Ferguson, Esq.,
200, Fifth Avenue,
New York, N. Y.

Dear Mr. Ferguson:—

re JAMES MACLAREN Co. LIMITED,
CEDARS RAPIDS CONTRACT.

We have gone ahead on the above work without a signed contract, at the request of the Owners, but enclose herewith copy of a letter from their General Manager covering us in the meantime.

No. 1—With regard to the extra cement required, we enclose herewith memorandum of the additional cost per barrel for any cement required above that called for on the original specification.

10 No. 2—The question of engineering offices comes up on this work again, with the addition that there will be similar quarters required for the Quebec Streams Commission, making a double outlay on this account.

No. 3—We find in opening up the work that the lower 10 ft. of the by-pass cut is practically hardpan, and is very much more difficult to excavate than the material described to us as having been found in the test pits. If this condition continues throughout the cut, we shall ask you for an adjustment to cover the difference in cost.

20

Yours respectfully,

WILLIAM I. BISHOP LIMITED,
(Sgd) W. I. Bishop,
President.

WIB/HB
Encls 2

30

PLAINTIFF'S EXHIBIT P-28 AT ENQUETE

Letter from Mr. Ferguson to Maclaren Company.

HARDY S. FERGUSON
AM. SOC. C. E. AM. SOC, M.E ENG. INST. Can.
Consulting Engineer
200 Fifth Avenue
New York

November 28th, 1928.

40 James Maclaren Company, Ltd.
Buckingham, Quebec, Canada.

CEDAR RAPIDS CONTRACT

Gentlemen:—

Mr. Wm. I. Bishop called last week for the purpose of discussing several matters about the Cedar Rapids contract. My decisions regarding them and the reasons therefor are as follows:

(1)—*Extra Cement.*

It is agreed that he is entitled to an allowance for such cement as will be required in excess of the quantities he originally figured on, by reason of the change which was made in the specifications at the instance of the Chief Engineer of the Quebec
10 Streams Commission. This change increased the quantity of cement which will be required in the proportion of 100 to 94.

I estimate that 1750 barrels more cement will be required as the specifications now stand to construct the quantities of masonry which are scheduled in the contract. Mr. Bishop presented an estimate of the cost of the cement delivered at the site, in which he figures that the direct cost will be \$4.83 per barrel. Adding thereto 37%, as provided for extra work in the contract, would bring the total cost of extra cement to \$6.62 per barrel. I
20 told him that, under the circumstances, I thought that 37% was too much to allow and agreed that \$6.00 per barrel was enough to charge.

Therefore the allowance for extra cement for the quantities of concrete specified would be \$10,500.

I also estimate that at \$6.00 per barrel, the cost of Class 1 concrete with plumbs will be increased 40¢ per cubic yard ; the cost of Class 1 concrete without plumb 48¢ per cubic yard and
30 Class 2 concrete 60¢ per cubic yard.

It seems to me that the simplest way of taking care of this extra allowance is to change the prices contained in the contract by adding \$10,500 to the principal sum and by adding to the unit prices also scheduled in the contract, 40¢ per cubic yard for Class 1 concrete with plumbs added or deducted ; 48¢ per cubic yard for Class 1 concrete without plumbs added or deducted ; and 60¢ per cubic yard for Class 2 concrete added or deducted.

40 (2)—*Engineering Offices.*

The question of who should stand the cost of providing the quarters for the engineering staff at the Cedars Dam was also discussed, and my decision is that in this case the Owner should stand the expense. There is no reference whatever in the contract and specifications which I can find which could have led the contractor to suppose when he was making his bid that he was to provide quarters for the engineering staff, and he states that

he did not figure on furnishing them, which I believe to be true, and I cannot find anything in the terms of the contract which would justify me in deciding that he should provide these quarters free of cost.

10 (3)—*Cost of Excavating the By-pass Channel.*

Mr. Bishop states that in opening the lower end of the cut of the by-pass channel he finds hardpan in the bottom which is considerably more expensive to excavate than that which he was led to believe he would find by inspection of the test pits which had been dug on this part of the site, and he states that if this condition continues throughout the cut, he will ask for an adjustment to cover the difference in cost.

20 The matter was not passed upon by me, since the question may not arise at all. I prefer to reserve decision on this point until a definite claim is made.

Yours truly,
H. S. Ferguson.

HSF:AGT
Copy to Wm. I. Bishop Ltd.
Rec'd Nov. 30.

30

Note by RMK—Dec. 11, 1928.

The items in Mr. Ferguson's letter Nov. 28th, Cedar Rapids contract, were discussed with Mr. Ferguson when here. (copy of letter to be attached to Cedar Rapids contract).

40

PLAINTIFF'S EXHIBIT P-58 AT ENQUETE

Memo of extracts from diary of Mr. McEwen.

10

JAMES MACLAREN COMPANY
CEDAR RAPIDS CONTRACT

Extracts from Diary and Notes by Major McEwen.

- July 12, 1928 Went to Buckingham P.Q. With Thwing and got plans and specifications.
- “ 14, “ Called T.F. Kenny and asked for extra time on tender.
- “ 19, “ With Mr. Bishop drove to Buckingham, picked up Mr. O'Shea and proceeded via Notre Dame du Laus to Gracefield.
- 20 “ 20, “ Returned via Notre Dame du Laus, visited dam site. Also stopped at High Falls and saw site. O'Shea gave us information re possible sand pits. Back to Montreal at night.
- “ 31, “ Took tender to Buckingham, met Messrs. Albert Maclaren, R. and T. F. Kenny. They said our figure on Cedars was a little high, also said we could have all next year to do the job.
- 30 Aug. 3, “ Called Mr. T. F. Kenny who advised that we had a fair chance of getting contract.
- “ 15, “ Called Maclarens but nobody in office.
- “ 20, “ R. M. Kenny telephoned to advise that we were awarded High Falls contract. Requested us to go to Buckingham Aug. 27th to sign contract.
- “ 27, “ Thwing and I went to Buckingham and discussed details of contract with T. F. Kenny and D. W. O'Shea.
- 40 “ 28, “ Discussing contracts with Mr. Ferguson and T. F. Kenny.
- “ 30, “ Took Lindgren and Griffith to Buckingham, picked up O'Shea and went to Notre Dame du Laus. Stayed night there.
- “ 31, “ Stopped at High Falls, looked over sand pits and site of dam. Then stopped at Buckingham. T. F. Kenny said there was no word of Government approval.

- Sept. 6, 1928 R. M. Kenny had dinner with Mr. Bishop and self at Mt. Royal. Discussed general details of work and hold up in approval from Quebec. Mr. Bishop offered to give assistance.
- 10 “ 10, “ Drove to Buckingham at night.
“ 11, “ Spent day around High Falls looking over sand pits.
“ 13, “ Mr. Bishop in Quebec to find out about having Government approve Maclaren plans.
“ 26, “ Mr. Bishop in Quebec with R. M. Kenny.
“ 27, “ Mr. Bishop in Quebec with R. M. Kenny.
“ 29, “ Buckingham with Mr. Bishop discussing details of contract with R. M. and T. F. Kenny.
“ 30, “ Up river in Nelson Bothwell, Mr. Bishop, T. F. Kenny, and O'Shea. Griffith, Mapes and Resch at Buckingham.
- 20 Oct. 1, “ Mullen and Trudel up, rented office on wharf, drove to Cedars with Mr. Bishop, night there.
“ 2, “ Looked over West side of Cedars site.
“ 5, “ Took Paddon to Cedars and explained to him about examining road to Gracefield.
“ 12, “ Took Ian Crawford to Notre Dame du Laus and went over work with him. Also discussed road repairs with Paddon.
“ 16, “ Drove to Notre Dame du Laus at night.
30 “ 17, “ Drove over road to Gracefield, met Paddon at Point Comfort where he was getting camp established.
“ 18, “ Went over excavation work with Ian Crawford.
“ 22, “ Took McTaggart to Notre Dame du Laus, made layout of camp and tentative plant layout.
“ 23, “ Drove to Point Comfort, then walked over road from Kenny's place to Gracefield with Kelly.
“ 24, “ Drove to Notre Dame du Laus leaving Kelly and Paddon at Point Comfort—Crawford had derrick practically set up at By-pass. High Falls at night.
40 “ 31, “ O'Shea said that cement had to be tested by Testing Company, which was contrary to his statement made when looking over site that “Canada Cement Co. tests would be satisfactory”.
- Nov. 1, “ Went to Cedars with O'Shea. He agreed that boulders over 1/2 c.y. would be classed as rock. Derrick all ready to operate. L'Hereux had dining camp built except roof—floor of first bungalow in place.

- Nov. 1, 1928 Selected sites for cement sheds and carpenter shop. Told Crawford to put on night shift. McCabe said he could not plane lumber although it had been tentatively arranged with Mr. T. F. Kenny that he would lend Mr. McCabe planer.
- 10 “ 3, “ Smith arrived at High Falls to go to Cedars.
“ 5, “ Reiffenstein arrived for Cedars job.
“ 6, “ Coyle stopped l’Hereux cutting logs so called T. F. Kenny who agreed to talk to Coyle and straighten things out.
“ 7, “ Coyle stopped David from cutting logs at High Falls but later rescinded the order. Mr. Bishop spoke to R. M. Kenny and found that they had changed their minds about allowing us to get David timber.
- 20 “ 14, “ Griffith took Jim Downing to Cedars.
“ 19, “ R. M. Kenny agreed to rent us tractor for Cedars hauling.
“ 21, “ Took McArthur, carpenter foreman to Cedars to help l’Hereux, Griffith also went up.
“ 22, “ Orange peel broken due to handling hardpan.
- 30 “ 23, “ Went to Point Comfort with Kelly and Williams and discussed hauling with them. Crawley and McCracken moved stuff off road to Cedars camp.
- Dec. 10, “ Mr. Ferguson in Buckingham with O’Shea.
“ 11 “ Sent Fred Wallin and Hutchins to Cedars.
“ 12, “ Went to Cedars. Hardpan excavation being taken out by hand had to be shot. Derrick working in bunch of boulders. Framing 2nd cement shed, shops, and stores.
- 40 “ 19, “ Called T. F. Kenny about cutting 1” lumber with portable saw and he said we could not do so.
“ 20, “ Drove to Cedars—Derrick moved back to take out hardpan.—Located cableway towers.
“ 22, “ Wired for Harry Lindskog.
“ 26, “ Went to Gracefield from Ottawa. Tractors or sleighs not quite ready to haul.

JAMES MACLAREN COMPANY
CEDAR RAPIDS CONTRACT

Extracts from Diary of Major McEwen.

- 10 Jan. 2, 1929 Denise at Cedars.
“ 3, “ Griffith went to Cedars.
“ 13, “ Linskog arrived at High Falls.
“ 16, “ Went to Cedars with Linskog.
“ 17, “ Derrick down due to foot block. L'Hereux fram-
ing cableway towers and cutting cordwood. Cof-
ferdam timber being hauled in.
“ 18, “ Mild with rain, tractors having difficulty.
“ 19, “ Mr. Dubreuil, resident engineer for Quebec
Streams Commission at Cedars for day only.
20 Looked at Bonecal sand pit with him. He said
it was all right if top was stripped off. Testing
rock for quarry but due to quantities of feldspar
tests did not show up well.
“ 21, “ Mr. Bishop arrived at Cedars and went over job.
“ 22, “ Mr. O'Shea at Cedars. Went to sand pit with
Mr. Bishop and Linskog. Having trouble with
tractors. Derrick down due to foot block.
“ 23, “ Mr. Bishop and self discussed hauling with Kel-
30 ly who promised to deliver 125 tons per day using
teams, trucks and tractors. Trying to take off
quantities of reinforcing steel with help of O'Shea
but he could not give me definite information.
Mr. Bishop, O'Shea and self went to High Falls
at night.
“ 24, “ O'Shea said Maclarens would have to pay extra
cost of hauling embedded steel for Cedars that did
arrived at Gracefield in time for winter hauling
by tractor. O'Shea mentioned difficulty in taking
40 off quantities of steel for Cedars dam and said
that any extra expense resulting therefrom would
be borne by them.
“ 25, “ Collecting information on river discharges to
check Cedars cofferdams.
“ 26, “ Mr. Bishop and I called on R. M. Kenny at Buck-
ingham and delivered letter re delivery of struct-
ural steel for Cedars at Buckingham instead of
Gracefield. T. F. Kenny said he did not remember
any discussion about stop logs for Cedars when
talking over details of contract.

Jan. 31, 1929 Griffith and Doctor went to Cedars. Lindskog
phoned that boom or derrick broken.

Feb. 2, “ Denise went to Cedars. Griffith back from Ce-
dars.

“ 3, “ Denise back from Cedars.

“ 5, “ Mr. Bishop went to Cedars.

10 “ 6, “ Mr. Bishop at Cedars, then to Gracefield.

“ 9, “ Mr. Bishop told O’Shea we would have to file
protests regarding estimates because he was not
making us a fair allowance for work done.

“ 14, “ Went to Cedars with O’Shea. Dubreuil of
Streams Commission there. Dubreuil said color
tests on sand were not very good and we might
have to strip 8’ or 10’ deep. Told him we would
wash sand if necessary. Dubreuil would not
express definite opinion regarding rock in quarry.

20 “ 15, “ Went to Gracefield with Lindskog. 2 Tractors
down, about 100 teams hauling. Told Kelly to
take trucks off road.

“ 19, “ Mr. Bishop arrived at High Falls and stated
that he had just had heated discussion with R. M.
Kenny who was studying the contract to see how
much of cost he could make us stand. R. M. Ken-
ny also said he proposed to charge us for sand
obtained on property of theirs near High Falls
which would later be flooded.

30 “ 20, “ Mr. Bishop and O’Shea went to Cedars.

“ 21, “ Mr. Bishop and O’Shea back from Cedars.

“ 22, “ Figured cement required for Cedars.

“ 28, “ O’Shea at Cedars.

March 1, “ Conference in Buckinham, H. S. Ferguson, R.
M. and T. F. Kenny, W. I. Bishop and A. B.
McEwen. Discussed estimates. Mr. Bishop, after
considerable discussion to avoid further argu-
ment which Mr. Ferguson would not settle, and in
spite of fact that these were not included in work
to be done by contractor.

40 “ 2, “ Going over cofferdam layout for Cedars. Wait-
ed with Mr. Bishop to be asked to go around job
with Mr. Ferguson, Albert Maclaren and T. F.
Kenny, who arrived on the job about 11 A. M. We
were not asked to do this and finally had confer-
ence with them at 4 P. M.

“ 3, “ Mr. Bishop went to Cedars with Ferguson and
Kenny.

- March 4, 1929 Mr. Bishop returned to High Falls.
“ 13, “ Denise and O’Shea went to Cedars.
“ 14, “ Denise and O’Shea returned to High Falls.
“ 20, “ O’Shea went to Cedars.
“ 22, “ Mr. Bishop called Ferguson in New York regarding decisions about various High Falls points.
10 “ 29, “ Left for Holiday then to Newfoundland.
- Apr. 20, May
1st and 2nd At High Falls.
- May 9, 1929 Went to Cedars. Excavation for solid section much deeper than anticipated and method of removal insisted on by McIntosh and O’Shea most expensive and not common practice.
20 “ 10, “ Forms nearly set up for 3 piers. Dubreuil thought time of treatment for sand could be reduced provides we got clean sand.
“ 11, “ Dubreuil approved foundation in by-pass. 1½ minute sand treatment seemed satisfactory.
“ 13 “ Concreting being delayed because of large quantity of rock to come out. Ready to set forms in by-pass but Dubreuil had changed his mind since Saturday and insisted on more rock being taken out of cut off.
30 “ 14“ O’Shea at Cedars. Told him that rock excavation was to different from that indicated on plans that there should be some adjustment in price particularly so in by-pass section due to thin layers in which they insisted it be taken out. Also told O’Shea that large increase in quantities would prolong length of time required for work and force us into cold weather concreting. Discussed concrete mix with Dubreuil and O’Shea and decided to use 1:3:5 to start with.
40 “ 15, “ Went to Montreal.
“ 29, “ Left for Newfoundland.
Oct. 22nd “ Drove to Cedars with McTaggart—no particulars comments.
-

DEFENDANT'S EXHIBIT D-32 AT ENQUETE

*Statement showing dates orange-peel delayed on
account of breakdowns*

10

BREAKDOWNS AND DELAYS
TRAVELLING DERRICK

November 29th. 1928—Cable at end of boom out of order—down
all night.

December 6th. 1928—Delay due to sheave on boom—night lost.

20 December 8th. 1928—Day lost—Mechanic changing chains closing
leaves and general repairs.

December 10th. 1928—Delay in afternoon due to fracture leaf.

December 11th. 1928—Most of day lost due to defective sheaves.

December 12th. 1928—New sheaves arrived from High Falls so
work resumed in afternoon.

30 December 20th. 1928—Casting on peel failed tonight at 9.30 P.M.
Machine resumed excavation January
3rd. 1929.

January 10th. 1929—Foot block under mast failed today and
not repaired till January 30th. 1929.

January 31st. 1929—Runner dropped boom fracturing same,
repaired same day.

40 March 2nd. 1929—Boom of derrick broken at 4 P.M.

July 9th. 1929—While excavating west end of by-pass,
block holding boom failed allowing it to
fall, breaking it. Fitted with shorter
boom immediately.

PLAINTIFF'S EXHIBIT P-40 AT ENQUETE

List of visits by Bishop to works.

10 MACLARENS BUCKINGHAM
 DATES AND DURATION OF VISITS MR. W. I. BISHOP
 TO WORKS FROM DAILY DIARIES

Feb. 13, 1933

	Cedar Rapids	Duration Days	High Falls	Duration Days
20	1928			
	July 20 To tender		July 19 To Tender	
	Oct. 10	1	Sept. 29	1
	16-17-18	3	Oct. 9-11	2
	Nov. 11-12	1	" 15	1
			" 19	1
			" 24-25	2
			" 31, Nov. 1	2
			Nov. 4-5-6-7-8-9	6
			" 12-16-17	3
30			" 28-29-30	3
			Dec. 10-11-12-13	4
			" 18-19-20	3
	1929		Jan. 3-4-5-6	4
	Jan. 21-22-23	3	" 24-25-26	3
	Feb 6	1	Feb. 4-5	2
			" 9-10-11-12-13-14	6
	" 20-21	2	" 19-22	2
	March 3-4	2	March 1-2-5-6	4
	April 9-10	2	April 3-4-5-6-7-8-11	7
40	" 26-27	2	" 17-18-19-20-21-22)	
			23-24-25-28-29-30).. 14	
			May 1-2)	
	May 23-24-25-26	4	May 7-8-9	3
			May 21-22	2
	June 8-9-10	3	June 5-6-7-11	4
	" 18-19	2	" 20-21	2
	" 25-26	2	" 27-28	2
	July 3	1	July 4-5	2

	Cedar Rapids	Duration Days	High Falls	Duration Days
	(Newfoundland and Hospital.)			
	Aug. 26-27	2	Aug. 29-30	2
	Sept. 4	1	Sept. 5-6	2
10	Sept. 19	1	“ 20	1
	“ 26-28-29	3	“ 27	1
	Oct. 1	1	Oct. 2	1
	“ 15	1	“ 16-17-18	3
	Nov. 15-16-17	3	Nov. 12-13-14	3
	“ 28-29-30	3	Dec. 1-2-3	3
	Dec. 12-13-14-15	4	“ 16-17	2
1930			1930	
	Jan. 22-23	2	Jan. 20-21	2
	Feb. 27	1	Feb. 25-26-28	3
20	March 11-12	2	March 13-14	2
	“ 23-24	2	“ 19-20-21-25-26	5
	April 11	1	April 8-9-10	3
	May 16-17-18-19	4	“ 28-29	2
			May 14-15	2
	June 4	1	June 5-6	2
			July 9-10	2
		61		126
30	Visits to Cedar Rapids	30	43 Visits to High Falls 126 Days	
	Days	61		

Besides telephone conversations daily during visits at High Falls

PLAINTIFF'S EXHIBIT P-3 WITH RETURN

Copy of letter from Plaintiff to Hardy S. Ferguson

40

COPY
WILLIAM I. BISHOP, LIMITED,

Maclaren Dam, Que., February 22nd, 1929.

Hardy S. Ferguson, Esq.,
High Falls, Que.

RE: EXCAVATION — CEDAR RAPIDS

Dear Sir:—

Since we wrote and interviewed you in November last regarding the above, we have been proceeding under protest as to classification on the above.

When tendering on the work we were informed that the test pits dug (which were refilled when we visited the work), indicated 5 to 6 feet of light sand on top, then gravelly material to rock with occasional boulders.

10 We provided suitable excavation equipment to handle this class of material but when the work was opened up we encountered a bed of hard pan and cemented material in the bottom varying in depth from 6 feet deep at the downstream end to within 5 or 6 feet of the top in the line of the dam.

We wrecked two one-yard Hayward Orange Peel Buckets, one of them of the extra heavy variety, trying to dig this hard-pan without success and were then obliged to abandon this method and to drill and shoot the hard material, removing the most of it in the by-pass by hand labor loading it into horse drawn carts.

20 Consequently, the cost to us has been far beyond that anticipated under our tender figures.

We now request an adjustment of the price to that usually paid for such material and failing this that arbitration be proceeded with as provided under the Contract.

Yours respectfully,

William I. Bishop Limited,
(Signed) W. I. Bishop,
President.

W.I.B.—R

30

DEFENDANT'S EXHIBIT D-1 WITH PLEA

*Copy of letter from Hardy S. Ferguson to Plaintiff
William I. Bishop, Limited.*

(COPY)

HARDY S. FERGUSON,
200, Fifth Ave.,
New York.

40 William I. Bishop Ltd.,
Maclaren Dam via Buckingham,
Papineau County, Quebec.
Canada.

March 22nd, 1929.

CEDAR RAPIDS CONTRACT
EXCAVATING OF BY-PASS CHANNEL

Gentlemen:—

This is in reply to your letter of February 22nd, in which you "request an adjustment of the price to that usually paid for

such material” as that which has been excavated on the easterly shore at the Cedars Dam.

Since, as set forth in paragraph A on page 7 of the contract, and on pages 1 and 2, Article 2 of Section 3 of the specifications, compensation for excavation work in the by-pass channel, which would not have been required if the Contractor had chosen to provide for handling the water in some other manner, is included in and covered by the principal sum, it is assumed that your request applies to that portion of this excavation which would have been necessary to obtain the foundations for the dam if the by-pass channel had not been constructed.

Your letter states that, when tendering on the work, you were informed that test pits which had been dug and which had been refilled when you visited the site, indicated that the material to be encountered would consist of five to six feet of light sand at the top, with gravelly material containing occasional boulders extending therefrom to rock ; and I assume that you base your request for additional price allowance on the ground that the material actually encountered represents more difficult excavation than you anticipated.

It does not appear to me that any representations which may have been made to you concerning the character of the material which might be encountered in making this excavation are a justification for granting your request.

You undertook to do all excavating required to construct the dam for the principal sum provided that the quantities proved to be the same as those specified in the contract, which contains prices for correcting the principal sum if the quantities prove to be different.

None of the test pits excavated in the line of the by-pass channel were carried to rock, including those located where the dam crosses it, and no representations could have been made to you concerning the kind of material which lay beneath the bottom of the pits, which you must have known did not extend to the elevation to which the excavation would have to be carried to obtain rock.

It seems to me, therefore, that, when preparing your tender, it rested with you to determine or assume the character of the material to be excavated and that, so far as the Owners

are concerned, it is proper for them to assume that your price and estimated costs should have taken into consideration the material which might be encountered.

10 In other words, you prepared your tender after examining the site, and inspecting whatever evidences of conditions were visible, and the fact that you may have erred in estimating the nature of the material to be excavated and the cost of removing it, in no way justifies or authorizes me to grant your request.

Yours very truly,

(Sgd.) H. S. Ferguson

HSF.:AGT

PLAINTIFF'S EXHIBIT P-29 AT ENQUETE

20 *Letter from William I. Bishop Limited to Hardy S. Ferguson.*

Maclaren Dam, Que, April 8th, 1929.
CC Montreal, Office,

Hardy S. Ferguson, Esq.
200, 5th Avenue,
New York City, N. Y.

MACLAREN'S CEDAR RAPIDS
HARDPAN EXCAVATION

Dear Sir:—

30 We have yours of March 22nd, outlining your decision on the above which is a great disappointment to us.

We tendered in good faith on this item on the information supplied by your resident engineer and see no reason why the owner should not have to pay a fair and reasonable price for what was actually encountered.

We must, therefore, respectfully request that this question be placed before arbitration as provided in the contract.

40

Yours very truly,

WILLIAM I. BISHOP LIMITED

President,

WIB-R

To be noted by
Bishop, Scott, Tank, McEwen.
Thwing, McMillan, Meighen, Bowden.
Received April 10 1929
Answered by

PLAINTIFF'S EXHIBIT P-30 AT ENQUETE

Letter from Hardy S. Ferguson to William I. Bishop Limited.

10 Copy to Job Office, High Falls, Apr. 13.

HARDY S. FERGUSON
AM. SOC. C. E. AM. SOC. M.E. ENG. INST. CAN.
Consulting Engineer
200 Fifth Avenue
New York

April 11th, 1929.

Wm. I. Bishop Ltd.,
New Birks Building,
20 Montreal, Quebec, Canada.

CEDAR RAPIDS DEVELOPMENT
HARDPAN EXCAVATION

Gentlemen:—

I have your letter of March 8th with reference to the question of hard pan excavation at the Cedar Rapids storage dam, in which you respectfully request that the question be placed before arbitrators as provided in the contract.

30

As I assume that the first party to the contract will have to arrange with you for the arbitration, I am simply forwarding a copy of your letter to the Maclaren Company, calling their attention to your request.

Yours truly,

H. S. Ferguson.

HSF:AGT

40 To be noted by
To be noted by Bishop
Received April 13, 1929
Answered by

PLAINTIFF'S EXHIBIT P-2 WITH RETURN

Original Contract, together with plans.

- 10 Nos.: B-2444; B-2571; B-2577; B-2578; B-2579; B-2580; B-2581;
B-2582; B-2583; B-2584; B-2585; B-2586; B-2587; B-2588;
B-2589; B-1967; C-714; C-715; C-472; S-2479; S-2480;

CONTRACT FOR THE CONSTRUCTION OF THE
CEDAR RAPIDS STORAGE DAM

20 THIS CONTRACT, made and entered into this 23rd
day of May, in the year 1929, by and between the James Maclaren
Company, Limited a corporation organized under the laws of
the Dominion of Canada, with principal office in the town of
Buckingham, Quebec, the party of the first part, hereinafter
referred to as the Owner, and William I. Bishop, Limited a
Corporation organized under the laws of the Dominion of Can-
ada, with principal office in the City of Montreal, the party of
the second part, hereinafter referred to as the Contractor:

30 WITNESSETH: That, in consideration of the sums of
money to be paid by the Owner as provided herein, the Contrac-
tor promises and agrees to build for the Owners a dam, to be
known as the Cedar Rapids Storage Dam, across the Lièvre
River on Lots A, Range 4, Bigelow Township and 1, in Range 1,
Township of McGill, Labelle County, Quebec, at a line establish-
ed on the ground the location of which is indicated on a map
attached hereto and forming a part hereof, which is entitled, Ce-
dar Rapids Storage Dam, Lièvre River, Quebec, Canada, General
Plan, Sections and Elevations of Dam.

40 *Materials and Labor*

The Contractor further promises and agrees to furnish
all materials, tools and appliances, labor and work of every des-
cription required for the complete construction of said dam, ex-
cepting only certain materials and equipment which are to be
supplied by the Owners and which are specifically enumerated
hereinafter.

Specifications and Plans

The Contractor further promises and agrees that all work shall be performed and that the dam shall be built in a thorough manner, and in accordance with the terms of certain specifications, entitled "GENERAL SPECIFICATIONS FOR THE
10 CONSTRUCTION OF THE CEDAR RAPIDS STORAGE DAM" which are signed by both parties to this contract, and which are attached hereto, and form a part of this contract, and that such building and performance shall conform in every respect to the plans and drawings of details prepared by HARDY S. FERGUSON, Consulting Engineer, 200 Fifth Ave., New York City, all of which shall form a part of this contract with fully the same effect as if they were embodied therein. It is further agreed that the construction of the dam shall be carried
20 out and completed under the Engineering Supervision and to the satisfaction of the Chief Engineer of the Quebec Streams Commission, and a Resident Engineer to be appointed by him who shall be his representative on the work and have and exercise the authority granted the Engineer in this contract and specifications in all matters pertaining to and affecting the proper construction of the dam, and its safety and durability.

It is further understood and agreed, however that the Owner shall appoint an Engineer who shall represent him during
30 the execution of the work and shall make all measurements and computations of the quantities and costs of work performed by the contractor for the purpose of determining the amount of compensation to be paid to the contractor, and who shall sign and issue all orders for extra work, and prepare and issue all statements or certificates on which monthly and final payments to the contractor are to be based, as authorized and provided for by the terms of this contract.

And it is understood and agreed that wherever the term
40 Engineer or Resident Engineer is used in the following sections of this contract and specifications, it shall mean the Chief Engineer of the Quebec Streams Commission or his representative the Resident Engineer, excepting in those sections of this contract entitled:—

Extra work (the first two paragraphs only) and
Time of Completion, and

Manner and time of making monthly payments.

in which sections, or portions thereof mentioned, the term Engineer shall mean, exclusively, the Engineer appointed by the Owner, as provided above.

The drawings which have been prepared showing the general form and details of the dam and the manner of the construction, and which form a part of this contract are as follows:

- B-2444. Topography at Site of Dam
- B-2571. General Plan, Sections and Elevation of Dam
- B-2577. Details of Abutments and Non-spilling Section
- B-2578. Concrete details of Stoney Gate Section
- B-2579. Details of Guides and Operating Trestle for Stoney Gates
- B-2580. Structural Steel for Stoney Gates
- B-2581. Details of Logs Sluices
- 20 B-2582. " " Bridge over Log Sluices
- B-2583. " " Sluice Gate Section
- B-2584. Elevations of Sluice Gate Section [Section
- B-2585. Details of Stairs and Beams for Sluice Gate
- B-2586. " " Stop Log Section
- B-2587. " " Gate House
- B-2588. " " Main and Log Sluice Gates
- B-2589. " " Cast Iron Gate Frames and Linings
- B-1967. " " Log Sluices Gate Hoist and Rack
- C-714. Hoists for Main Gates
- 30 C-715. Details of Handrailing
- C-472. " " Double Sash Windows
- S-2479. Miscellaneous Iron Work
- S-2480. Details of Piping

The work to be performed hereunder, consists of the complete construction of the Cedar Rapids Storage Dam as shown and indicated on the drawings referred to above, and such supplementary plans and details as may be issued by the Engineer from time to time, the dam to be located as previously described.

The dam will be of concrete construction throughout, and will be about 755 feet long between and abutments. At the deepest section its height from the bottom of the foundation to the floor of the bridge will be not less than 60 feet. The bridge will be surmounted by a concrete gate house about 139 feet long and 18 feet wide. A general plan, elevation views, and typical sections of the dam are shown on drawing No. B-2571.

For reference purposes the dam will be considered as consisting of the following sections named in the order of their location beginning at the easterly end:

	Section 1—	Consisting of	the east abutment and embankment.
10	“ 2—	“	“ the non-spilling dam
	“ 3—	“	“ the stoney gate spillways
	“ 4—	“	“ three log sluices
	“ 5—	“	“ four sluice gates
	“ 6—	“	“ the stop log spillways
	“ 7—	“	“ the west abutment and embankment
	“ 8—	“	“ the gate house.

20 *Section 1. East Abutment and Embankment:*

Including a concrete wall and embankment approximately 70 feet long, and a short section at right angles to it forming the east abutment of the dam; as detailed on drawing No. B-2577.

Section 2, Non-spilling Dam:

30 Including a plain 218 feet long, surmounted by a roadway 12 feet wide as detailed on drawing No. B-2577

Section 3, Stoney Gate Spillways:

40 Consisting of eight steel spillway gates 24 feet wide by 20 feet high, of the Stoney live roller type, located between concrete piers 8 feet thick, a concrete bridge and above this a steel runway for the traveling hoist to be used for operating the stoney gates. The details of the concrete work are shown on drawings Nos. B-2578 and B-2579, and the steel work on drawings Nos. B-2579 and B-2580.

Section 4, Log Sluice Section:

Containing three steel gates 10 feet wide, located at different elevations, and three concrete sluices below the gates. The details of the concrete work are shown on drawings Nos. B-2581 and B-2582, and the gates and hoist on drawings Nos. B-2588 and B-1967.

Section 5, Sluice Gate Section:

10 Containing four sluice gates, each gate opening eight feet square, and the water passages to be lined throughout with cast iron plates. The top of this section will be occupied by a gate house and a roadway. The details of this section are shown on drawing Nos. B-2583, B-2584 and B-2585.

Section 6, Stop Log Spillways:

 Consisting of six stop log bays seventeen feet wide between piers 6 feet thick, surmounted by a concrete bridge 16 feet wide. The details of this section are shown on drawing No. B-2586.

Section 7, West Abutment and Embankment.

20 Including a concrete wall and embankment approximately 35 feet long and a short abutment at right angles to them as detailed on drawing No. B-2577.

Section 8, Gate House:

 Consisting of a reinforced concrete superstructure about 139 feet long, and 18 feet wide, extending over the log sluice and sluice gate sections.

30 *Quantities of Work on which the Contract Price is Based*

 It is further expressly agreed by and between both parties hereto that the principal sum of money to be paid to the Contractor as specified herein, is based on an estimate that the quantities of excavation, concrete masonry, forms, reinforcing steel, and other classes of work required to completely construct the dam, and which have been calculated from the dimensions and depths to the bottom of the dam that are shown or indicated on the drawing referred to herein, will be as follows:

40 Section	1	2	3	4	5	6	7	8
Excavation for the foundations of the dam								
Earth — cu.yds	400	1800	14000*			350		
Ledge — “ “	60	400	5000	900	700	900	100	
Concrete masonry								
Class 1 without plums								
— cu-yds.	260		3300	2200	2700	1000	230	

*Includes excavation of 2,000 cu.yds. of contour elevation 115 above and below the spillway.

	Section	1	2	3	4	5	6	7	8
	Class 1 with plums - cu.yds.		2500	3100		2400	2800		
	Class 2		80	110	50	610	60		240
	Forms — plain — sq.ft.	2800	16000	40000	20000	30000	21000	2500	14000
10	— curved “ “			4000		500	2500		
	Reinforcing steel — tons		3	30	1	13	14		8
	Structural “ — “			127			3		
	Embankment — cu.yds.								
	Measured in place	500						200	
	Backfill — cu.yds.		850						
	Loam & seeding - sq.yds.	130						120	
	Handrailing — ft.								
	2½ inch	75	436	520	63	86	264	40	
	2 “				71	100			
20	1½ “					60			
	72 Stop Logs-M.Bd.ft.						18		

It is further agreed that, should the quantities of excavation, concrete and other classes of work which are listed in the above schedule required for the satisfactory completion of the structure be different from those contained in said schedule, additions or deductions from the principal sum of money herein named shall be made in the manner hereinafter provided.

30

But it is expressly understood and agreed, however, that:

40

(a) The quantities given in the foregoing table do not include any additional excavation which the Contractor may choose or be required to do for bypassing or handling the flow of the river during the construction of the dam ; nor any materials and labor used for the construction of coffer dams ; nor any other work or materials extraneous to the permanent structure of the dam itself which are required for the construction of the dam.

(b) All of said additional excavation and extraneous work and materials are to be performed and furnished by the Contractor as a part of the work for which the said principal sum is to be the compensation.

Equipment and Metal Work to be Furnished by the Owner

It is further understood and agreed that the Owner will supply and deliver to the Contractor, free on board railroad cars at Buckingham, Province of Quebec, all gates guides cast iron gate frames and linings for water passages, all hoists and
10 other operating mechanism including traveling stop log and gate hoists, motors, gasolene-generator set, electrical equipment, steam boiler, and all structural steel work, anchor bolts, iron work of every kind, and piping ; and the Contractor shall transport these to the site and completely erect them in their intended locations in the dam in a manner satisfactory to the Engineer, as part of the work to be performed by him for the principal sum of money herein named. All other metal work required for the construction of the dam including reinforcing steel, pipe railings and sockets and all doors and windows shall be furnish-
20 ed and erected by the Contractor at his own cost and expense.

Changes of Design and Dimensions

It is agreed between all parties hereto that the Owner shall have the right to make such changes in the design and dimensions of the dam as the Engineer may deem necessary or advisable, and that changes shall not invalidate this contract. If such changes shall be made and they increase or decrease the quantities of the various classes of work required for the construction of the dam, the principal sum of money to be paid to the
30 Contractor hereinafter specified, shall be correspondingly increased or decreased by amounts which shall be calculated and determined in the manner hereinafter provided.

Extra Work

It is understood and agreed by both parties hereto that nothing shall be construed as extra work which is necessary for the proper completion of the work in accordance with the manifest intent of the drawings and specifications and that no claim
40 for additional compensation for any work done under this contract shall be considered or allowed except as hereinafter provided unless such claim is made before the performance of the work in question. The Engineer will issue a written order for the execution of legitimate extra work and no payments for extra work shall be made in the absence of such orders from the Engineer.

For such extra work as the Contractor shall be perform by virtue of the written authorizations of the Engineer, the Owner shall pay to the Contractor, in addition to the principal sum hereinafter specified, sums of money equal to:

- 10 (a) the actual cost of the labor directly employed for, and the materials used in performing said extra work ; plus

- 20 (b) thirty-seven (37) percent of said labor and material costs, it being agreed by both parties that said thirty-seven percent thereof shall be considered to be the cost to the Contractor of small tools, plant maintenance, overhead and superintendence, insurance and other indirect costs of performing said extra work, and that it shall include the profit to be received by the Contractor therefor ; and plus

- 30 (c) amounts which shall be compensation for the use of heavy tools and machinery of the Contractor employed for and constructing said extra work, said amounts to be the sum of the products found by multiplying the number of days and fractions thereof that each individual tool or piece of machinery is actually used therefor by the per diem rate for said tool or piece of machinery which is contained in the following schedule of per diem rental rates, and said sums shall not be payment for labor used to operate said tools and machinery.

It is further agreed that any core drilling or grouting of seams in the ledge beneath the dam which may be required by the Engineer shall be considered as extra work and be paid for as such in the manner provided herein for other extra work.

40 **SCHEDULE OF PER DIEM RENTAL RATES**

	Per Day
A. Leads complete, hoist cores, tools etc.	\$20.00
B. Locomotive crane	20 00
D. Sheet pile hammer — Arnott #3	2.50
F. Cornice brake	0.75
G1 Hoisting Engine, 3 drum with boiler	4.70
2 2 drum " "	4.20
3 2 drum " skeleton	3.10
4 Swinging engine	1.50

		Per Day	
	H1 Boilers — Locomotive type: 100 H.P.	.....	3.50
	2 80 H.P.	.....	2.70
	3 60 H.P.	.....	2.50
	4 40 H.P.	.....	1.70
	5 30 H.P.	.....	1.25
10	J1 Mixers — Concrete — 1 cu. yd.	.....	3.20
	2 3/4 " "	.....	2.50
	3 1/2 " "	.....	2.20
	4 gas — 7 cu. ft.	.....	2.20
	K1 Pumps Steam D.C. 12" x 13"	.....	4.00
	2 10" x 12"	.....	3.50
	3 8" x 10"	.....	2.00
	4 6" x 8"	.....	1.50
	5 Pulsometer	.....	1.50
20	L1 Derricks — guy 65' boom (not incl. hoist)	.....	3.00
	2 Stiff leg " " "	.....	3.00
	3 Traveller	.....	3.00
	M1 Buckets — Orange peel — 1 cu. yd.	.....	3.00
	2 Clam Shell — 1 " "	.....	2.50
	3 " " 3/4 " "	.....	2.00
	4 Concrete 1 " "	.....	0.50
	5 " with trucks — 1 cu. yd.	.....	0.75
	6 Insley complete tower outfit — 1 cu. yd.	.....	2.00
	N1 Cableway — 5 ton Jenckes	.....	9.00
	2 " 3 1/2 " "	.....	7.00
30	O1 Cars — 2 Way dump — 2 cu. yds.	.....	0.50
	2 " V shape concrete	.....	0.25
	P1 Compressors — 340 cu ft.	.....	4.00
	233 " "	.....	3.75
	R1 Drills — air — Jackhammer	.....	0.50
	2 — Waugh clipper	.....	0.50
	3 — " turbo	.....	1.00
	4 — Woodborers	.....	0.50
	5 Drill sharpener	.....	2.50
40	S1 Diving outfit	.....	1.00
	T1 Band saw 36"	.....	1.00
	2 Screw cutter	.....	2.00
	3 McDougall drill	.....	1.00
	4 Lathe McDougall — 12' bed	.....	1.50
	5 Hack saw — power	.....	0.50
	6 Saw table — combination	.....	1.00
	7 Shaper	.....	2.00
	8 Planer	.....	1.00
	9 Planer Buzz	.....	1.00

			Per Day
	V1 Motors electric —	7½ H.P.	0.30
	2	10 “ “	0.50
	3	15 “ “	0.50
	4	30 “ “	1.00
	5	60 “ “	1.50
10	W1 Crushers	9" x 16"	3.00
	“	12" x 24"	6.00

Wood, Timber and Other Materials which become property of the Contractor

It is also understood and agreed that all timber or wood cut from such areas surrounding the dam and belonging to the Owner as the Contractor is required to clear for the site of the dam, or for borrow pits, camps, or roads required for the construction of the dam, may be used by the Contractor for the construction of the dam without paying the Owners therefor. Any other wood or lumber required by the Contractor for fuel or for construction purposes shall be supplied by him at his own cost and expense.

All cement, reinforcing steel and other construction material left over and remaining on the premises at the completion of the work and which the Contractor has supplied, shall be the property of the Contractor and shall be removed by him at his own expense.

Time of Completion

The Contractor further promises and agrees to commence promptly the work of construction, to prosecute the work with diligence, and have the dam substantially completed and ready for storage of water on or before March 31st, 1930.

Should the completion of the work be delayed by the failure of the Owner to deliver to the Contractor, when it is needed in order that construction work can proceed without interruption, any of the materials or machinery which, as provided herein, the Owner is to supply, said date shall be advanced by an amount of time, to be estimated by the Engineer, which shall be equivalent to the delay in finally completing the work which shall be thus caused.

*Failure of Contractor to
Prosecute Work in Satisfactory Manner*

10 It is further understood and agreed that if, at any time during the progress of the work, it should appear that, in the opinion of the Engineer, the force employed or the quantity or the quality of tools, appliances or workmen provided, or the character of the work or materials furnished are not respectively such as will insure the completion of the work called for under this contract, within the time stipulated, or are not in accordance with the specifications, then the Engineer may serve written notice upon the Contractor to at once supply such increase of force, appurtenances or tools, and to cause such improvement in the character of the work and materials, as may be required to make the same conform to the stipulations of this contract.

20 If the Contractor shall fail to furnish to the Owners satisfactory evidence of his ability and intentions to furnish and remedy the specified deficiencies, the Owner may thereupon after ten days written notice to the Contractor enter and take possession of the said work, with any tools, materials, appurtenances and machinery thereon, and may purchase additional tools, machinery and materials, and apply them to such uses as may be necessary in order to complete the work within the time specified, and the cost of completing such work shall be deducted from
30 any amounts then due or thereafter falling due the Contractor, and the right of the Owner to make such deductions shall be without prejudice to the Owner's right to sue and recover from the Contractor amounts sufficient to complete the work and to satisfy any outstanding claims against the Contractor on account of the work, if the credit standing in favor of the Contractor are not sufficient for these purposes.

Liability of the Contractor

40 The Contractor further agrees to assume all responsibility for the work under these specifications and to assume the defense of and to indemnify and protect the Owner, his Officers and Agents, from all loss or cost in connection with claims, demands, suits and actions of every kind including those arising under any workmen's compensation Act, present or future, made for or on account of any injuries to any persons or property caused or claimed to be caused directly or indirectly by the conduct of the work of construction contemplated by this contract or by or in consequence of any negligence in guarding the same

or by reason of any acts or omission of the Contractor, his agents or employees, or by any acts of strangers, or any condition due to the elements, or any defects or insufficiencies in any methods, materials, machinery or any apparatus used in connection with the work, or for any and all liens claims arising under or growing out of this contract .

10

Bond

It is further understood and agreed that the Contractor shall execute a bond in the penal sum of One Hundred thousand dollars (\$100,000.00) with a satisfactory liability insurance company, as surety, conditioned that he will in all respects perform the conditions of this contract and will within the time named fully perform the work which he has herein undertaken to perform and furnish the materials and labor, and that the premises
20 of the Owner shall be free and clear of all manner of lien and claim on account of the acts of the Contractor pertaining to his undertaking herein, and will indemnify the Owner against all and every manner of claim and expense, save payment of compensation for the materials and work as herein specified. The cost of the bond will be paid by the Owner.

Arbitration

It is understood and agreed by both parties that the
30 Engineer's decision regarding the quality of the materials or workmanship to be furnished under the terms of this contract shall be final and binding. Should any dispute arise as to the interpretation of the terms of this contract, as to cost of changes and extra work performed, or in regard to any other matter regarding the execution or final settlement of this contract, it shall be referred to a Board of three arbitrators : One to be selected by the Owner, one to be selected by the Contractor, and the third to be selected by the two thus chosen. A written report
40 of its findings shall be furnished by this Board ; one copy to the Owner, and one copy to the Contractor, and its decision shall be final and binding on both parties, and the compensation and expenses of said arbitrators for each case thus referred shall be paid for by the party against whom the decision shall be rendered.

Consideration

In consideration of the faithful performance on the part of the Contractor of all the covenants and agreements herein

contained the Owner agrees to pay to the Contractor in the manner and at the times hereinafter specified the sum of Six hundreds and nine thousand one hundred dollars (\$609,100.00) referred to elsewhere herein as the principal sum, and said principal sum, plus the sums to be paid as provided for herein for any authorized extra work which shall have been performed by the Contractor shall be the limit of the liability of the Owner hereunder provided that the quantities of the various classes of work required to construct the dam shall prove to be the same as those given in the schedule of quantities hereinbefore contained.

If, however, the quantities of any of the various classes of work required to build the dam shall be different from the corresponding quantities hereinbefore given, due to changes of design or depth of foundations from those used for calculating said quantities, there shall be added to or deducted from said principal sum according to whether said quantities are increased or diminished, sums computed according to the following table and the net sum produced by these additions and deductions plus the value of any extra work performed by the Contractor and computed in the manner hereinbefore provided, shall become the total amount to be paid by the Owner to the Contractor for all of the work performed by him under the terms of this contract:

a.	For each cubic yard of earth excavation except as covered by (b) below		
	by which the scheduled quantities are increased, add	\$ 1.23	
	“ “ “ “ “ “ decreased, deduct	1.20	
b.	For each cubic yard of earth excavation required for the stoney gate section below elevation		
	97 in excess of 1500 cubic yards	add	\$ 1.30
	less than 1500 “ “	deduct	1.20
c.	For each cubic yard of ledge excavated above elevation 78 in the main river channel or elevation 85 under the stoney gate section		
	by which the scheduled quantities are increased, add	\$ 4.35	
	“ “ “ “ “ “ decreased, deduct	4.00	
d.	For each cubic yard of ledge excavated below elevation 78 & above 70 in the main river channel or “ “ 85 “ “ 77 under the stoney gate section,	add	\$ 4.60
e.	For each cubic yard of ledge excavated below elevation 70 & above 64 in the main river channel or “ “ 77 “ “ 71 under the stoney gate section,	add.....	\$ 6.50

f.	For each cubic yard of ledge excavated below elevation 64 in the main river channel or " " " " 71 under the stoney gate section, the work shall be paid for as extra work as provided elsewhere herein.		
g.	For each cubic yard of embankment or backfill measured in place exclusive of loam which is included in (h) following. by which the scheduled quantities are increased, add	\$ 2.50	
	" " " " " " decreased, deduct	2.00	
h.	For each square yard of loam, 8 inches thick placed and seeded, by which the scheduled quantities are increased, add	\$ 1.23	
	" " " " " " decreased, deduct	1.23	
i.	For each cubic yard of class 2 concrete by which the scheduled quantities are increased, add	\$27.55	
	" " " " " " decreased, deduct	18.32	
j.	For each cubic yard of class 1 concrete without plums by which the scheduled quantities are increased, add	\$18.92	
	" " " " " " decreased, deduct	9.81	
k.	For each cubic yard of class 1 concrete with plums by which the scheduled quantities are increased, add	\$17.16	
	" " " " " " decreased, deduct	9.31	
l.	For each square foot of forms for plain or warped surfaces by which the scheduled quantities are increased, add	\$ 0.35	
	" " " " " " decreased, deduct	0.35	
m.	For each square foot of forms for curved surfaces by which the scheduled quantities are increased, add	\$ 0.66	
	" " " " " " decreased, deduct	0.66	
n.	For each pound of reinforcing steel placed by which the scheduled quantities are increased, add	\$ 0.079	
	" " " " " " decreased, deduct	0.056	
o.	For each foot of handrailing of the sizes specified by which the scheduled quantities are increased, add for 2 1/2"	\$4.57	
	" " " " " " " " " " " " " " 2"	2.96	
	" " " " " " " " " " " " " " 1 1/2"	2.28	
	" " " " " " " " " " " " " " decreased, deduct " 2 1/2"	4.57	
	" " " " " " " " " " " " " " 2"	2.96	
	" " " " " " " " " " " " " " 1 1/2"	2.28	

Manner and Time of Making Monthly Payments

It is still further agreed that on or before the tenth day of each calendar month, the Resident Engineer shall estimate and render to the Owner and Contractor, a certificate containing his estimate of that proportion of the amount and value of the work to be performed hereunder, which shall have been completed by the Contractor on the last day of the preceding month, including therein the cost of all extra work plus the percent of said cost to be allowed, and his estimate of the amount and value

of such materials of construction as are one the site and are not in excess of the amounts to be required for the completion of the work covered by this contract.

It is still further agreed that on or before the fifteenth day of said calendar month the Owner shall pay to the Contractor ninety percent of the value of the work performed and materials delivered as given in said certificate less all payments previously made.

It is further understood and agreed that the value of the materials of construction delivered and not used on the first of each month shall be determined by the Engineer for the purpose of making monthly payments to the Contractor and that this value is not intended to be above the direct cost of the aforesaid materials delivered on the site, and it is also understood and agreed that in determining the proportionate value of the work performed to given dates for the purpose of establishing the amounts of the monthly payment to be made to the Contractor as specified above, the Engineer shall consider that the value of the various parts of the work required for the construction of the dam shall be the following proportionate parts of the principal sum:

		Per cent of Principal sum
30	1. Roads, tracks, camps, plant installation, clearing site and other preparatory work ...	\$ 23.2
	2. Cofferdams, erection and removal, pumping and excavating by-pass channel exclusive of excavation required for dam.....	10.7
	3. Transportation	11.1
	4. East abutment of the dam (Section 1)	0.87
	5. Non-spilling section (Section 2).....	5.47
	6. Stoney gate section, exclusive of steel trestle (Section 3)	18.78
40	7. Log sluice section (Section 4).....	5.17
	8. Sluice gate section (Section 5).....	11.35
	9. Stop log section (Section 6).....	8.04
	10. West abutment (Section 7).....	0.66
	11. Gate house (Section 8).....	1.24
	12. Erection of steel trestle for stoney gates and installation of gates, hoists and all operating equipment	1.86
	13. Removal of plant and cleaning up.....	1.56
		100.00

Final Payments

The Contractor shall upon the completion of all the work called for under this contract notify in writing the Engineer of such completion and the date thereof, and the Engineer shall
10 within thirty days of the receipt of such notice examine the dam to determine whether the work has been done and completed to his satisfaction and in accordance with the terms of this contract, and, if he shall so determine, certificate stating that fact shall be rendered by him to the Owner and the Contractor immediately.

If the Engineer shall determine that the work has not been completed to his satisfaction and in accordance with the terms of this contract, he shall immediately so notify the Contractor
20 in writing stating what must be done by the Contractor to complete the work to his satisfaction and in accordance with the terms of this contract, and the Contractor shall proceed forthwith so to complete the work. Within thirty days from the date of the completion of the dam to the satisfaction of the Engineer who shall make from time to time such examination as may be necessary to determine that fact and having determined that fact, shall so state giving the date of such completion in certificates to be rendered to the Owner and the Contractor immediately.
30

The Owner shall within sixty-three days of the date of completion, as given in the certificates, pay to the Contractor that portion which shall at that time remain unpaid, of the entire amount of compensation which he shall be entitled to receive as provide in this contract, if the Contractor shall satisfy the Owner that there are no outstanding liens or claims against him, arising out of the performance of this contract.

40 The acceptance of the work by the Engineer or by the Owner, and the completion of the payments therefor by the Owner, shall not relieve the Contractor from any responsibility under the law of the Province of Quebec, which may arise on account of defective workmanship performed or materials used by him in the work, or for any other cause.

This contract shall avail and be binding on the parties hereto as if signed on November 15, 1928.

IN WITNESS WHEREOF, the parties by their duly authorized officers have hereunto set their hands this 23rd day of May 1929.

The James Maclaren Company, Limited
By Albert Maclaren
its President.

10 Witness: J. A. Bryant.

William I. Bishop, Limited
By Wm. I. Bishop
its President.

GENERAL SPECIFICATIONS FOR THE
CONSTRUCTION OF THE
CEDAR RAPIDS STORAGE DAM

20 The following specifications and all drawings, plans and sketches referred to therein are a part of a contract dated May 23/1929 and entered into by and between the James Maclaren Company, Limited, hereinafter referred to as Owner, and William I. Bishop, Limited, hereinafter referred to as the Contractor.

Section No. 1
General Conditions

30 (1) *Inspection*

A Resident or Field Engineer who shall be the representative of the Owner and Engineer and who shall exercise the authority given to the Engineer under the terms of the contract, shall be on the work during its construction. At his discretion he may employ Inspectors or Assistants, who shall be granted free access to the work at all times, and exercise such authority of the Resident Engineer as he may delegate to them.

40 The Field Engineer and the Inspectors will have authority to insist that all details of the construction work, the materials employed, and the combination of materials are in accordance with the requirements of these specifications and the plans accompanying same.

Wherever required by the Engineer, the Contractor shall, at his own expense, have all or any of the materials to be used in the work inspected and tested before shipment from the place of manufacture by a reputable testing laboratory satisfactory to

the Engineer. All such tests are to be made in accordance with the methods adopted by the American Society for Testing Materials and certified copies thereof are to be furnished to the Engineer.

(2) *Superintendence*

10

The Contractor must provide a competent superintendent, who shall be present on the work at all times when such work is in progress and who shall have full authority to act as Agent for the Contractor. It is expressly agreed and understood that any instructions or stipulations as to the quality of workmanship, or the progress or conduct of the work given to such Superintendent by the Engineer shall be considered as having been given to the Contractor.

20 Copies of these specifications and drawings are to be in the possession of the Superintendent at all times.

(3) *Quality of Work*

30 All work and material furnished under these specifications must be the very best of their respective kinds and their quality shall be entirely suitable for the service required of them. They shall be subject to the approval and acceptance of the Engineer. The entire work, when complete, shall be subject to the approval of the Engineer, and the final payment due under the terms of the contract shall not be made until the Engineer's acceptance of the work is given in writing.

All work is to be done strictly in conformity to all lines, grades, instructions, and stipulations which may be issued from time to time by the Engineer.

(4) *Labor*

40

The Contractor shall employ competent and skilled workmen who are specialists in the several trades which the character of the construction demands. Disorderly, intemperate, or incompetent persons shall be immediately discharged from the work at the request of the Engineer, and such persons shall not again be employed upon the work, without the consent of the Engineer.

The Contractor shall not employ any skilled or unskilled workmen that may be at the time in the employ of the Company, without first receiving permission from the Company.

(5) *Sub-Contracts*

The Contractor shall not sub-let any part of the work without written permission from the Engineer, but should the Contractor by reason of said permission sub-let any portion of the work herein specified, he shall not be released from the performance of any obligations which he assumed, the discharge of which he may have entrusted to the sub-contractor.

(6) *Damage and Permits*

The Contractor is to secure all necessary permits and shall be solely responsible for any violation by him or his employees of Federal, Municipal, or County Laws, Ordinances, or Regulations.

20 He shall so construct the coffer dams and arrange and manage the construction of the works as a whole, that logs of the owner, or of others, may be driven by the site of the dam during the driving season of 1929, and shall provide such opportunities for the passage of logs as the construction work may render necessary.

The Contractor is also to assume all responsibility for the work under these specifications, and maintain sufficient insurance to completely indemnify and protect the Company, its officers and agents, from all loss or cost in connection with claims, demands, suits, and action of every kind, made for or on account of any injuries to any persons or property caused or claimed to be caused directly or indirectly by the conditions or by the conduct of the work of construction contemplated by this contract and specifications, excepting damages to property caused by raising the level of the water in the river above the dam, or by or in consequence of any negligence in guarding the same or by reason of any acts or omission of the Contractor, his agents or employees, or by any acts of strangers, or any conditions due to the elements, or any defects or insufficiencies in any methods, materials, machinery, or any apparatus used in connection with the work. Cost of this insurance shall be included in the contract price.

(7) *Lines and Levels*

General lines, grades and levels will be established by the Engineer. These will be in accordance with the plans, or he may

vary them if in his judgment conditions from time to time warrant a change. The Engineer will be accorded all necessary facilities by the Contractor for doing this work.

The Contractor shall provide all labor and materials necessary for making or setting all batter boards, stakes, marks or
10 forms required for laying out the work and he must carefully preserve same.

(8) *Condemned Materials and Construction*

Any imperfect work due to poor materials or workmanship shall be replaced by the Contractor at his own expense.

The Contractor shall, within twenty-four (24) hours after receiving written notice from the Engineer to that effect, proceed to remove from the ground all materials condemned,
20 whether worked or unworked, and to take down all the work which the Engineer shall by like written notice, condemn as unsound or improper, or in any way failing to conform to the drawings and specifications.

Any delay caused by the condemnation or demanded removal of any work or materials in conjunction with the above clause shall not be assumed as a basis of claim for loss or damage
30 by the Contractor.

(9) *Samples*

Whenever so requested by the Engineer, the Contractor shall submit for approval samples of all the various materials to be used in the work, with specimens of the labor and finish thereon, specified for and intended to be used in the work, and all materials and workmanship must be equal in every respect to that of the samples so selected and approved.

40 (10) *Protection of Work*

The Contractor shall take every necessary and useful precautions against accident or injury to the work therein specified, or to any property near to, or liable to be affected by this work, and the Contractor shall repair and make good any damage or loss that may be occasioned to the Company, or to any person or persons injuriously affected by reason of neglect or carelessness of the Contractor or his employees. The work herein

specified is to be furnished at the sole risk of the Contractor until the contract is fulfilled, even though any portion which may be injured or destroyed shall have been approved and accepted by the Engineer.

- 10 All materials furnished by the Company, if any, for this work shall be in the Contractor's custody after delivery to him, and the Contractor's liability for such materials shall be the same as for these materials which he furnishes.

The Contractor shall, when deemed necessary by the Engineer, keep a watchman on the premises at all times when work is not being carried on. The intent of this clause is that the watchman shall be on duty any time that the day shift is not working.

- 20 The Contractor shall do all work needed to protect his work from water, he will erect all temporary dams, coffer dams, sheet piling and other devices to take care of the river and shall be responsible for all damage that may be caused by the action of the water from negligence or any other cause, such damage to be repaired and the work must be restored and maintained at his expense.

- 30 All earth and rock excavation, masonry, timber and other work for the purpose of protecting the work from the river is to be removed by the Contractor if so ordered by the Engineer. The Contractor is to do all the draining and pumping which shall be necessary for keeping the work free from water.

The Contractor shall provide all temporary walks and roadways necessary for convenience and all proper safe-guards wherever required to protect the employees or the public.

(11) *Cleaning Up*

- 40 The Contractor shall at all times keep the site free from accumulations of waste lumber and other debris, and will maintain the premises in a safe, neat and orderly condition, and upon fulfillment of the contract he will immediately remove all surplus materials and all machinery, apparatus, and tools belonging to him, and leave the entire premises free from rubbish and in a neat and orderly condition. He will restore to its original condition all land and property which may have been injured, removed or disturbed in the prosecution of the work herein specified.

Section No. 2
Materials

(1) *General*

The Contractor shall furnish all the materials, except as noted, necessary for completing the work according to the plans.
10 All materials as received shall be stored in suitable locations and in a neat and orderly manner, easily accessible for inspection or use as desired. Every precaution shall be taken against loss by fire, theft or any other cause.

All materials employed in the work must conform to the requirements of these specifications. Materials not particularly graded in these specifications or on the plans accompanying same shall be of the best merchantable quality for their kind and class.

20 It is the intention of these specifications to secure thoroughly first-class construction in both material and labor for each of the classes included herein without working an undue hardship on the Contractor. The omission of any clause necessary to obtain the fulfillment of the intention and purposes of the specifications shall not preclude the Engineer from requiring any such omitted necessary requirements. Any work condemned by the Engineer due to imperfect workmanship or materials shall be replaced by the Contractor at his own expense.

30 (2) *Cement*

All cement shall be Portland cement of a standard U. S. or Canadian brand satisfactory to the Engineer and guaranteed by the manufacturer to conform to the standard specifications and test requirements for Portland cement (Serial Designation C-9-26) of the American Society for Testing Materials, and subsequent revisions thereof.

40 It shall be tested before leaving the factory, by an approved testing laboratory and none of any shipment shall be used until after the result of the seven day test has been received. A copy of the test results shall be furnished the Engineer.

The cement shall be delivered in standard acceptable packages having the brand name and the same of the manufacturer plainly stamped thereon. It shall be stored at the site of the work in a weatherproof building with floor raised above the ground (or otherwise protected from moisture) in such manner

as to absolutely protect the cement from dampness. The cement shall be stored and piled in such manner as to allow proper inspection and permit the identification of each shipment until the result of the seven day test is received.

10 Any cement which has become hard or is, in the opinion of the Engineer, otherwise unfit for use, shall be removed from the site.

The cement may be rejected if it fails to meet any of the requirements of these specifications.

(3) *Fine Aggregate*

20 The fine aggregate shall consist of sand having clean, hard, strong, durable, uncoated grains, free from organic matter, alkali, dust, lumps, soft or flasky particles, shale, loam or other deleterious substances, and containing not over one per cent (1%) of clay.

It shall also pass the following tests as hereinafter described:

1. The colorimetric test for organic impurities.
- 30 2. The sieve test for amounts of coarse and fine material included.
3. The sieve for grading of particles for the determination of the fineness modulus.

Failure to pass any of the above tests shall be considered sufficient reason to reject the material for use of fine aggregate.

40 *The colorimetric test* for the detection of organic impurities as described below will, at the discretion of the Engineer, be sufficient evidence upon which to decide on the suitability of the sand as regards its content of organic impurities. This test is to be made as follows:

Deposit about 4½ ounces of the sand in a 12 ounce bottle and to it add enough of a three per cent solution of sodium hydroxide in water until the volume of sand and liquid after shaking is about seven ounces.

The bottle should be stoppered and shaken thoroughly, and then allowed to stand for 24 hours.

10 A standard color solution shall be prepared by adding 2.5 c.c. of a two per cent solution of tannic acid in 10% alcohol to 22.5 c.c. of a three per cent solution of sodium hydroxide. This shall be placed in a 12 ounce bottle, stoppered and allowed to stand for 24 hours, then 25 c.c. of water added.

The color of the liquid above the sand shall be compared with the standard color solution and if found darker than the standard solution, that is, if the color is from brown to dark brown, the sand shall not be used.

20 *The amounts of coarse and fine material to be included in the fine aggregate shall be limited as follows:*

Retained on a No. 4 sieve —not more than 15%
Passing through a No. 50 sieve—not more than 30%
and not less than 10%

30 The fine aggregate shall be graded by the sieve analysis method to determine the fineness modulus. If the fineness modulus obtained in this manner is between a minimum of 2.0 and a maximum of 3.5 the grading of the particles shall be considered satisfactory. The sieves and method of making the sieve analysis shall conform to the standard method of test for Sieve Analysis of Aggregates (Serial Designation C41-24) of the A. S. T. M. and subsequent revisions.

40 Briquettes shall be made of one part Portland cement and three parts of sand and tested according to the method described in the Standard Specifications for Portland Cement (A. S. T. M.) and shall have a tensile and compressive strength at an age of 7 and 28 days not less than that of briquettes made in same proportion and under identical conditions with standard Ottawa sand and the same cement.

In case the Contractor has a stone crushing plant on the site or very close to it, crusher dust, when clean and otherwise suitable, may be mixed with the sand to an amount not exceeding twenty per cent (20%) of the total fine aggregate, if the Engineer is satisfied with the quality of the dust and screenings obtained and with the quality of the resultant mixed fine aggregate.

The quality of sand or other fine aggregate used for concrete or mortar will be considered to rank equal in importance with the cement and shall be tested from time to time at the site as the Engineer may direct. The Contractor shall submit for the Engineer's approval samples of the sand or mixed fine aggregate he proposes to use in the work, a sufficient length of time in advance of its use, to permit the development of a seven day test.

(4) *Coarse Aggregate*

The coarse aggregate shall consist of crushed stone, screened gravel, or combination thereof, having clean, hard, strong, durable, uncoated particles free from soft, friable, thin, elongated or laminated pieces, alkali, organic or other deleterious matter and shall all be retained on a No. 4 screen. It must also conform to the following requirements as to grading:

The maximum sizes shall be:

- 2" for mass concrete, heavy walls, footings and machinery foundations.
- 1" for all reinforced concrete work, beams, columns, slabs and medium sized sections.
- 1/2" for floor finish, thin slabs or walls, ornamental sections, or where fireproofing only is required.

The grading of the aggregate for any of the above maximum sizes shall be within the following limits:

	For 2" Stone not less than 95% to pass through a 2" square mesh screen								
		"	"	"	40%				
		nor more	"	75%	"	"	"	"	"
	For 1" Stone not less than 95% " " " " 1" " " "								
40		"	"	"	40%				
		nor more	"	75%	"	"	"	"	"
	For 1/2" Stone not less than 95% " " " " 1/2" " " "								

The test for grading shall be made by the sieve analysis method as specified for the fine aggregate.

All material retained on a Standard No. 4 square mesh sieve shall be classed as "Coarse Aggregate" and all material passing the No. 4 sieve shall be used for "Fine Aggregate."

Crushed stone shall be obtained from sound hard rock of a formation which breaks, when crushed, into irregular angular fragments. No soft, shaly or conglomerated rock, or granite formation which contains a large percentage of mica or iron, will be acceptable.

10 Specimens of the various grades of concrete made from the aggregates proposed for us may be required to be tested at the discretion of the Engineer before approval of the aggregates.

A good supply of aggregates must be maintained in advance of the work according to requirements. Crushing and screening facilities and storage bins for segregating the required sizes must be provided of such capacity that there will arise no question of supplying the maximum demands of the work.

20 All walls having no reinforcing steel and which are more than 5 feet thick, and also all heavy foundations, may contain up to 30% of sound stones not less than one cubic foot in size. Such stones are to be free from cracks or seams and must be clean with the particles of earth adhering to them. They must be thoroughly wetted just before they are placed in the concrete and must be laid on the natural bed at least six inches apart in the wall and 12 inches from the face of the form.

(5) *Gravel*

30 If river or bank gravel is used, it must be hard, sound, and absolutely clean and must otherwise conform to the above specifications.

40 Tests shall be made in which the coarse and fine aggregates shall be separated. The fine and coarse aggregates, as separated, must conform to the general requirements for aggregates as hereinbefore stated, except that in the case of gravel not more than 10% of the gravel shall be retained on a two inch square mesh sieve.

The graded sizes of the combined aggregates shall be such that, when separated on a No. 4 standard square mesh sieve, the amount retained shall not be less than the amount passing nor more than twice the amount passing.

(6) *Storage of Aggregates*

Aggregates shall be stored in separate storage bins with spaces for the fine aggregate and for the various sizes of stone.

The storage spaces or platforms shall be such as will avoid the inclusion of foreign materials or the admixture of the various kinds of aggregates. Before using any of the aggregates, frost, ice, and lumps of frozen materials must be removed.

10 (7) *Water*

The Contractor shall provide an abundant supply of water for all purposes and shall install pumps and piping and do any construction and maintenance work necessary to ensure sufficient water for any requirements of the construction work at all times.

20 The water used in mixing mortar, grout, or concrete shall be clean and free from salt, oil, acid alkali, organic and any foreign or injurious chemicals or substance.

(8) *Units of Measurement*

The unit of measurement shall be the cubic foot.

A quantity of cement weighing 100 lbs shall be considered to be one cubic foot.

30 The gallon referred to in these specifications is the standard United States gallon of 231 cubic inches. (Whom the Imperial gallon (277 cubic inches) is used the proper correction must be made).

(9) *Reinforcing Steel*

40 All steel to be used as reinforcement for concrete shall be new billet stock of the intermediate grade and shall conform to the American Society for Testing Materials, Serial Designation A-15-14 and subsequent revisions. Material for spiral hooping shall have a yield point not less than that required for intermediate grade steel.

All reinforcing steel shall be standard squares or rounds as required and shall in all cases be corrugated, twisted, or otherwise deformed in a manner and with a type of deformation acceptable to the Engineer.

Section No. 3
Construction Methods and Workmanship

(1) *General*

10

The Contractor is to use such methods and appliances for the performance of all the operations connected with the work embraced under these specifications as will secure a satisfactory quality of work and a rate of progress which, in the opinion of the Engineer, will secure the completion of the work within the time specified. If at any time before the commencement or during the progress of the work such methods or appliances appear to the Engineer to be unsuitable or deficient in quantity or kind for securing the quality of the work required or the required rate of progress, he may order the Contractor to improve them and correct the deficiencies and the Contractor must conform to such order ; but the failure of the Engineer to make such demands shall not relieve the Contractor from his responsibility to secure the quality of work and the rate of progress established in these specifications.

30 During the progress of the work, the whole premises shall be kept in as neat and orderly a condition as possible, considering the character of the work in hand. Wherever carpentry is in progress, all shavings and other refuse shall be kept cleaned up daily.

Forms as stripped shall be immediately knocked down and cleaned and the sheathing and dimension stock piled neatly for further use while the waste pieces shall be immediately removed from the premises or burned.

(2) *Coffer Dams*

40

The Contractor will be required to construct, maintain and remove all the coffer dams which are necessary for the construction of the work hereinbefore described. Should it be considered advisable to excavate a channel as indicated on drawing No. B-2571 to by-pass the flow of the river during the time construction work is in progress in the main channel of the river, thus reducing the amount of coffer dam work required, the Contractor shall perform all such excavation and other work directly involved at his own expense and cost, except for that part of the excav-

ation which would be required for the dam if the channel was not excavated. He shall also do all pumping required to perform the work on the areas within the coffer dam. At the proper stages of the work, the Contractor shall remove the coffer dams and leave no part of the work in place which in the judgment of the Engineer will interfere with the operation of the dam.

10

(3) *Excavation*

The Contractor shall perform all the necessary clearing, stumping and grubbing wherever the area to be excavated is covered with forest growth and the material shall be removed or burned in advance of the excavation without detriment to or interference with surrounding growth or property. The excavation work includes all excavation for foundations, trenches, pits, etc. necessary to the proper completion of the structures and site in accordance with the drawings and specifications and requirements understood or implied.

20

Excavation shall be shored and protected, if necessary, by temporary timbers or other means to prevent injurious caving or erosion. The Contractor shall do all pumping and baling necessary to keep the foundations free from water while placing foundations.

30

The method of handling the excavation may be of any approved means but care must be taken that the depth excavated shall be no lower than necessary to conform as clearly as possible to the lines shown on the drawings and provide satisfactory foundations.

40

Surplus materials not required for filling or grading shall be deposited where directed by the Resident Engineer. The top soil on site if satisfactory to the Resident Engineer, shall be deposited in piles separated from other excavated materials and shall be used for furnishing surface grading, and the down stream face of embankment.

Great care shall be exercised in doing necessary blasting that no damage shall be done to surrounding property or other parts of the work and construction machinery or to individuals.

(4) *Shoring*

Wherever the materials to be excavated are soft and unstable, and sliding or caving is liable to occur, some adequate method of shoring and sheathing must be employed.

(5) *Foundations*

In preparing foundations for the concrete structures all loose ledge must be removed and the excavation carried to a sufficient depth to provide a safe foundation and remove all open seams or joints which might at some time permit leakage or act
10 as sliding planes.

All this work shall be done as directed by and to the satisfaction of the Engineer.

Cut-off trenches approximately as shown upon the drawings shall be excavated in the ledge with minimum dimensions indicated. Great care should be used with explosives in excavating these trenches so as not to shatter the ledge unnecessarily or open any cracks which shall cause leakage or allow water to exert
20 pressure underneath the structure.

It is proposed for all structures carrying a head of 25 feet or more of water that a line of test holes shall be drilled along the location of the up-stream toe of the dam and in case of these holes showing the existence of open seams in the ledge, it may be deemed necessary to drill additional holes and close such seams by the grouting method.

The surface of the ledge for the initial pouring of concrete shall be prepared and grouted in the same manner as hereinafter described for the horizontal joints in concrete.
30

(6) *Filling and Grading*

The Contractor shall do all filling and grading required about the work, obtaining the materials directly from the necessary excavation or from spoil banks of excavated material or from borrow pits as the case may be. All filling and grading shall be done to such lines and grades as indicated on the drawings or as the Engineer may establish.
40

Whenever required by the Engineer, the Contractor shall thoroughly tamp and puddle the materials as deposited either by depositing them in a puddle of water or thoroughly soaking the materials and settling them into place with water from a hose. All tamping and puddling shall be done in the manner described by the Engineer and to his satisfaction.

(7) *Embankments*

The work to be done under this head consists of all work necessary for refilling the excavations made after the concrete structures have been completed and for forming the embankments on the downstream side of the walls and abutments at either end of the dam as indicated on the drawings.

The materials necessary for re-filling and for the embankments are to be taken from spoil banks formed during the process of excavation or from approved borrow pits. The Engineer shall decide upon the quality and character of the earth to be used at various places and it must be selected and placed in accordance with his orders.

The entire surface under the embankment shall be excavated to hardpan or other impervious material. The surface of this material shall be scarified and wet to induce a bond with the embankment. The materials for filling shall be carefully selected, and free from loam, organic matter, trash of any kind, free sand, or stones. It must be deposited in thin uniform layers not over twelve (12) inches in thickness and each layer must be thoroughly rolled before a succeeding layer is placed.

Around walls or at other points where the above method cannot be followed, the surface shall be kept low and the material deposited in a pool of water and thoroughly tamped with rammers by hand.

The embankments must be neatly finished to lines and grades given. The top and slopes shall be neatly trimmed and dressed with at least eight inches of loam and seeded with the following quantities per acre:

40	600 lbs. Fertilizer
	12 lbs. Red top grass seed
	6 lbs. White Clover seed
	10 lbs. Canadian Blue grass seed.

(8) *Classification of Concrete*

Classes of concrete as hereinafter referred to or as designated on the drawings shall be in accordance with the following:

Class 1—Designed for compressive strength of 1500 pounds at 28 days, using a maximum water content of $7\frac{1}{2}$ gallons per bag of cement.

Class 2—Designed for a compressive strength of 2000 pounds at 28 days, using a maximum water content of $6\frac{3}{4}$ gallons per bag of cement.

10

Class 3—Designed for a compressive strength of 2500 pounds at 28 days, using a maximum water of six gallons per bag of cement.

The above classes of concrete shall be used throughout the work as follows unless otherwise specified on the drawing or directed by the Engineer:

20 Class 1 concrete shall be used in all plain concrete work such as walls, footings, foundations, gravity sections, etc.

Class 2 concrete shall be used in all reinforced concrete work, in thin walls, floors on fill, etc.

Class 3 concrete shall be used as a floor finish when floor is poured in two courses.

30 (9) *Workability and Consistency of Concrete*

The workability and consistency of the concrete shall be based on the slump test and for the different classes of work the slumps as given below shall not be exceeded:

All foundations (plain or reinforced); heavy walls; floors on fill; machinery foundations; plain and reinforced walls over 18 inches. *Not over $3\frac{1}{2}$ "*.

40 Reinforced concrete walls up to 18 inches thick; suspended floors; beams; girders; roofs, etc. *Not over $4\frac{1}{2}$ "*.

Thin walls (10 inches and under); columns; and especially complicated foundations. *Not over 6 inches*.

The slump test will be performed as described in the A. S. T. M's. "Tentative Method of Test for Consistency of Portland Cement Concrete for Pavement" (Serial Designation D-138-22) and subsequent revisions.

(10) *Proportioning Concrete Mixtures*

The intent of the following specifications is to secure the best grade of concrete for the service intended using the materials available, each having passed their respective tests as previously described.

10

The following standard proportions shall be used for mixing the concrete for the various classes previously specified until such time as the Engineer shall have determined upon modifications in the proportions intended to result in a better grade of concrete or a more economical use of materials:

20 *Class 1 Concrete* is to be composed of *one* part by volume of Portland cement mixed with *three* parts of fine aggregate and *five* parts of coarse aggregate as measured dry and mixed to give a resultant *1 to 7 mix*. Maximum water content $7\frac{1}{2}$ gallons per bag of cement.

30 *Class 2 Concrete* is to be composed of *one* part by volume of Portland cement mixed with *two* parts of fine aggregate and *four* parts of coarse aggregate as measured dry and mixed to give a resultant *1 to $5\frac{1}{4}$ mix*. Maximum water content $6\frac{3}{4}$ gallons per bag of cement.

40 *Class 3 Concrete* is to be composed of *one* part by volume of Portland cement mixed with *one and one-quarter* ($1\frac{1}{4}$) parts of fine aggregate and *one and one quarter* ($1\frac{1}{4}$) parts of coarse aggregate as measured dry and mixed to give a resultant *1 to 2.2 mix*. Maximum water content 6 gallons per bag of cement.

It is understood that the above ratios of cement to total aggregate in the standard mixes shall be considered the minimum and shall govern in all cases unless by written permission of the Engineer after proper tests of the aggregates.

In the special case of reinforced concrete columns *with spiral hooping*, a special mix shall be used, consisting of one part

by volume of Portland cement mixed with one and half ($1\frac{1}{2}$) parts of fine aggregate and three parts of coarse aggregate as measured dry and mixed to give a resultant 1 to 4 *mix*. Maximum water content $6\frac{3}{4}$ gallons per bag of cement. Maximum stone size one inch.

10 When modifications of the above standard proportions shall have been determined upon by the Engineer he will so inform the Contractor who shall immediately proceed to use the new proportions until otherwise directed. It is expected that changes in the proportions will be made from time to time as deemed advisable by the Engineer due to variations in the aggregate, the results obtained from tests, and other causes. He shall, however, give the Contractor one-half day's notice before such change, so that the proportions can be altered without interfering with the progress of the work.

20 In the design of the concrete mixtures, the ratio of water to cement governs the strength of the concrete, provided the mixture is plastic and workable and the proper amounts of cement and aggregates are used to develop the required compressive strength. In no case shall the water-cement ratio for a given class of concrete be changed from that specified for the standard proportions. Where the aggregates are such that the standard proportions or those previously specified by the Engineer do not produce proper workability with the given water-cement ratios
30 the mixes shall be changed as directed by the Engineer but the water-cement ratio shall remain unchanged. The water or moisture contained in the aggregate must be included in the mixing water in computing this ratio.

In all concrete mixtures the graded sizes of the combined aggregate shall be such that, when separated on a No. 4 standard square mesh sieve, the amount retained shall not be less than the amount passing nor more than twice the amount passing. The final composition of mixed fine and coarse aggregates shall be
40 subject to the approval of the Engineer.

(11) *Mixing*

All concrete, except as hereinafter provided, is to be mixed in a machine of approved batch type designed to insure uniform distribution of the materials throughout the mass and having a peripheral speed of about 200 feet per minute. The mixing process is to be thorough and is to continue until the mass is

homogeneous and uniform in color and consistency. In no case shall the time of mixing be less than 1½ minutes from the time *all* of the ingredients have been placed in the mixer to the time when the emptying operation is begun. The mixer must be completely discharged before recharging.

- 10 Small quantities of concrete may be mixed by hand, with the express permission of the Engineer and in the manner which he may direct. Hand mixing shall be done on specially prepared platforms or the equivalent.

The methods of measuring materials shall be such that the proportions of concrete materials and water can be accurately controlled and easily checked during the progress of the work.

- 20 As the ratio of water to cement governs the strength of the concrete *all mixers must be provided with accurate water measuring devices. This will be insisted on by the Engineer. Accurate measuring devices for coarse and fine aggregates will also be insisted on.* Measuring apparatus such as the Blaw-Knox inulator are recommended.

(12) *Tests*

- 30 Any tests of materials to be used under these specifications or for the purpose of determining the proportions to be used in the concrete mixtures will be made by the Engineer and unless otherwise specifically provided for will be carried out at the expense of the Owner.

- 40 The Contractor shall afford every opportunity for the proper conduct of these tests and he shall further provide such facilities and labor for obtaining, loading, storing and testing specimens and samples, as the Engineer may require. For such work the Contractor shall receive compensation for actual expense for labor and materials.

The strength of the mixture to be designed is fixed by the nature of the work as described above, and this automatically fixes the water ratio, slump and maximum size of aggregate.

The following bulletins contain more complete description of the methods to be followed in making the tests and designing the mixtures as outlined herein and should therefore be obtained for reference:

Bulletin No. 1 — Structural Material Research Laboratory
“ “ 9 — “ “ “ “
Design and Control of Concrete Mixtures — by Portland Cement Association.

The final design of the concrete mixture may be fixed by either the trial or calculation method, whichever appears most desirable to the Engineer. If river or bank gravel is used the trial method will probably be found best.

When the trial method is used the first step is to determine the moisture content of the aggregates, then knowing the water ratio required for the strength of the concrete in question, make some trial batches. In making these trial batches, correct the amount of free water introduced in the mixer for the moisture in the aggregates.

Measure the yield of each trial batch. After several attempts a batch giving the desired consistency and maximum yield will be found and, provided the water ratio has been kept, this mix will give the desired strength.

In the absence of test for absorption and moisture the following may be used:

Approximate Absorption of Aggregates

Average sand	1%	by weight
Pebbles and crushed limestone	1%	“ “
Trap rock and granite	0.5%	“ “
Porous sandstone	7.0%	“ “
Very light and porous aggregate may be as high as	25.0%	“ “

*Approximate Quantity of Free Water
Carried by Average Aggregates*

Very wet sand	$\frac{3}{4}$ to 1	gal. per cu. ft.
Moderately wet sand	about $\frac{1}{2}$	“ “ “ “
Moist sand	“ $\frac{1}{4}$	“ “ “ “
Moist gravel or crushed rock	“ $\frac{1}{4}$	“ “ “ “

If the calculation method is used, proceed as follows: Obtain the fineness modulus of the fine and coarse aggregate using the A. S. T. M's. Standard method of test for

screen analysis of aggregates for concrete (Serial 041-24). The fineness modulus is the sum of the percentages in the sieve analysis divided by 100, when the sieve analysis is expressed as percentages coarser than the next sieve.

10 Determine the percentage of moisture in the fine and coarse aggregates and also the bulking of each due to moisture and loose measurements.

As an example, consider a sand with —

Weight per cu.ft. damp and loose	84 lbs.
“ “ “ “ dry “ “	77 “
“ “ “ “ “ “ rodDED	104 “

Then % moisture $\frac{84}{77} = 109\%$

20 % bulking $\frac{104}{77} = 135\%$

In obtaining the dry-rodded measurement fill the receptacle in three layers, tamping each layer 25 to 30 times with a $\frac{5}{8}$ rod pointed at one end.

30 From the curves on H. S. Ferguson's Sheet No. MS-171 determine the fineness modulus and real mix of mixed aggregate, then find ratio of fine to mixed aggregate using the following formula:

$$r = \frac{mc - m}{mc - mf}$$

r = ratio of fine aggregate to the separate volume of fine and coarse, necessary to provide a required fineness modulus.

40 m = fineness modulus of mixed aggregate
mf = “ “ “ fine “
mc = “ “ “ coarse “

Consider the following example:

Concrete to have strength of 2000 pounds at 28 days

Slump to be 3 to 4 inches

Maximum size of aggregate 1 inch

Fineness modulus of sand 1.26

“ “ “ crushed stone 7.04

Bulking of sand 135%

“ “ stone 114%

From curve on MS-171 the fineness modulus of mixed aggregate is 5.3.

$$\text{Correct for crushed stone } 5.3 - .25 = 5.05$$

$$r = 7.04 - 5.05 = .42$$

10

$$\frac{7.04 - 2.26}{}$$

From MS-171 the real mix is 1:5 and gallons of water per sack of cement are 6.75

The ratio of separate to mixed aggregates can be taken for most cases as .86

$$\text{Then nominal mix is } 5 = 5.8$$

20

$$\frac{.86}{}$$

And the proportions of sand and stone are

$$.42 \times 5.8 = 2.44 \text{ parts of sand dry and rodded}$$

$$.58 \times 5.8 = 3.38 \text{ " " stone}$$

To correct for actual field conditions, the proportions become

$$2.44 \times 1.35 = 3.3 \text{ for sand}$$

$$3.38 \times 1.14 = 3.82 \text{ for stone}$$

30

Actual mix is then 1:3.3:3.9

The amount of water to be used has to be corrected for absorption and for the moisture in the sand and stone.

Absorption from data above —

$$3.3 \times 77 \times .01 = 2.5\# = .30 \text{ gals. for sand}$$

$$3.9 \times 78 \times .01 = 3.0\# = .36 \text{ " " stone}$$

40

$$\frac{.66}{}$$

Weight of stone taken as 78 lbs. per cubic dry and rodded or 80 lbs. per cubic foot damp and loose.

Moisture content for sand — 9%

" " " stone — 2%

$$3.3 \times 84 \times .09 = 25\# = 3.00 \text{ gals. for sand}$$

$$3.9 \times 80 \times .02 = 6.25 = 0.75 \text{ " " stone}$$

$$\frac{3.75}{}$$

Then 6.75 plus .65 minus 3.75 = 2.65 gallons of free water to be put in mixer for each bag of cement.

10 If on account of the nature of the aggregates, this mix is not found to produce a concrete of desirable workability or is found to produce harshness in placing or honey-combing in the structure, the mix must then be changed by adding or subtracting some sand and stone, and then redesigned to agree with the new proportions.

The following drawings accompany the test data above mentioned MS-169; MS-170; MS-171; and MS-172

(13) *Placing*

20 Before placing concrete each piece of reinforcement shall be in its proper position and held securely in place until the placing is completed. All equipment for mixing and transporting concrete shall be cleaned and all debris or ice removed from the space to be occupied by the concrete. Forms shall be thoroughly wetted (except in freezing weather) or oiled as may be directed by the Engineer. All excavations for placing of footings shall be drained free of water.

30 After the completion of the mixing process, the concrete must be conveyed rapidly to the forms, and deposited immediately in place. If a spouting system is used a hopper or movable bucket must be provided at the delivery and from which the material can be distributed properly to the forms. In no event shall the concrete be delivered directly into the forms from the spout, except in the case of large foundations or walls more than four feet in thickness and then only with the express consent of the Engineer.

40 Concrete must be transported by methods which will prevent the separation, segregation, or loss of ingredients during transportation and shall not be dumped in large quantities in small forms, under any circumstances. It shall not be dropped a distance of more than ten feet unless special provisions are taken to prevent separation of the aggregates.

Concrete which has partially set shall not be remixed or used in any way in the work.

The concrete must be deposited in such a manner as will permit the most thorough compacting which must be obtained

by working with a straight shovel or a slicing tool kept moving up and down. It should be well distributed over the work so that at all times the top of the concrete in the forms is approximately horizontal and the concrete shall be deposited as nearly as practicable in its final position to avoid rehandling of flowing.

10 Particular care is to be exercised to avoid the formation of voids or stone pockets. If, when the forms are removed, any rough spots, irregularities or stone pockets should be visible, the Contractor is to dress such rough spots or irregularities and to fill all voids and stone pockets with mortar in the manner directed by the Engineer. If, in the opinion of the Engineer, the percentage of voids or stone pockets is sufficient to impair the strength or durability of the structure the Contractor is at his own expense, to remove and replace such defective work.

20 When the placing of concrete is suspended, any slight accumulation of water which may be standing in the forms is to be drained off so that as little laitance as possible may be formed on the surface of the concrete. Such provisions as may seem desirable to the Engineer are to be made so that when concreting is resumed, the new concrete will have a proper and sufficient bond to the old work.

30 Before the work is resumed, concrete previously placed must be thoroughly roughened, cleansed of foreign material and laitance, thoroughly wetted and then treated with a soft mortar consisting of one part of Portland cement and not more than two parts of fine aggregate thoroughly scrubbed in with wire brushes.

40 Under no circumstances shall concrete be placed under water in building foundations. The Contractor shall unwater all excavations where concrete is to be placed and keep the location free from water until the concrete has been poured and has attained its initial set.

Concrete laid during hot weather and open to the sun shall be thoroughly wet with clean water twice daily during the first week after placing. Exposed surfaces open to the sun shall be kept moist for a period of at least seven days after being deposited except where the Engineer otherwise directs.

(14) *Protection from Freezing*

No concrete masonry is to be constructed, without the consent of the Engineer, when the temperature is less than 20°

Fahr. The concrete when deposited shall have a temperature of not less than 40° Fahr. nor more than 120° Fahr.

10 If concrete is mixed or deposited in freezing weather, special precautions are to be taken to prevent the use of materials covered with ice crystals or containing frost and to prevent the concrete from freezing before it is set and sufficiently hardened. The use of salt, chemicals, or other foreign materials, to lower the freezing point will not be permitted.

20 If concrete is mixed or deposited in freezing weather the mixing shall be done in accordance with the instructions of the Engineer and the stone, sand and water must be heated. The term "heating" is hereby defined to mean that the sand and water must be hot, not simply warm, and the temperature of the concrete is to be governed by the severity of the weather and special precautions must be taken to warm the forms until the frost is removed from both the inside faces of the forms and any adjacent concrete surfaces. After the concrete is poured it must be protected by tarpaulins or suitable housing and proper provision must be made for keeping the concrete at a temperature of at least 50° Fahr. until it has taken its initial set, or for a period of not less than 48 hours from the time of pouring.

(15) *Waterproofing*

30 In special cases and where concrete is exposed to hydrostatic pressure some recognized method of waterproofing shall be used as the Engineer may direct. Integral compounds to be used shall be approved by the Engineer.

(16) *Joints*

40 All joints in the concrete work are to be made in such a manner as to affect the strength of the structure as little as possible.

When the exact locations are not indicated on the drawings, construction joints are to be made in reinforced concrete work as follows:

Columns:	At the bottom of the haunch of the girder, or if there should be no haunch, at the bottom of the girder itself. Unless otherwise directed by the Engineer beams or slabs shall not be poured continuously with the columns.
----------	---

Girders: At a point midway between the supports unless a beam intersects the girder at this point, in which case the joint must be offset a distance equal to twice the width of the beam from the near side of the beam.

10

Beam and Slabs: At or near the center of the span. The surface of such a joint is to be perpendicular to the longitudinal axis of the member in which it is made.

Whenever a construction is left in a beam or girder, extra reinforcement bars are to be provided of sufficient length to extend not less than 50 diameters on each side of the joint. The area of such additional bars must be equal to 20% of that of the horizontal bars specified for the member at the point where the joint is made.

20

Where permanent expansion joints are to be left in the structures, they must be made in the manner and at the locations specified on the drawings. All construction joints must be stopped off with square vertical ends and no tapering off surfaces will be permitted.

Before placing concrete on top of a freshly poured column, a period of at least twelve hours must elapse to allow for shrinkage and settlement.

30

All beams and slabs must be poured continuously and filled to the top of the slab in one continuous pour. That is, the beam concrete must be monolithic with the adjacent slab, unless otherwise indicated on the drawings.

(17) *Finish*

40

Immediately after the forms are removed all concrete masonry which is to be exposed to view is to be carefully dressed to a smooth surface with irregularities and form marks removed with carborundum bricks. No. 8 carborundum shall be used for removing irregularities and form marks followed by No. 30 brick. Brush washing will not be allowed.

(18) *Forms*

All forms for concrete work are to be substantially con-

structed, true to line and grade, and thoroughly braced in an unyielding manner so that no movement or distortion can take place. The boards or plank of which the forms are made must be planed on the side nearest the concrete and are to be matched or carefully jointed on the edges so that no leakage of mortar can take place.

- 10 Unless otherwise directed by the Engineer, triangular pieces of wood are to be placed in the angles of all forms so that no sharp corners will appear in any part of the finished structures.

No lumber which has been used in the construction of forms may be employed a second time for the purpose until all cement or mortar which may have adhered to it during the preceding pouring has been totally removed and the surfaces made as true and smooth as those of new lumber.

- 20 The use of wire is prohibited in forms more than 24 inches in width or more than 10 feet in depth except in the case of foundation walls which are to be entirely covered with earth, or otherwise permanently concealed from view. In any case, no less than 4 strands of wire are to be used for each tie and no wire smaller than No. 9 will be permitted.

- 30 All blocks, chips and other debris must be removed before any concrete is deposited and, except in freezing weather, the forms must be thoroughly wet with water or oiled immediately before concrete is placed.

All forms are remain in place until the concrete is sufficiently hardened and *no* forms are to be removed without the consent of the Engineer.

- 40 Side forms for beams, girders, walls, or columns shall not be removed within six (6) days after placing of concrete except in cases where such forms do not carry any vertical load. In the latter case they may be removed, with the consent of the Engineer twenty four (24) hours after placing the concrete.

Before removing the shores under any horizontal member the side forms shall be stripped so that the finished member may be examined on all sides. The minimum time which shall elapse before removing shores or supporting centering will vary with the design and conditions of the weather but in no case shall be less than fifteen (15) days under ideal curing conditions.

Particular care is to be exercised in the removal of the form to preserve intact all corners and projections and to prevent any other damages which would impair the strength or appearance of the structure.

10 Any wires or bolts, used in the construction of forms, which may remain in the concrete are to have the projecting ends cut off at least $\frac{1}{4}$ " inside of the faces of the concrete and the resulting depressions carefully pointed with neat cement mortar, and made to have the same appearance as the surrounding concrete surface.

(19) *Reinforcing Steel*

20 All reinforcing steel shall comply with the requirements of the section of the specifications under "Materials" for reinforcement steel. The steel shall be new billet stock conforming to the A. S. T. M. specifications Serial Designation A-15-14 and subsequent revisions. The reinforcing steel shall be of the deformed type satisfactory to the Engineer.

30 The steel shall preferably be bundled and tagged or otherwise suitably sorted into sizes and lengths as received and unloaded. Each size and length to be piled neatly and separately in a suitable storage space easily accessible for use as required.

All reinforcement steel shall be free from oil, rust, loose scale, or coating of any character which would tend to reduce or destroy the bond between the steel and the concrete, and if necessary, shall be carefully cleaned before being imbedded in the concrete.

40 When the placing of concrete is suspended, for however short a time, in a form containing reinforcement steel, that part of the steel which is not imbedded in the masonry is to be carefully cleaned from all accumulations of cement or mortar, either by washing or by other means satisfactory to the Engineer.

The size, spacing and position of bars must be exactly in accordance with the dimensions given on the drawing, these dimensions in all cases referring to the center of the bars. All reinforcement, whether placed horizontally or vertically, shall be held in position before and during pouring of concrete by suitable fastenings such as metallic supports, spacer bars, wires or

other devices which shall insure that the bars will not be displaced from the location shown on the drawings. Supports and spacers to be sufficiently heavy and in suitable quantities to properly hold and support the reinforcing steel and shall be subject to the approval of the Engineer.

- 10 Unless as otherwise specified on the drawings the following rules for placing reinforcing steel will hold: —

The minimum center to center distance between parallel bars shall be two and one-half ($2\frac{1}{2}$) times the diameter for round bars or three (3) times the side dimension for square bars. In no case shall the clear distance between bars be less than one (1) inch nor less than one and one-third ($1\frac{1}{3}$) times the maximum size of the coarse aggregate.

20

No splices of reinforcing bars shall be made without the approval of the Engineer, except where shown on the plans. Deformed bars shall be lapped a distance of forty (40) bar diameters, except that in columns and as longitudinal temperature reinforcing in walls or footings under walls they shall be lapped twenty-four (24) bar diameters but not less than eighteen inches (18"). In all splices the bars shall be spaced at the above specified minimum distance.

30

Special anchorage shall consist of one of the following:

(a) In case the end of a beam or slab is not continuous, carrying the bottom reinforcement approximately fourteen (14) diameters beyond the face of support.

40

(b) In case the end of beam or slab is continuous carrying the top reinforcement approximately fourteen (14) diameters beyond the one-fifth ($1/5$) point of the adjoining clear span.

Bending the reinforcement around another bar or steel shape so placed that it will resist any longitudinal movement of the steel to be anchored.

Bending the bar into a semi-circular hook which has a radius large enough to insure proper bearing on the concrete.

All reinforcing steel shall have a protection of concrete not less than the following:

1. Three inches (3'') on bottoms of footings.
2. Two inches (2'') where concrete is exposed to action of weather or ground.
- 10 3. One and one-half inches (1½'') over all reinforcement in columns.
4. One and one-half inches (1½'') on the bottom and sides of beams or girders.
5. Three-fourths inch (¾'') on bottoms and sides of ribs and bottoms of all floor slabs.
6. Three-fourths inch (¾'') on bottoms of all flat slabs.
- 20 7. Three-fourths inch (¾'') from the faces of all walls not exposed to action of weather or ground.
8. One (1) diameter over all bars at the upper face of any member.

(20) *Concrete Floors*

All concrete floors, unless otherwise noted on the plans, or by express permission of the Engineer for special cases, are to consist of a bottom course, and a top or finish course.

The bottom course in all cases, whether the floor is laid on earth fill or other solid foundation or is suspended or otherwise supported shall be of Class 2 concrete with one inch stone.

Whenever a roof or floor slab is supported by concrete beams, the bottom course of the slab is to be considered an integral part of the beam and must be constructed monolithically with it.

40 On all detail drawings of reinforced concrete floors, the elevations given for the top of the floor slabs refer to the upper surface of the floor and the top coat is to be placed below these elevations. On other drawings of the buildings the floor elevations also refer generally to the top of the finished slab. It is to be understood that all floors are to be sloped for drainage purposes unless otherwise specified and that when but one elevation appears on a floor, it is to be considered as the general level of that floor and the true grades of the different portions there-

of are to be taken from more detailed plans, or as directed by the **Engineer**.

Whenever practicable the top or finish course is to be spread on the bottom course before the latter shall have attained any set. The top or finish course in this case is to be one and one-half inches ($1\frac{1}{2}$ ") thick and is to be constructed of Class 3 concrete with one-half inch ($\frac{1}{2}$ ") stone carefully screeded to form surfaces indicated on the plans and thoroughly troweled to form a dense, hard, smooth finish satisfactory to the **Engineer**.

If for any sufficient reason the finishing course is postponed until some time after the base course is poured then the bottom course is to be roughened with picks until the coarse aggregate is exposed over the entire area before the top coat is applied. After being thoroughly picked and swept clean the surface is to be washed with water and a neat cement wash brushed in with heavy wire brushes immediately before placing the top coat. In this case the top coat is to be two inches (2") thick but otherwise similar in mix and finish to the one and one-half inch ($1\frac{1}{2}$ ") thickness finish course specified above.

On suspended floors, when the finishing course is not spread on the bottom course before the latter shall have attained any set, the bottom of the slab and of the concrete beams and girders shall be lowered to allow for the thickness of the finishing course. Unless the finishing course is poured at the time of the bottom course, the finishing course cannot be considered as an effective part of the structure to carry the loads for which it has been designed.

In special cases where a dustless floor or a floor especially adapted to heavy trucking is required special mixer or integral hardeners shall be used as specified by the **Engineer**.

Particular care is to be exercised in the construction of forms for slabs and floor systems so that the finished surfaces will be free from irregularities.

The Contractor will be held responsible for any damage to the structure which may be caused by the premature placing of loads of any kind on any reinforced concrete floor system and in no case shall any load be applied before fifteen (15) days shall have elapsed from the time that the concrete is placed in the structure.

The Contractor is to furnish and build into the floors all manhole castings and covers, all drain fixtures and all other outlets and openings which appear on the drawings. He is also, without extra charge, to build into the floors, any bolts, castings or other fixtures furnished by the Owner which may be required in connection with the mechanical equipment of the plant.

10

(21) *Gates, Gate Frames and Linings, Castings, Structural Steel Guides and Trestles. Anchor Bolts and All Hoists and Operating Equipment*

The Owner will furnish f.o.b. cars Buckingham, all gates and gate guides, the cast iron linings for the gate openings, all other castings, the structural steel guides, towers and bridge for the traveling hoist, all anchor bolts, piping to be cast in the concrete exclusive of handrailing and sockets, and all operating
20 equipment. The Contractor will transport these to the dam, set and build them into the concrete without extra cost. These must be carefully placed, fitted true and made secure in perfect alignment until the concrete is poured around them and set.

The several gates and hoists shall be erected complete with suitable anchor bolts, plates and supports as shown on the detail drawings.

After erection all structural steel work shall be given two
30 coats of paint and all equipment and other metal work on the dam one coat, all paint to be of a kind and color acceptable to the Engineer.

(22) *Handrailing*

The Contractor shall furnish and erect at his own expense all handrailing including pipe sockets as indicated on the various drawings except such railing as will be furnished with the steel
40 trestles over the stoney gates for the runways and stairs attached thereto. The railings shall be erected true to line and grade, then the posts are to be thoroughly grouted in place. Suitable provisions should be made in the horizontal rails to allow for expansion and contraction.

After erection all handrailing shall be given two coats of of paint of a kind and color acceptable to the Engineer.

WITNESSETH: That the foregoing specifications consisting of three sections namely:

Section 1 — General Conditions

Section 2 — Materials

Section 3 — Construction Methods and Workmanship

all of which are attached hereto are a part of a contract for the construction of the Cedar Rapids Storage Dam, dated May 23rd 1929 and entered into by The James Maclaren Company, Limited, Party of the first Part referred to as the Owner and William I. Bishop Ltd., Party of the Second Part, referred to as the Contractor, and that said specifications and any all part thereof shall be binding on both parties the same as if contained in the body of said contract.

IN WITNESS WHEREOF, the parties hereto by their duly authorized officers have hereunto set their hands this 23rd day of May 1929.

The James Maclaren Company, Limited

By Albert Maclaren,

President.

20 Witness:

J. A. Bryant.

William I. Bishop Limited

by Wm. I. Bishop,

President.

PLAINTIFF'S EXHIBIT P-4 WITH RETURN

Copy of letter from Plaintiff to Defendant, with report attached.

30

COPY

WILLIAM I. BISHOP LIMITED,

Maclaren Dam, Que., June 20th, 1929.

Messrs.

The James Maclaren Company Limited,

Buckingham, Que.

RE: PASSAGE OF LOGS THROUGH OUR
WORK AT CEDAR RAPIDS.

40 Gentlemen:

Enclosed please find copy of letter from our Superintendent at Cedar Rapids, which is self-explanatory.

Please investigate this matter and advise us what arrangements you can make to obviate this trouble, and greatly oblige,

Yours respectfully,

WILLIAM I. BISHOP LIMITED,

(Signed) W. I. Bishop,

President.

WIB/R

Encl.

COPY

WILLIAM I. BISHOP LIMITED,

Notre Dame du Laus, Que., June 17th, 1929.

Mr. Wm. I. Bishop,
c/o Maclaren Dam, Que.

10 My dear Chief:—

I wish to bring up a matter that will probably cause us some trouble here later on. That is the matter of handling logs here.

As you know, they (The James Maclaren Company) tow big booms across Lac-des-Sables and then cut them loose when at the head of "Cedars". This throws the river full of logs ; also they await favorable winds and take larger tows. It means we
20 do not get a uniform amount of logs but big jams of logs.

We already are having trouble with logs piling up in eddy and I am afraid of what will happen when the river is turned into Bypass. I believe logs will jam in Bypass at the piers and may perhaps stop water enough to go over our cofferdams and it will be very inconvenient to build cribs with a jam of logs coming down at odd intervals.

Is it not possible to "gap" the logs at head of Cedars and feed them through rapids at a uniform rate ? This suggestion
30 was made by their Forestry Engineer.

We already have incurred considerable expense breaking up jams and keeping the eddy free from logs. I have at present six drivers working two shifts keeping river free from logs.

I find in the contract that we are to give free passage of logs but I believe that owners should take precautions so as not to send down a whole boom of logs at one time. Our worst time is between 11.00 P. M. and 4.00 A. M., at night. It generally takes the logs about three hours to reach the site of dam.
40

If it could be arranged to feed these logs gradually through the twenty-four hours we would have no trouble.

Please let me have your instructions in this matter.

Yours truly,

WILLIAM I. BISHOP LIMITED,
(Signed) H. E. Lindskog,
Superintendent.

HEL/AMC.

PLAINTIFF'S EXHIBIT P-8 WITH RETURN

Copy of letter from Plaintiff to Defendant's Engineer

COPY

10

WILLIAM I. BISHOP LIMITED,

Maclaren Dam, Que., June 20th, 1929.

Hardy S. Ferguson, Esq.
Maclaren Dam, P. Q.

ATTENTION OF Mr. D. W. O'SHEA.

20

RE: CEDAR RAPIDS STORAGE DAM
CERTIFICATE AND ESTIMATE FOR MAY

Dear Sir:—

Replying to yours of the 7th which I received only yesterday at Cedar Rapids.

Delays of any moment on this work have been entirely due to causes beyond our control, among which are:—

30 First:—The incorrect information given us by you as to the nature of the material overlying the rock on the North Bank.—

Second:—The tremendous over-run of rock excavation over the quantities contracted for, amounting to — on Stoney Sluice Section, Contract 5000 c.y. actual 8300 over-run 66%—

Not including the heavy excavation for seams carried out on force account.

40 On non-spilling section, not yet completed, contract 400 c.y., excavated to-date 2600 c.y. overrun — 550%.

Stop log section, only partly completed. overrun 80%.

Delays on account of cableway were not greater than ordinarily expected on construction equipment and were very trifling in comparison with the above.

We organized and equipped this work for completion within the Contract date, with allowance for some reasonable addition to the quantities stipulated.

If any further additions to equipment, overhead or other expense are required to cope with conditions as now developing, we shall have to ask the owners to pay for same.

Yours very truly,

WILLIAM I. BISHOP LIMITED,

(Signed) W. I. Bishop,

President.

10

WIB/R

DEFENDANT'S EXHIBIT D-2 WITH PLEA

Copy of letter from Defendant to said Plaintiff.

COPY

20

June 21st, 1929.

William I. Bishop, Limited,
Maclaren Dam,
Quebec.

RE: PASSAGE OF LOGS
THROUGH CEDAR RAPIDS

Dear Sirs:—

30 Replying to your letter of the 20th with enclosure from Mr. Lindskog, dated June 17th. We do not see that anything can be done to improve the log condition in Lac-des-Sables as it is necessary to take the logs here with an alligator and naturally they come in booms and must be put in river. This is our regular practice and cannot be changed. We are doing our best to get as many logs across now as possible to avoid difficulties later in the season.

40 In reference to Mr. Lindskog's suggestion to put a boom at the head of the Rapids with a feeding gap, if you care to do this we will have no objection providing that you feed continuously so that there will be no jam at the Rapids above due to a second boom coming in. In locating this Feeding Gap, we will be glad to have our men give you any advice you may require.

Yours truly,

(Sgd.) The James Maclaren Company Limited,
T. F. Kenny.

TFK/DLB

PLAINTIFF'S EXHIBIT P-5 WITH RETURN

Copy of letter from Plaintiff to Defendant

10 COPY
WILLIAM I. BISHOP LIMITED,
New Birks Building

Montreal, Que., June 25th, 1929.

James Maclaren Company Limited,
Buckingham,
P. Q.

RE: PASSAGE OF LOGS
THROUGH CEDAR RAPIDS

20 Dear Sirs:—

We have your letter of the 21st instant and regret your decision that you cannot arrange for the gradual feeding of logs from the sacks up river in a way to prevent jamming at the Cedars Dam.

30 Our contract requires us to construct our coffer-dams and works so as to permit logs to be driven by the site of the dam. This we have done and will continue to do when river is diverted to the bypass, but we draw attention to the fact that we are in no way responsible for the manner in which the logs are driven, and if they are permitted to jam either now or after the bypass is in operation, we shall of course be obliged to hold you responsible for any resultant damage and we shall expect to be reimbursed for the expense to which we have been put already due to the jamming, as well as for any future expense or damage to which we may be put in this connection. We believe that the jamming and resultant expense and damage to the work can be largely avoided by a more uniform release of logs from the upper booms over the whole twenty-four hour period of each day instead of in large batches at one time, and we think that 40 in your own interest you should make the necessary arrangements for the purpose.

Yours truly,

WILLIAM I. BISHOP LIMITED,
(Signed) W. I. Bishop,
President.

WIB/HB

PLAINTIFF'S EXHIBIT P-50 AT ENQUETE

Letter from Mr. O'Shea to William I. Bishop Ltd.

10

HARDY S. FERGUSON
Consulting Engineer

McLaren Dam, July 7, 1929.

Wm. I. Bishop Ltd.
Cedar Rapids, P. Q.

CEDAR RAPIDS STORAGE DAM
DISPOSAL OF WASTE MATERIAL

20 Gentlemen:—

You have been instructed verbally several times since the beginning of this work, not to deposit the waste rock and earth excavated from the site of the dam beyond certain areas and heights definitely marked out by Mr. J. C. McIntosh and the engineers of The Quebec Streams Commission. You now have a pile of loose rock opposite the non-spilling dam higher than the finished dam, which will have to be lowered. It had been understood last winter that you were not to go above elev. 130.
30 in this area.

We note that you are depositing the excavated material from the by-pass in front the Stoney gates on the north shore, and that the height of this pile is considerably higher than we desire. We therefore wish to call your attention to this and point out that these piles of material will have to be lowered to below the future water level before the work is completed.

40

Yours truly,

D. W. O'Shea,
Resident Engineer.

Copy to J. C. McIntosh
Mr. Dubreuil

PLAINTIFF'S EXHIBIT P-31 AT ENQUETE

Letter from Mr. Lindskog to Mr. O'Shea.

10

WILLIAM I. BISHOP, LIMITED
Constructing Engineers
Home Office
New Birks Building

Notre Dame du Laus, P. Q., July 30th, 1929.

Mr. D. O'Shea,
Resident Engineer,
James Maclaren Co. Ltd.,
20 Maclaren Dam, P. Q.

Dear Sir:—

We wish to call your attention to the great amount of trouble and expense the manner and method of driving logs by the Maclaren Lumber Company is causing us.

30 As you know, the contract calls for passage of logs, but we do not interpret the clause to mean letting loose a boom of 10,000 to 15,000 logs at one time on our works and cofferdams. The contract states specifically "that the contractor shall provide such opportunities for the passage of logs as the construction work may render necessary," not booms of logs.

40 As you know, this manner of loosening booms of logs down on our work has resulted in great extra outlay of labour and material. It has already caused the practical loss of one cribs besides entangling a lot of logs in our other cribs, which logs will of necessity have to be removed.

We feel that the Maclaren Lumber Company can regulate the amount of logs coming from Lac-au-Sable so as to make a more uniform drive of logs.

Also that the Maclaren Lumber Company should provide sheer booms here at the site of work so that logs may be diverted to the proper opening.

We are holding the Maclaren Lumber Company liable for all the extra expense of labour and material that this method of loosening down big booms of logs have caused us in the past and any expense of labour and material it will cause us in the future.

Yours truly,

10

WILLIAM I. BISHOP LIMITED,

HEL/AMC.

H. E. Lindskog,
Superintendent.

PLAINTIFF'S EXHIBIT P-32 AT ENQUETE

*Letter from James MacLaren Company Ltd. to
William I. Bishop Ltd.*

20

THE JAMES MACLAREN COMPANY, LIMITED

Manufacturers of
Sawn Lumber, &c., and Ground Wood Pulp

Buckingham, Que., August 3, 1929.

Messrs. William I. Bishop, Ltd.,
New Birks Bldg.,
Montreal, Que.

Dear Sirs:

30

In reference to the matter of the passage of logs at Cedar Rapids, we beg to say that it seems to us that the provisions in the contract with you places on you the obligation to make good any additional expense we are put to, in driving our logs at Cedar Rapids, and that you are obliged to afford opportunities for their passage.

40

Under the circumstances we beg to notify you that we will keep track of all additional expense we are put to in driving logs at that location. Unless a free passage is afforded us for the logs, we will take the necessary steps to secure their passage and hold you responsible for the outlay incurred.

Yours truly,

The James Maclaren Company Limited.

R. M. Kenny,
Manager.

RMK/EFB.
To be noted by Bishop
Received Aug. 5 1929
Answered by

PLAINTIFF'S EXHIBIT P-33 AT ENQUETE

Letter from William I. Bishop Ltd to Mr. R. M. Kenny

10 WILLIAM I. BISHOP LIMITED
Constructing Engineers
New Birks Building
Montreal

August 13th 1929,

Mr. R. M. Kenny, Manager,
James Maclaren Company, Limited,
Buckingham, Que.

RE: CEDARS RAPIDS LOG DRIVING

Dear Sir:—

20 We refer to your letter of August 3rd and beg to state
that our contract in no way places on us the obligation of paying
additional costs you may incur in driving logs at Cedars.

We will not accept responsibility for any such charges and
beg further to advise you that we will be obliged to hold you
responsible for such damage as may be occasioned to us and our
work by reason of your negligent handling of logs at this point.

Yours very truly,

30 WILLIAM I. BISHOP LIMITED,
Wm. I. Bishop,
WIB/FL. President.

PLAINTIFF'S EXHIBIT P-34 AT ENQUETE

*Letter from James MacLaren Company Ltd. to
William I. Bishop Ltd.*

40 THE JAMES MACLAREN COMPANY, LIMITED
Manufacturers of
Sawn Lumber, &c., and Ground Wood Pulp

Buckingham, Que. August 21, 1929.

Messrs. William I. Bishop, Ltd.,
Montreal, Que.

Dear Sirs:

Mr. D. W. O'Shea, Resident Engineer, has forwarded
us your letter relating to the passage of logs at Cedar Rapids,

which letter is dated July 30 and signed by Mr. Lindskog, but which Mr. O'Shea states he only received on August 14th.

10 We are attempting to drive our logs in the usual manner. The views, which you entertain respecting your obligations regarding the passage of our logs under the Cedar Rapids contract, do not agree with our views, as you have already been informed, and you are hereby notified, as you have already been notified, that we will hold your company responsible for the additional expense incurred in bringing down our logs, caused by the presence of your work.

In view of our previous correspondence on this subject, we think that your letter addressed to Mr. O'Shea was somewhat out of place. We presume that our respective rights regarding these matters can be preserved without further correspondence.
20 You can formulate your claims for damages and we will do the same and insist upon our rights.

Yours truly,

The James MacLaren Company Limited.

R. M. Kenny,
Manager.

RMK/EFB.

To be noted by Bishop

Received Aug. 23 1929

30 Answered by

PLAINTIFF'S EXHIBIT P-35 AT ENQUETE

*Letter from James MacLaren Company Ltd. to
William I. Bishop Ltd.*

THE JAMES MACLAREN COMPANY, LIMITED

40 Manufacturers of
Sawn Lumber, &c., and Ground Wood Pulp

Buckingham, Que. August 21, 1929.

Messrs. William I. Bishop, Ltd.,
New Birks Bldg.,
Montreal, Que.

Dear Sirs:

We are in receipt of yours of the 13th regarding passage of logs at Cedar Rapids, and in reply beg to say that we believe

in our letter written to you earlier today in reply to your letter signed by Mr. Lindskog, we have covered the situation as we see it.

Yours truly,

The James Maclaren Company Limited.

R. M. Kenny,
Manager.

10

RMK/EFB.
To be noted by Bishop
Received Aug. 23 1929
Answered by

PLAINTIFF'S EXHIBIT P-9 WITH RETURN

20 *Copy of letter from Plaintiff to Defendant's resident Engineer.*

COPY

WILLIAM I. BISHOP LIMITED

Notre Dame du Laus, Que.,

August 22nd -1929

Mr. D. W. O'Shea, Resident Engineer,
Hardy S. Ferguson Co.,
Maclaren Dam, P.Q.

30

Dear Sir:—

In answer to your letter of August 13th, re progress schedule. We find it practically impossible to make up a progress schedule that will be at all accurate or that we will be able to follow up, for the following reasons:

40 Owing to the great discrepancy between estimated quantities and quantities actually handled, we do not see how we can even make an attempt to estimate our progress.

We do know that we are capable of excavating between 2500 and 4000 yards of rock per month with our equipment. We do know that we can pour concrete at the rate of 4000 to 6000 yards per month but this pour of concrete is again dependent on rate of progress of our excavation.

As you very well know, we are some 1500 to 1600 percent over and above estimated quantities of excavation in Non-spilling section of dam.

We put in equipment to handle 8000 yards, more or less, of rock which we have exceeded by 100%. This has a direct bearing on our ability to pour concrete. If the bad material continues in the last section of Non-spilling section, I am sure that it will be impossible for us to finish Non-spilling section by the First of September as requested in your letter accompanying July estimate.

10 In the Stoney gate section we also over-ran excavation estimates very heavily and quantities of rock excavation and therefore the concrete yardage will be in excess of estimated quantities. The same has held true for all sections of the dam which we have so far worked on and undoubtedly the same will hold true of main river channel.

Up to August 1st, approximately 50% of estimated concrete yardage had been poured. Up to August 1st there has been
20 excavated 16,927 cu. yards of rock which is 110% over and above estimated quantity.

If you can give us a fairly accurate estimate of actual concrete remaining to be poured and actual amount of rock excavation to be excavated as on August 1st, we would be very much indebted to you; as it means that we can plan our work accordingly and make arrangements to have required material transported to the dam; also upon receipt of such estimate, we can give you a fairly accurate progress schedule, based on such figures as you submit to us.

30

Yours truly,

William I. Bishop Limited,
(Signed) H. E. Lindskog,
Superintendent.

HEL/AMC

PLAINTIFF'S EXHIBIT P-36 AT ENQUETE

Letter from Mr. Lindskog to James Maclaren Company Ltd.

40 Field correspondence 28/147

WILLIAM I. BISHOP, LIMITED
Constructing Engineers
Home Office New Birks Building

Notre Dame du Laus, P. Q. August 23rd, 1929.

The James Maclaren Co. Limited.,
Buckingham, P. Q.

Dear Sirs:

This is to notify you that your sweep of logs at Cedars has blocked our By-pass and is obstructing the flow of water in our

By-pass, thereby, seriously endangering our Cofferdam and works.

We hereby give you notice that we will hold you responsible for any and all damages which may occur to our plant, equipment, structures, construction details and also any and all
10 delays occasioned by this aforesaid obstruction in our By-pass.

Yours truly,

WILLIAM I. BISHOP LIMITED,
H. E. Lindskog,
Superintendent.

HEL/AMC.

20

PLAINTIFF'S EXHIBIT P-41 AT ENQUETE

Telegram from William I. Bishop to Hardy S. Ferguson.

COPY OF TELEGRAM

MacLaren Dam, Que., September 26th, 1929.
Time 11:25 A. M.

30

Hardy S. Ferguson,
Fifth Avenue,
New York City, N. Y.

I urgently request that Mr. Ferguson personally meet
me at Cedar Rapids earliest possible date to discuss serious situa-
tion unwatering main channel caused by fact that we have dis-
covered at least fourteen feet loose material on river bed where
your Plan B-2444 states ledge rock. Eight pumps working and
40 water down only one foot inside Cofferdam. Please wire answer.

William I. Bishop.

WIB/R.

PLAINTIFF'S EXHIBIT P-6 WITH RETURN

*Original letter with memorandum attached from
Defendant's resident Engineer.*

10

HARDY S. FERGUSON
Consulting Engineer

MacLaren Dam, October 2, 1929.

Mr. Wm. I. Bishop,
High Falls, P. Q.

CEDAR RAPIDS STORAGE DAM.
COFFERDAM

Dear Sir:—

20 I am sending you a copy of the memorandum of the conference you had with Mr. Ferguson this morning on the above subject.

Yours truly,

D. W. O'Shea,
Resident Engineer.

30 MEMORANDUM OF CONFERENCE BETWEEN Mr. H. S. FERGUSON AND Mr. Wm. I. BISHOP WITH D. W. O'SHEA PRESENT, CONCERNING THE COFFERDAM AT CEDAR RAPIDS STORAGE DAM.

Conference held in Maclaren Staff House, at High Falls, Wednesday morning, October 2nd, 1929.

Mr. Bishop agreed to carry on the following work at once:

- 40
1. — Put more fill upstream at about the points where the two scows were unloaded in the afternoon of October 1st. when Mr. Ferguson was at Cedar Rapids.
 2. — Dredge inside the cofferdam with an orange peel on the site of the deep gates section.
 3. — Keep on with the concrete work from both ends of the present structures, building small cofferdams, if necessary.

Mr. Ferguson stated that he would take up with the owners the matter of making core drillings on the site of the deep gates.

It was agreed that it would not be necessary to pump until the additional filling had been deposited.

10

Mr. Bishop will present a formal demand for arbitration, to the owners.

PLAINTIFF'S EXHIBIT P-7 WITH RETURN

Copy of memorandum made by Plaintiff.

20

October 5th, 1929.

MEMORANDUM RE MEETING WITH Mr. H. S. FERGUSON AT CEDAR RAPIDS, OCTOBER 1st, HIGH FALLS OCTOBER 2nd, COVERING UNWATERING CONDITIONS AT CEDAR RAPIDS.

The writer pointed out to Mr. Ferguson that the contract plan B-2444 indicated ledge rock under the entire site of the cofferdam, which cofferdam was placed in the position shown on the contract drawings.

30

The writer told Mr. Ferguson that we had excavated by means of orangepeel bucket under water to a depth of 8 feet, and that a diver had driven a pipe another 6 feet into the bottom without encountering ledge rock. Thus there was at least 14 feet of loose material where ledge rock was indicated.

We showed Mr. Ferguson that we had deposited an embankment of good material, composed of gravel, sand and clay, to the extent of over 10,000 cubic yards, as a toe-fill above the cofferdam for the purpose of blanketing the river bed. This embankment contains at least five times the amount of material that would be required as toe-fill for a cofferdam built on ledge as indicated.

40

We have had as high as ten pumps working at once, three 12" and seven 8", under low head, without being able to lower the water inside of the cofferdam more than 4 feet below the

tail water level outside of the downstream cofferdam. This pumping was being carried out at a cost of approximately \$600. per day of twenty-four hours.

10 At Mr. Ferguson's request we dumped two or three scow loads of light material beyond the toe of the embankment in the deepest part of the river, which embankment at the point extends over 90 feet upstream. We also deposited a few bags of hydrated lime on the bottom, with a view of ascertaining whether or not any of the light material would show in the discharge inside of the cofferdam. No trace of any discoloration of the water flowing into the cofferdam was noticed, but this may have been due to the fact that all of this light material had to be dumped through over 30 feet of water, and between the current in the eddy running at that time and the long distance the water had to travel through boulders and gravel, it was not to be expected that much, 20 if any, evidence would be given of discoloration. The fact is that at the time the water was down 4 feet, at least ninety-five per cent of the water was coming up through the cribs in the deepest part of the channel next to the island.

Mr. Ferguson admitted without hesitation that the bottom was not as indicated on the plans and that he believed the water was coming through the river bed and that the embankment seemed to be of good material and adequate for the purpose it was intended for.

30

We told him that any additional expense to date, as well as any future expense required to unwater this site, should be borne by the owner, but Mr. Ferguson stated he was not ready to give a decision on this point. We asked him to consider the matter over night and advise us the following morning at High Falls, to which point he was then proceeding.

40 Mr. J. L. Allison, who accompanied the writer, made the suggestion that borings should be taken immediately, to determine just what depth would finally have to be reached for the foundations of the dam. Mr. Allison's opinion was that without this information it was useless to proceed in the dark, as we might get into serious difficulty through undermining of the cofferdam as built.

At a meeting in Mr. Ferguson's office at High Falls on the 3rd at about 10:30 A. M., at which were present Mr. Ferguson, Mr. O'Shea and the writer, Mr. Ferguson advised us that he had decided that the whole question should be arbitrated ; and the

upshot of the meeting was that he instructed us to carry out the following:—

Mr. FERGUSON'S INSTRUCTIONS

- 10 (1) He wishes us to place an additional blanket of good material on the river bed upstream of present embankment in deepest section of the river.
- (2) To excavate the material between cofferdams with Orange Peel Buckets or Clam Shell down to ledge rock.
- (3) To get out as far as possible by secondary cofferdams from island and south shore to permit placing additional concrete.
- 20 (4) Mr. Ferguson will arrange immediately for core drilling between cofferdams to determine the nature of the river bed and probable depth to which we will have to go.
- (5) He will recommend to the owners that arbitration be proceeded with immediately to determine responsibility for all matters concerning the cofferdams and the payment of direct and indirect costs.
- 30 (6) Mr. Ferguson agreed that it was not worth while spending \$600.00 per 24 hours pumping and that he would agree to shut down the pumps until some more blanketing (Item #1) was put in.

It will be noted by the above that Mr. Ferguson's instructions under Item 1 bear out our statement that he considered the bottom was permeable and that an additional attempt should be made to blanket same.

Wm. I. Bishop.

40 WIB/HB

PLAINTIFF'S EXHIBIT P-42 AT ENQUETE

Copy of letter from William I. Bishop to Hardy S. Ferguson

10 COPY TO: Job Office, Cedar Rapids.

October 4th, 1929.

Mr. Hardy S. Ferguson,
Hardy S. Ferguson & Company,
200 Fifth Avenue,
New York, N.Y.

20 RE: JAMES MACLAREN COMPANY
LIMITED, CEDAR RAPIDS DAM.

Dear Sir:—

Attached hereto please find copy of a memorandum of our understanding of your instructions at the discussion on October 2nd at your office, High Falls.

Yours very truly,

30

William I. Bishop Limited,
(Sgd.) W. I. Bishop.
President.

WIB/HB
Enc-l.
CC Mr. D.W. O'Shea.

COPY

Job No. 28-147

October 2nd, 1929.

40

CEDAR RAPIDS DAM
UNWATERING MAIN CHANNEL

MEMO. DISCUSSION WITH Mr. H.S. FERGUSON AT HIS
OFFICE HIGH FALLS, THIS DATE

Mr. Ferguson instructs us as follows:—

- (1) He wishes us to place an additional blanket of good material on the river bed upstream of present toe-fill embankment in deepest section of the river.

- 10
- (2) To excavate the material between cofferdams with Orange Peel Buckets or Clam Shell down to ledge rock.
 - (3) To get out as far as possible by secondary cofferdams from island and south shore to permit placing additional concrete.
 - (4) Mr. Ferguson will arrange immediately for core drilling between cofferdams to determine the nature of the river bed and probable depth to which we will have to go.
 - 20 (5) He will recommend to the owners that arbitration be proceeded with immediately to determine responsibility for all matters concerning the cofferdam and the payment of direct and indirect costs.
 - (6) Mr. Ferguson agreed that it was not worth while spending \$600.00 per 24 hours pumping and that he would agree to shut down the pumps until some more blanketing (Item #1) was put in.

30

DEFENDANT'S EXHIBIT D-3 WITH PLEA

Copy of letter from H. S. Ferguson to said Plaintiff.

HARDY S. FERGUSON, ENGINEER
200 Fifth Avenue,
New York

(COPY)

October 7th, 1929.

40 Wm. I. Bishop Ltd.,
New Birks Building,
Montreal, Quebec, Canada;

Gentlemen:—

JAMES MACLAREN COMPANY LIMITED
CEDAR RAPIDS DAM

I have received your letter of October 4th, saying, "attached hereto find copy of a memorandum of our understanding of

your instructions at the discussion on October 2nd at your office High Falls." Your letter, and the memoranda attached, make it appear that you are proceeding with the work described by the memoranda because of instructions to do so given by me.

10 To this I must take exception and deny that I instructed or ordered you to do these things. On the contrary, the filling, drudging and method of continuing the masonry work from both shores were methods suggested by me for continuing the construction work, because you had declared that you did not know how to get the coffer dam tight enough to unwater the river.

20 My visit to Cedars Dam was in response to a request contained in your telegram, received September 26th, urgently requesting me to meet you at the Cedar Rapids Dam "to discuss serious situation unwatering main channel caused by fact that we have discovered at least 14 ft. loose material on river bed where your plan B-2444 states ledge rock." I met you at the dam on October 1st and spent the day there observing and considering the conditions. The next morning we met at High Falls and discussed the situation.

30 I found the coffer dam leaking badly and that nine or ten pumps were operating which were not then lowering the level of the water in the pool between the two coffer dams to any great extent.

40 No effort was being made to discover the source of the leak and to determine how it could be reduced to reasonable proportions. A large amount of filling on the upstream side of the upper coffer dam had been completed, I believe about ten days before the date of my visit, and the only effort to reduce the leakage which had been made subsequent to the completion of the filling was some work on a leak which appear near the easterly edge of the river channel. This had been reduced to small proportions several days before I visited the dam ; pumping had then been resumed which developed the fact the other and larger leaks existed.

You told me that you had spent all the money on the construction of the upper coffer dam and the filling above it that you were able to spend ; that you did not know what further could be done to reduce the leakage. You advanced the theory that instead of ledge being encountered at the surface of the river

at points where our plan B-2444 indicated it to be, there is a deep stratum of loose rock or other pervious material through which the water is doubtless flowing from an area of probably large extent on the river bed above the limits of the filling, and that you could see no practical way of overcoming the difficulty and reducing the leaks to a point where a reasonable number of
10 pumps would permit you to unwater the river bed.

You further expressed the opinion that under the area to be occupied by the dam in the river channel, ledge would likely be found to be 14 feet or more below the surface of the river bed where our drawing B-2444 indicated to be at the surface.

You took the position that because ledge is not being encountered at the elevations and points where the above mentioned drawing indicates it is to be found, a leaky coffer dam has
20 resulted and that the cost of completing the dam will be much greater than otherwise it would have been and that the owners should pay for this additional cost.

At our discussion the next morning, I told you that I would not make any ruling on your contention that the owners should pay for any extra cost which might be caused by failure to find ledge at the points indicated on the drawing and that I thought this was a matter for arbitration if you desired to have arbitration on the point.
30

You then said that you wanted the matter to be arbitrated and I told you I would so inform the owners, but that you should make the request directly to the owners in official form.

I also told you that I did not believe that your theory that there is a stratum of loose material below the surface of the river bed which is responsible for the leakage of the coffer dam is correct, that it did not seem to me that the question of making the cofferdam tight was at all hopeless as you seemed
40 to think, and that irrespective of the merits of the question as to whether the owners should pay for any of the extra cost of completing the dam which you say will be caused by failure to find ledge at the expected elevations, I considered it your duty and obligation as contractor to proceed with the work immediately and energetically. I also told you I thought that more filling above the coffer dam probably would reduce the leakage and suggested doing this and other methods of proceeding with the work which seemed to me to promise success.

These were made by me because you stated that you did not know what to do and you agreed to proceed along the line of these suggestions and in the meantime start arbitration proceedings.

10 I promised that the owners would determine the elevation of the actual surface of ledge in the river bed under the dam but expressly stated that, pending this determination, the work should not stop and that the fact I agreed to have these determinations made should not be considered by you a cause or excuse for holding up the construction work until these determinations were made.

This in substance I believe fairly outlines what took place at our conference and why I was prompted to make the suggestions referred to.

20 Yours truly,
H.S.F.:AGT.

PLAINTIFF'S EXHIBIT P-44 AT ENQUETE

Letter from D. W. O'Shea to William I. Bishop Ltd.

30 HARDY S. FERGUSON
Consulting Engineer
New York

McLaren Dam, October 8 1929

Wm. I. Bishop Ltd.
High Falls, P.Q.

Gentlemen:

CEDAR RAPIDS STORAGE DAM
COFFERDAM ACROSS MAIN CHANNEL

40 My observations on two trips to Cedars since your conference with Mr. Ferguson at High Falls, on October 2nd. lead me to conclude that you are not carrying on the work as Mr. Ferguson intended.

Mr. Steele's scheme of boxing off the water above the coffer near the island and carrying it down to below the tail coffer, is I believe quite good, but as far as I can find out, it was not carried out exactly as Mr. Steel instructed, and consequently is not giving the results intended.

Your superintendent, Mr. Lindskog, is now extending this box coffer in the hopes, I am told, of finding another place in the sheeting where the water is escaping. In the meantime, however he has stopped the pumps, and flooded the space between the two coffer. This means that it is impossible to carry on the construction of the stop-log piers and spillways, and also the log-slucice piers, as Mr. Ferguson intended, unless secondary coffer are built. I have seen no signs of this and have not been advised that such coffer were to be put in.

Your pumps and boilers are in bad shape, with the result that their efficiency is low, it never was very high. This should be rectified at once.

Mr. Ferguson's intent was that there should be no stoppage of work and that everything should be done to carry on and stop the leaks in the cofferdam. This, so far, has not been done.

Yours truly,

D. W. O'Shea,
Resident Engineer.

Copy to H. S. Ferguson & Co.
The Jas. Maclaren Co. Ltd.
Wm. I. Bishop Ltd. Cedar Rapids.
Mr. J. C. McIntosh

30

PLAINTIFF'S EXHIBIT P-43 AT ENQUETE

Copy of letter from William I. Bishop Ltd. to H. S. Ferguson

Maclaren Dam, Que October 17th 1929

Hardy S. Ferguson Esq:
200, 5th Avenue,
New York City,
40 New York.

Dear Sir,

JAS. MACLAREN CO. LTD.
CEDAR RAPIDS DAM.

Replying to yours of October 7th regarding the above.

I regret that I must contradict your statement that I declared I did not know how to get the cofferdam tight enough to unwater the river.

I asked you to come up to the site to investigate the conditions.

I pointed out that the contract of drawing for the cofferdam location indicated ledge rock and that instead of this we had found at least 14 feet of loose material.

10

You agreed that your plan showed ledge and agreed that this was what we were expected to base our tender on.

I told you that we had already expended double the amount which a cofferdam built on the bottom as per contract would have cost and that we did not consider we should be called upon to expend any more but that the owner should pay for all expenditures beyond that fairly chargeable to unwatering under conditions contracted for.

20

You refused to stand behind the plan you gave us and said this question would have to be settled by arbitration.

You were naturally anxious to avoid shutting down the work and outlined certain details which I considered as instructions and which you have elected to call "suggestions".

We proceeded "without prejudice" to try and carry these out with the following results.

30

Item. 1. Placing of additional blanket of good material on river bed upstream.

We have placed a large amount of fill where indicated, without any apparent results.

Item. 2. Excavating material between cofferdams.

40

We have done a certain amount of this but have discontinued on account of fine material found which may cause undermining and aggravation of present conditions under cofferdam.

Item. 3. Placing secondary cofferdam to enable more concrete to be placed.

This was found impracticable as under requirements of Streams Commission Engineers, the cost of these cofferdams would be prohibitive and in any case there is not room to place them.

Item. 4. Core drilling to determine location of ledge and its probable character. Mr. Ferguson informed me over the telephone in New York that some sort of electrical exploration had been arranged for.

10 Personally I very much doubt the value of this. It is imperative that this information be accurately determined.

Item. 5. Arbitration.

20 We have written the owners about this matter and have their reply naming their lawyers. Our lawyers are now in consultation with them drawing up an agreement. This will be a long, tedious and expensive process, and in the meantime we have been carrying along under protest at your request at a ruinous cost to ourselves.

Item. 6. Pumping.

 We carried along for a few days after blanketing started at high cost but were unable to get any worthwhile results.

30 On 14th inst I decided as a last resort to drive Lackawanna steel sheet piling across the deep channel of the river down to the bottom and as far into it as commercially possible.

 The sheet piling was ordered the same day and should arrive on the job next week. Meanwhile a driver is being built to handle this.

 This work is being done under protest and without prejudice.

 We have spared no effort nor expense to meet the conditions caused mainly by the loose bottom and secondly by the way the owners handled their logs.

40 We consider that we have been treated most unfairly throughout and must hold the owners responsible for all direct and indirect costs.

 When the steel sheeting is completed we shall immediately start the pumps and in the meantime consider that we should not be asked to incur any additional expense.

Yours respectfully,

William I. Bishop Limited

WIB/T

PLAINTIFF'S EXHIBIT P-45 AT ENQUETE

Copy of letter from William I. Bishop Ltd. to H. S. Ferguson

10

Maclaren Dam, Que October 17th 1929

Hardy S. Ferguson Esq:
Maclaren Dam,
Que.

Attention Mr. D. W. O'Shea.

Dear Sir,

20

CEDAR RAPIDS STORAGE DAM
MAIN CHANNEL COFFERDAM.

Replying to yours of October 8th. Our letter to your head office, copy of which is attached hereto answers the first and last paragraphs of your letter.

30 With regard to the second paragraph, you have been misinformed as to the carrying out of Mr. Steele's instructions. The flume is taking care of a small proportion of the leakage but we find that at least 90% of this flow is coming through the bottom far below the level of the flume

Your statement regarding the boilers and pumps is incorrect. The boilers were inspected quite recently and any stoppages of the pumps were caused by overdriving them in an attempt to cope with the leakage.

40 We explained yesterday our programme for steel sheeting and are sure you must feel that we are doing everything commercially possible to meet the situation.

Yours sincerely,

WIB/T

PLAINTIFF'S EXHIBIT P-46 AT ENQUETE

Letter from D. W. O'Shea to William I. Bishop Ltd.

10 HARDY S. FERGUSON AND COMPANY
 Consulting Engineers
 New York

MacLaren Dam, October 18, 1929.

Wm. I. Bishop Ltd.
High Falls, P.Q.

20 CEDAR RAPIDS STORAGE DAM
 COFFERDAM ACROSS MAIN CHANNEL

Gentlemen:

I have received your letter of October 17 to Mr. Ferguson and am forwarding it to him. As the subject discussed is rather vital to the owners, I am sending them a copy of it.

30 Referring to your Item No. 3, Mr. Dubreuil advised me to-day that he had accepted the bottom for pier 30 and the spill-way section south of it some time ago, and that he saw no objection to pouring it once the water was removed from it. This was the only requirement he found necessary, and you will admit that it is logical.

Yours truly,

D. W. O'Shea,
Resident Engineer.

40 Copy to H. S. Ferguson & Co.
 The Jas. Maclaren Co. Ltd.

PLAINTIFF'S EXHIBIT P-47 AT ENQUETE

Copy of letter from William I. Bishop to H. S. Ferguson.

10 COPY TO JOB OFFICE HIGH FALLS.

November 23rd, 1929.

Hardy S. Ferguson & Company,
Maclaren Dam,
Via Buckingham, P.Q.

RE: UNWATERING AT CEDAR RAPIDS DAM.

Dear Sirs:—

20 After the cofferdams were built, it was found that the bed of the river was not ledge as shown on the contract plans, but that it was made up of boulders, gravel, sand &c of some considerable depth. We have not yet been furnished with any dependable information regarding the depth of this comparatively loose material overlying the dam site.

Up to the present this material has been excavated to a depth of several feet without finding rock bottom, and it is quite possible that the rock surface at its lowest elevation may be considerably lower than anticipated.

30 In addition to any effect which this condition may have on the construction of the storage dam itself, it adds a greatly increased unwatering hazard to the work; and in case the loose material is very deep, the effect of water blowing through under the cofferdam might be disastrous.

40 It is even now necessary to use additional equipment, and if the depth is found to be much greater it may be necessary to use special methods of construction. There will also be increased difficulty in pumping due to increased lift, and probably also increased volume of water.

We hereby notify you and the owner that we disclaim all responsibility in connection with the increased risk, delay and expense due to the wrong information given by the contract plans, for all of which we hold the owner strictly responsible.

Yours very truly,

William I. Bishop Limited,
(Signed) W. I. Bishop.
President.

WIB/HB

PLAINTIFF'S EXHIBIT P-11 WITH RETURN

*Draft Agreement and Submissions with copy of letter dated
December 9th 1929, forwarding same and addressed by
Plaintiff's Attorneys to Defendant's Attorneys.*

10

BROWN, MONTGOMERY & McMICHAEL
Advocates, Barristers, &c.
The Royal Bank Building

Montreal, 9th December, 1929.

COPY

20 Henry Aylen, Esq., K.C.,
Queens Street,
OTTAWA, Ont.

Dear Mr Aylen,—

RE: W. I. BISHOP LIMITED AND
MACLAREN COMPANY.

30 Following conversation which I had with you in Ottawa
a few days ago, I am now forwarding draft of Submission Agree-
ment and eleven separate items which are in dispute and which
the W. I. Bishop Co. desires to have brought before arbitrators
under the provisions of the contract.

40 These submissions are of course without prejudice to the
right of the contractor to request arbitration upon other matters
not covered by the documents now sent you, and also under re-
serve of its right to change the form or amounts of these sub-
missions as circumstances may warrant before the time the ar-
bitration actually takes place.

I gathered from you that your clients might want to make
counter submissions, and I would be glad if you would furnish
me with a list of these as soon as possible.

I would appreciate your letting me know at your earliest
convenience when we may expect to be ready to have the arbitra-
tors get to work.

Yours very truly,

(Sgd) T. R .KER.

SUBMISSION No. 1.

HARD-PAN EXCAVATION.

10 Contractor contends that the contract provides for only two classes of excavation, viz., earth excavation and ledge excavation.

Contractor contends that when inspecting properties previous to tendering for contract, test pits, made by Owner to determine conditions to be encountered in by-pass and dam excavation, had been filled in, but Contractor was informed on the site by the Company's resident engineer that material consisted of about 5 ft. yellow sand and loam and the balance gravel with occasional boulders.

20

Contractor contends this information absolutely erroneous and excavation consisted largely of hard-pan, and Contractor makes claim for extra payment on following basis:—

Total excavation by pass	9,649 cu.yds.	less earth	5,049	—	4,600	cu.yds
						hard-pan
“ “ for dam	14,205	“ “ “ “	5,805	—	8,400	
						cu.yds
						13,000 hard-pan

30

@ 2/3rd rock price \$4.35 x .666 — \$2.90
Paid for as earth per cubic yard — 1.23

1.67
\$1.67 x 13,000 cu. yds. — \$21,710.00

40 QUESTION 1.—Is Contractor entitled to extra payment on account of hard-pan excavation?

QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to \$21,710.00 under this head?

QUESTION 3.—If answer to question 1 is in the affirmative and answer to question 2 in the negative, state sum to which Contractor is entitled as extra payment, indicating quantity of material moved and price fixed.

SUBMISSION No. 2.

HANDLING OWNERS' LOGS.

10 Contractor contends that he was not obliged by the terms of the contract to provide labour and facilities for the driving of logs by the site of the dam.

Contractor alleges that because of the neglect of the owners to provide the necessary labour and facilities for the proper control and passage of logs through the works the contractor in attempting to safeguard the works provided a boom and labour to assist in the passage of the logs.

20	Cost of boom and expense of handling logs	\$2,995.42
	plus 37%	1,108.30
		<hr/>
		\$4,103.72

QUESTION 1.—Is Contractor entitled to extra payment on account of circumstances outlined in this submission No. 2 ?

30 QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to payment of \$4,103.72 ?

QUESTION 3.—If answer to question 1 is in the affirmative and answer to question 2 in the negative, to what payment is Contractor entitled from Owners, giving particulars ?

SUBMISSION No. 3.

INCREASED COFFERDAM COSTS.

40 Contractor alleges that construction of main channel cofferdam was made more difficult and expensive due to interference of logs and also because of wrong information on contract drawings Nos. B-2444 and B-2571 with respect to the nature of the river bottom.

Contractor contends the absolute neglect of the Owner to handle or regulate the logs which generally approached the works during the night in compact groups of several thousand,

all of which resulted in logs jamming against the works causing displacement of same and seriously interfering with the placing of cribs, sheeting and other works pertaining to the cofferdam. As a result the Contractor was delayed in his work and put to very considerable expense in the construction of the cofferdam and replacement of damaged parts of same.

10

Contractor contends that instead of the river bottom being of ledge rock as shown on the contract plans, there is a considerable undetermined depth of loose material overlying the rock which caused heavy additional expenditures to cut off the flow of water. Final conditions are not yet determinable.

Contractor claims extra payment as follows:—

20	Additional labour cost to the contractor on crib work in original cofferdam.....	\$1,968.00
	Extra cost to contractor due to displacement of crib and forced relocation of sheeting due to log jams.	
	Extra cribs and rock fill, 1,052 cu. yds @ \$4.50	4,734.00
30	Extra labour on placing sheeting due to log jams	\$ 580.00
	Additional toe-fill embankment, 10,463 cu. yds. @ \$2.68	28,041.00
	(Quantity placed to October 31st, 1929, 11,663 cu. yds., less quantity required under contract conditions 1,200 cu. yds. equals difference 10,463 cu. yds.)	
40	Box cofferdam and flume to Oct. 31st, 1929	3,972.00
	Pumping expense to October 31st, 1929..	20,394.64
		\$59,689.64
	Plus 37%	22,085.16
		\$81,774.80

QUESTION 1.—Is Contractor entitled to payment under circumstances outlined in this submission No. 3?

QUESTION 2.—If answer to question 1 is in the affirmative, is contractor entitled to payment of \$81,774.80?

10 QUESTION 3.—If answer to question 1 is in affirmative and answer to question 2 in the negative, to what payment is Contractor entitled from Owner giving particulars?

SUBMISSION No. 4

COFFERDAM LOWER END BY-PASS.

20 Contractor alleges that owing to the unexpected difficulty in by-pass and Stoney gate excavation (See Submission No. 1), and to the vastly increased depth of cut-off rock excavation and consequent increased quantities of concrete in the base of dam, he was obliged to construct a cofferdam at the lower end of the by-pass to protect the work against Spring high water.

Contractor contends that but for the above difficulties a cofferdam would not have been required and that in consequence he should be paid for same.

30	Cost of cofferdam and removal	\$4,060.95
	plus 37%	1,502.55
		<hr/>
		\$5,563.50

QUESTION 1.—Is Contractor entitled to extra allowance under circumstances outlined in this submission No. 4?

QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to extra allowance of \$5,563.00?

40 QUESTION 3.—If answer to question 1 is in the affirmative and answer to question 2 in the negative, to what allowance is Contractor entitled from Owner, giving particulars?

SUBMISSION No. 5.

EXCESS OVERRUN ROCK EXCAVATION

Contractor alleges that instead of shallow excavation indicated on contract drawings Contractor has been obliged to go

down in a trench to as much as 31 ft. below grades indicated and that excavating this trench and blasting brought in considerable quantities of material from the sides of the cut, all of which had to be rehandled from the lower depths.

Contractor contends that the quantity required by the
 10 contract plans, plus 20% as a reasonable overrun, amounts to 8,712 cubic yards and that extra payment should be made on quantities in excess of 8,712 cu. yds. due to the additional depth of excavation for north abutment, non-spilling, Stoney gate, log sluice and stop log sections as follows:—

	Actually excavated to Oct. 31st, 1929	19,158 cu. yds.
20	Less by-pass cutoff paid for partly at \$6.50 and partly by force account	364 cu. yds.
		18,794 cu. yds.
	Less quantity as above	8,712 cu. yds.
	Excess overrun	10,082 cu. yds.
30	Fair price for trench excavation (see item e page 15 of contract) ..	\$6.50 per cu. yd.
	Paid on engineers' estimates.....	4.35 per cu. yd.
		\$ 2.15 x 10,082 cu. yds
		=\$21,676.00

40 QUESTION 1.—Is contractor entitled to extra allowance under circumstances outlined in this submission No. 5?

QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to extra allowance of \$21,676.00?

QUESTION 3.—If answer to question 1 is in the affirmative and answer to question 2 in the negative, to what allowance is Contractor entitled, giving particulars?

SUBMISSION No. 6

ROCK EXCAVATION SHALLOW LIFTS.

10 Contractor alleges that the requirements of the Owner's Engineer in insisting on successive preparations of bottoms for the placing of concrete caused the Contractor needless extra expense.

Contractor contends that he could not have anticipated at the time of preparing his tender that he would be required to make several successive preparations of bottoms for concrete which was caused by the removal of rock in very shallow lifts thereby increasing the cost.

20 Contractor claims extra payment as follows:—

On 1,880 cu.yds. in stop log section and	
3,650 cu.yds in Stoney gate section — total	
5,530 cu.yds @ \$1.00	\$5,530.00

QUESTION 1.—Is Contractor entitled to extra payment under circumstances outlined in this submission No. 6?

30 QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to \$5,530.00 as extra payment?

QUESTION 3.—If answer to question 1 is in the affirmative and answer to question 2 in the negative, state sum to which Contractor is entitled as extra payment, indicating quantity of material moved and price fixed.

SUBMISSION No. 7.

40

STAND-BY EXPENSE

Contractor alleges that he has suffered loss due to delay in carrying on his work because of the difficulties in connection with unwatering the site (See Submission No. 3).

Contractor contends that had it not been for the causes mentioned in Submission No. 3, he would have started work on the Sluice Gate Section by August 15th, 1929, and that he should

be reimbursed for overhead and plant expense after this date until such time as work on this sluice gate section can be started.

Contractor claims under this head to October 31st, as follows:—

10 Assuming cofferdams would have been completed by August 15th, 1929.

Standby and overhead expense to Contractor cost per month \$21,000.00, August 15th to October 31st—	
2½ months	\$52,500.00

Work paid for during July	\$84,000.
---------------------------------	-----------

20 To arrive at percentage standby and overhead	
\$21,000 — 25%	

\$4,000

Credit on work paid for Aug. 15th to 31st,	
25% on \$42,000	10,500.
Sept. 1st to 30th,	
25% on \$38,772	9,693.
Oct. 1st to 31st,	
25% on \$16,795	4,199.

30		<u>\$24,392.00</u>
----	--	--------------------

Balance chargeable to delays	\$28,108.00
------------------------------------	-------------

(Less whatever may be allowed for overhead on Submissions Nos. 2 and 3).

Plant charge 2½% per month on \$115,174.00	
— \$2,879. per month, 2½ mos.	\$7,197.50

40 On same proportional basis as above,	
54% of \$7,197.50	\$3,886.00

QUESTION 1.—Is Contractor entitled to allowance on items set up in this submission No. 7?

QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to respective sums set up in submission No. 7?

QUESTION 3.—If answer to question 1 is in the affirmative, and answer to question 2 in the negative, indicate amount of allowance due to Contractor with particulars.

SUBMISSION No. 8.

10

EXTRA PRICES FOR WINTER WORK.

Contractor alleges that had conditions existed as set forth in contract all work would have been completed allowing for reasonable overruns without the necessity for working under winter conditions.

20 Contractor contends that owing to conditions not being as disclosed in contract, work under winter conditions will be necessary and Contractor claims on future cost of work to be done under winter conditions from November 1st to completion the following extra unit prices:—

	Earth Excavation	75¢
	Hard-pan excavation	\$1.00
	Ledge rock	1.00
	Forms, straight	10¢ sq.ft.
	Forms, curved	20¢ “ “
	Concrete, all classes	\$4.80 per cu.yds
30	Placing structural steel and cast iron	\$10.00 per ton

QUESTION 1.—Is Contractor entitled to winter condition extra unit prices?

QUESTION 2.—If answer to question 1 is in the affirmative, is Contractor entitled to extra unit prices at figures named?

40 QUESTION 3.—If answer to question 1 is in the affirmative and answer to question 2 in the negative, state extra unit prices to which Contractor is entitled.

SUBMISSION No. 9

EXCESS CHARGES FOR LOGS.

Contractor alleges that by agreement Owner was obliged to sell logs to Contractor at \$20 per M. Quebec Scale at McCabe's Mill.

Contractor states that accounts for lumber furnished have been rendered by Owner on sawn lumber basis which represents an overcharge as follows:—

Overcharge 22½% of \$20.00 \$4.50 per M.B.M.

10 QUESTION 1.—Is Contractor entitled to receive logs from Owner on basis of \$20.00 per M Quebec Scale?

QUESTION 2.—If answer to question 1 is in the affirmative, is percentage of overrun Board Measure over log measure, indicated above, correct?

20 QUESTION 3.—If answer to question 1 is in the affirmative and question 2 in negative, state deduction to which Contractor is entitled under this Submission No. 9.

SUBMISSION No. 10

PLANT REMOVAL

30 Contractor contends that owing to the delays recited in the foregoing submission, it will be impossible to dismantle his plant and transport his plant and equipment over the winter roads to Gracefield.

He requests that the arbitrators should establish in principle the liability or otherwise of the Owner in respect of such expense as may be proven to be directly due to removal of plant under summer conditions.

SUBMISSION No. 11.

40

CONTINUITY OF CLAIMS

Contractor contends that Submissions Numbers 3, 5, 7, 8, 9 and 10 are continuing claims which will extend beyond the date of October 31st set forth in these submissions, and requests that the question of additional costs beyond that date be established in principle.

MEMORANDUM OF AGREEMENT

BETWEEN:

10 W. I. BISHOP LIMITED
a body corporate, hereinafter referred to
as "the Contractor",

OF THE FIRST PART.

AND:

THE JAMES MACLAREN COMPANY LIMITED,
a body corporate, hereinafter referred to
as "the Owner",

OF THE SECOND PART.

20 WHEREAS the Contractor did on or about the day
of , 192 , make a tender to the Owner for the con-
struction of certain hydraulic works on the Lievre River, said
tender being based on information, plans and specifications fur-
nished by the Owner for the purpose of such tender; and

WHEREAS on the day of , the
contract for the said work was granted by the Owner to the Con-
tractor and a written contract was entered into between the parties
under formal date , which contract was accom-
30 panied by plans and specifications covering the work, and the
Contractor did proceed with the said work pursuant to the said
contract, plans and specifications and information conveyed with
respect thereto; and

WHEREAS the said contract did contain a clause provid-
ing that should any dispute arise as to the interpretation of the
terms of the contract as to cost of changes and extra work per-
formed, or in regard to any other matter regarding the execution
or final settlement of the contract, it should be referred to a Board
40 of Three Arbitrators, one to be selected by the Owner and one by
the Contractor and the third to be selected by the two chosen; and

WHEREAS disputes have arisen between the Contractor
and the Owner as to various matters contained in the contract,
plans and specifications, and particularly in respect of inaccuracy
in the plans as to the nature and levels of the foundation of the
structure and the river bed, and also as to the manner in which
the Owner's logs have been driven on the said River in relation

additional delay required, shall be given by the arbitrators in writings to the Owner and Contractor at least five (5) clear days before the expiry of the time herein granted.

IN WITNESS WHEREOF the parties have signed these presents at this day of
10 One thousand Nine Hundred and Twenty-
 nine.

PLAINTIFF'S EXHIBIT P-12 WITH RETURN

Original letter from Defendant's Attorneys acknowledging receipt of documents contained in exhibit P-11.

20 AYLEN & AYLEN,
 Barristers, Etc.
 53 Queen Street

Ottawa, Ont. December 12th, 1929.

Messrs. Brown, Montgomery & McMichael,
Advocates,
Royal Bank Building,
30 Montreal, Quebec.
 Attention Mr. Ker, K. C.

Dear Sirs:—

RE: JAMES MACLAREN CO. LTD &
WM. I. BISHOP LTD.,

Your letter of the 9th instant enclosing draft deed of submission was duly received. We are having the same copied and
40 will then forward it to our clients for their consideration.

Yours very truly,

Aylen & Aylen.

Received Dec. 13-1929 B. M. & M.

PLAINTIFF'S EXHIBIT P-48 AT ENQUETE

Copy of letter from William I. Bishop Ltd to H. S. Ferguson

10 Maclaren Dam, Que., December 16th 1929.

Messrs,
Hardy. S. Ferguson & Co.
Maclaren Dam,

Dear Sirs:—

RE. CEDAR RAPIDS CONTRACT
NOVEMBER ESTIMATE.

20 Replying to yours of the 7th enclosing the above.

The steel sheet piling driven downstream of the upper cofferdam, was placed for two purposes, one, to prevent the loose material overlying the rock from sliding out and secondly, to hold the leakage and form a dump for the upstream pumps.

We are putting in gasoline pumps for the sake of fuel economy and not on account of breakage occurring to the steam pumps.

30 Several steam pumps will be held in reserve as standby units.

We regret to note that you have classified the material overlying the rock, in the main channel, as earth excavation.

We neither quoted on nor contracted for earth excavation in that location.

40 This overlying material under the conditions we are working under is costing as much if not more than solid rock and we must request an adjustment on the next estimate.

We are pleased that you do not anticipate any further delays in completion and sincerely hope that your opinion will prove correct.

Yours very truly,

WILLIAM I. BISHOP LIMITED,
President.

WIB/T

DEFENDANT'S EXHIBIT D-44 AT ENQUETE

Statement giving dates at which various items of work were begun and completed, filed by witness, McIntosh.

10

Claim 3

Toe filling 2-D

Began Aug. 15-30 1929
Complete Oct. 1-15 1929

Pile Driver D-12

Erection began Oct. 14 1929
Complete Nov. 1-15 1929

20

Pumping 2-A

Began Sept. 1-15 1929
Complete Feb. 1-15 1929

Flume 2-A-5

Erection began Oct. 1-18 1929
Removed Nov. 15-30 1929

Scows & Boats C-7

1 scow built Mar. 15—April 15 1929
second scow built Aug. 15—Sept. 15 1929

Removal of Cofferdam G-2

30

Began Dec. 15-30 1929
Complete April 15-30 1929

South abutment

Erection began Mar. 1-15 1929
" complete Mar. 1-15 1929
Stone filled Mar. 15-30 1929
Sheeted Mar. 15-30 1929

North abutment

40

Erection began Mar. 15-30 1929
" complete Mar. 15-30 1929
Stone filled Mar. 15-30 1929
Sheeted Mar. 15-30 1929

Crib No. 1

Erection began June 1-15 1929
" complete June 1-15 1929
Floated to place June 15 1929
Stone filled June 15-30 1929
Sheeted July 15-30 1929

Claim 3

	Crib No. 2			
	Erection began	June	15-30	1929
	“ complete	July	1-15	1929
	Floated to place	July	16	1929
10	Stone filled	July	15-30	
	Sheeted	Aug.	1-15	1929
	Crib No. 3			
	Erection began	July	15-30	1929
	“ complete	July	15-30	1929
	Floated to place	July	22	1929
	Stone filled	July	15-30	
	Sheeted	Aug.	1-15	1929
	Crib No. 4			
	Erection began	July	15-30	1929
	“ complete	July	15-30	1929
20	Floated to place	Aug.	4	1929
	Stone filled	Aug.	1-15	1929
	Sheeted	Aug.	1-15	1929
	Superstructure			
	Began	July	15-30	1929
	Complete	Aug.	15-30	1929

Claim 4

	By-pass cofferdam			
30	Erection began	April	8,	1929
	Removed	June	15,	1929

Claim 5

	Rock excavation			
	Began	Dec.	1928	
	Complete	Dec.	1929	

40 *Claim 6*

Trimming pile of Rock
May 1-15, 1930

Claim 7

	Plant removal			
	Began	Jan.	1930	
	till	June	1930	
	and three pieces in	Jan.	1931	

Claim 2

Log Driving
Began June 1-15, 1929
Complete Aug. 15-30, 1929

Pumping requirements as on Jan. 26, 1930.

Between upstream cofferdam and inner row of steel sheet piling there are three pumps

- 1 — 10"
- 1 — 8"
- 1 — 8" — 12"

running at variable speeds depending upon the water.

Two pumps running steady control the leak behind lower cofferdam.

- 1 — 6"
- 1 — 8"

PLAINTIFF'S EXHIBIT P-116 AT ENQUETE

*General Statement of amounts charged for labor and material,
taken from semi-monthly payrolls and Vouchers.*

Feb. 26th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 2

LOG DRIVING — X-18 — \$2,995.42

Labour — \$2,858.59

Material — \$136.83

			Voucher				Voucher
1929				1929			
June	16-30	\$300.49	#811	June	\$90.86	Mat.	802
July	1-15	128.22	864	Aug.	42.68	"	1042
	16-31	110.58	940	Sept.	3.29	"	1142
Aug.	1-15	1489.89	972				
	16-31	829.41	1038		<u>\$136.83</u>		
		<u>\$2858.59</u>					

March 14th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

INCREASED COST OF COFFERDAMS AND UNWATERING.
CRIBWORK, INCLUDING TIMBER, BUILDING & LOADING

2 A	\$2,782.21	
2 E	75.89	
2 B	6,970.79	
2 B 1	3,417.72	
2 C	6,466.28	
2 C 1	2,333.00	\$22,045.89
SHEETING AND TOE FILL		
2 D		41,776.78
STEEL SHEET PILING		
2 F	\$1,017.70	
D 12	3,678.00	
Driving	7,389.82	12,085.52
PUMPING		
2 A 3	\$51,053.54	
2 A 5	2,243.56	53,297.10
REMOVAL OF COFFERDAMS		
2 G		13,782.03
SCOWS AND BOATS & C		
C 7	\$1,246.25	
C 10	224.35	1,470.60
		<hr/>
		\$144,457.92

Feb. 20th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

TIMBER FOR CRIBS & LABOUR				—	2-A	—	\$2,782.21
Labour — \$2,094.52					Material —		\$687.69
1929				1929			
Mar.	16-31	\$175.19	Vr. 467	Nov.	\$108.00	Rd. Timber	
	1-15	247.09	392			Valliere ..	Vr 1273
Feb.	1-15	206.40	239	Aug.	1.74	Stores	J.V 1042
	16-28	17.00	326	June	15.00	Binnette ..	713
		1.05	J.V. 297	May	207.38	J. Maclaren	682

Jan.	16-31	671.86	194	“ Cr.	122.19	J.Vr.	685
	1-15	333.58	134	Mar.	25.00	Binnette ..	428
Dec.	1-15	199.88	58	Feb.	2.57	J.Vr. Mat.	297
	16-31	242.47	78	“	.69	C.P.R.	
		<hr/>				Freight	324
		\$2,094.52		“	261.00	Mat. H.F.	331
				“	14.38	Tractor	
						Parts	275
				“	7.05	Rousseau	
						Mat.	292
				“	3.92	C.P.R.	
						Freight	243
				1929			
				Jan.	82.85	Dep. Tools J.V.	200
				1928			
				Dec.	10.00	Bergin	
						Car Hire	45
					70.30	Stores	
						Material ..	92
					<hr/>		
					\$809.88		
				Cr.	122.19		
					<hr/>		
					\$687.69		

Feb. 24th. 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3

CROSSING TIMBER — 2-E — \$75.89

		Labour		
Mar.	1929,	16-31	\$69.85	Vr. 467
Apr.		1-15	6.05	513
			<hr/>	
			\$75.89	

Feb. 20th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

BUILDING AND FRAMING #1 CRIB — 2-B — \$6,970.79

Labour — \$3,992.00				Material — \$2,978.79			
1929				1929			
Aug.		\$530.90	Vr. 972	Oct.	\$39.45	Stores	J.V. 1228
July	1-15,	384.77	864	Sept.	199.54	J.M.Co.	
						Logs	1133
“	16-31	1524.06	940	“	107.67	Stores Mat. J.V.	1142
June	1-15	286.59	754	Aug.	439.37	“ Mat. “	1042
“	16-30	579.92	811	“	425.01	Lumber	“ 1043
Mar.	1-15	273.74	392	“	374.00	Steam Coal “	1044
“	16-31	412.02	467	July	799.96	Material .. J.V.	944
					74.69	Coal	“ 945
		<u>\$3992.00</u>			.35	Blacksmith	
						Coal	“ 946
					163.69	Lumber	“ 947
				June	73.60	Material ..	“ 802
				May	6.07	Lumber	“ 686
				Apr.	17.32	Material ..	“ 597
					1.55	Blacksmith	
						Coal	“ 599
				1929			
				Mar.	256.52	Material ..	465
					<u>\$2978.79</u>		

Feb. 22nd, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3

BUILDING AND FRAMING No. 2 CRIB — 2-B-1 — \$3,417.72

Labour — \$1,173.71			Material — \$2,244.01				
			Vr.	1929		Vr.	
June	1-15	\$676.96	754	June	\$306.84	Material	802
	16-30	282.19	811		67.76	.....	804
July		24.30	864	July	116.06	Material	944
Aug.	16-31	190.26	1038		.85	Steam Coal	945
					.35	Blacksmith Coal	946
		<u>\$1,173.71</u>		Aug.	112.21	Material	1042
					1013.09	Lumber	1043
					316.00	Steam Coal	1044
				Sept.	259.30	Logs	1133
					42.49	Material	1142
				Oct.	.28	"	1228
				Nov.	8.78	"	1315
					<u>\$2244.01</u>		

Feb. 24th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3

LOADING NO. 1 WITH ROCK — 2-C — \$6,466.28

Labour — \$6,121.01			Material — \$345.27				
1929			Vr.	1929		Vr.	
Mar.	1-15	\$74.43	392	Mar.	\$68.60	Lumber	478
	16-31	311.27	467	July	2.55	Steam Coal	945
June	1-15	28.50	754	Aug.	156.59	Steam Coal	1044
	15-30	1054.80	811	Sept.	15.68	Lumber	1143
July	1-15	623.22	864	"	101.85	Steam Coal	1144
	16-31	541.92	940				
Aug.	1-15	2131.53	972		<u>\$345.27</u>		
	16-31	1355.34	1038				
		<u>\$6121.01</u>					

Feb. 24th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

LOADING NO. 2 WITH ROCK — 2-C-1 — \$2,333.00
 Labour — \$2,333.00

1929			
June	1-15	\$559.81	Vr. 754
	16-30	1292.12	811
July	1-15	69.49	864
Aug.	16-31	214.94	1038
Sept.	1-15	196.64	1097
		<hr/>	
		\$2,333.00	

Feb. 24th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

SHEETING & TOE FILLING #1 CRIB — 2-D — \$41,776.78
 Labour — \$36,318.34 Material — \$5,458.44

1929						
Mar.	1-15	\$2.40	Vr. 392	Mar.	\$140.00	Lumber Vr. 478
	16-31	247.52	467	June	185.20	“ 804
Apr.	1-15	27.70	513	Sept.	648.69	Material 1142
June	16-30	516.58	811		439.78	Lumber 1143
July	1-15	27.00	864	Oct.	67.00	Scow Rent. ... 1173
	16-31	236.69	940		63.00	Hay 1179
Aug.	1-15	1474.37	972		369.86	Mat. 1228
	16-31	6978.78	1038		501.60	Lumber 1234
Sept.	1-15	12475.34	1097	Nov.	74.45	Material 1315
	16-30	7669.15	1138		71.25	Lumber 1316
Oct.	1-15	2510.08	1177	Apr.	2897.61	Plant 1758
	16-31	91.60	1223			
Nov.	1-15	1883.57	1267		<hr/>	
	16-31	480.99	1311		\$5458.44	
Dec.	1-15	1548.07	1419			
	16-31	148.50	1420			
		<hr/>				
		\$36,318.34				

February 24th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

DRIVING WOOD PILES AND MOVING — 2-F — \$1,017.70

Labour — \$489.81				Material — \$527.89			
1929							
Oct.	16-31	\$305.85	Vr. 1223	Oct.	\$94.50	Steam Coal ..	Vr. 1229
Nov.	1-15	183.96	1267		72.96	Lumber	1234
		<u> </u>		Nov.	117.00	Timber	1273
		\$489.81			80.63	Material	1315
					87.75	Steam Coal ..	1317
					1.95	Blacksmith	
						Coal	1318
				Dec.	73.10	Material	1427
					<u> </u>		
					\$527.89		

Feb. 24th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

COST OF PILE DRIVER — D-12 — \$3,678.00

Labour — \$2,674.62				Material — \$1,003.38			
1929							
Oct.	1-15	\$517.10	Vr. 1177	Oct.	\$19.00	Material	Vr. 1226
	16-31	2157.52	1223		311.93	“	1228
		<u> </u>			6.75	Steam Coal ..	1229
		\$2,674.62			244.50	Lumber	1234
					421.20	B.C. Fir ..	1235
					<u> </u>		
					\$1003.38		

Feb. 25th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

DETAILS OF DRIVING AND COST OF STEEL SHEET PILING
DRIVING PILING

NOVEMBER		DECEMBER		
1	Unloading	\$25.05	3 Prepare to Drive	\$131.24
2	“	13.69	3 Driving	99.97
	Moving Piles	30.35	5 Unloading	36.75
4	“ “	26.60	Driving	59.67
	Driving	136.38	6 “	84.62
5	“	92.92	7 “	149.54
	Moving Piles	26.92	8 “	165.50
6	Driving	87.01	9 “	99.15
7	“	81.05	10 “	114.69
	Moving Piles	17.10	11 “	138.52
8	“ “	8.75	12 “	90.45
	Driving	85.33	13 “	102.94
9	“	97.39	14 “	63.91
11	“	69.83	15 “	31.88
	“	61.77	20 Bracing	87.40
12	“	57.83		
	Moving Rig	116.78		<u>\$1456.23</u>
13	“ “	104.06		
	Driving	68.53		
14	“	162.33		
15	“	138.42		
	Miscellaneous	30.45		
		<u>\$1538.54</u>		1538.54
Cost of Piling Voucher 1254 - 1359 - 1404 - 1443			\$2,737.00	
Duty, Voucher 1492			239.34	
Freight Voucher 1225 - 1470			533.81	
Hauling 58.62 Tons @ \$12.31			739.20	
Miscellaneous Material, Voucher 1315			74.45	
“ Lumber “ 1316			71.25	
			<u>4395.05</u>	
			<u>\$7389.82</u>	

Feb. 25th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3

		UNWATERING — 2-A-3 — \$51,053.54			
		Labour — \$34,353.88		Material — \$16,699.66	
1929					
Apr.	1-15	442.92	Vr. 513	Apr.	\$145.18 Lumber Vr. 596
	16-30	600.66	593		51.69 Mat. 597
May	1-15	1140.02	633		165.85 Coal 598
	16-31	355.03	683	May	Lumber
June	1-15	313.13	754		Cr.145.18 ... J.Vr. 615
	15-30	828.13	811		46.88 Coal 687
July	1-15	832.93	864		95.46 Mat. 688
	16-31	685.81	940	June	135.61 Mat. 802
Aug.	1-15	502.50	972		136.80 Coal 805
	16-31	722.79	1038	July	194.28 Mat. 944
Sept.	1-15	1427.50	1097	Aug.	181.23 Mat. 1042
	16-30	3737.16	1138		117.80 Lumber 1043
Oct.	1-15	3384.59	1177		216.00 Steam Coal .. 1044
	16-31	576.90	1223	Sept.	182.57 Pipe Fittings 1064
Nov.	1-15	328.93	1267		44.36 " " 1104
	16-30	3048.58	1311		153.37 Mat. H.F. 1131
Dec.	1-15	4747.74	1419		597.94 Mat. 1142
	16-30	4692.01	1420		37.94 Lumber 1143
					1018.50 Steam Coal .. 1144
		\$28367.33		Oct.	27.44 Hardware 1149
					206.39 Pipe 1164
					286.00 Pump Rental 1212
					644.71 Mat. 1228
					303.75 Steam Coal .. 1229
				Nov.	186.50 Mat. H.F. 1247
					46.50 Pump Rental 1261
					30.00 " " 1287
					38.00 Mat.
					Montreal 1302
					363.62 Mat. 1315
					931.50 Coal 1317
					2.76 Blacksmith
					Coal 1318
				Dec.	41.85 Timber 1335
					140.00 Pump Rental 1380
					17.10 Lumber 1425
					2318.18 Mat. 1427
					3150.00 Steam Coal .. 1428
					3.80 Blacksmith
					Coal 1429

Continued

12114.38

Feb. 25th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3

REMOVE COFFERDAM — 2-G — \$13,782.03

Labour — \$8,496.62

Material — \$5,285.41

1929				1930			
Dec.	16-31	\$754.34	Vr. 1420	Jan.	5.06	Mat.	Vr. 1500
1930					652.50	Coal	1502
Jan.	1-15	495.77	1488	Feb.	911.25	Mat.	1613
	16-31	1367.36	1489		129.75	Lumber	1614
Feb.	1-15	2139.73	1611		1426.44	Steam Coal ..	1615
	16-28	958.01	1612		4.89	Blacksmith	
Mar.	1-15	1045.82	1676			Coal	1616
	16-31	1045.48	1677	Mar.	5.71	Blacksmith	
Apr.	1-15	690.11	1739			Coal	1688
		<hr/>			733.50	Steam Coal ..	1692
					570.31	Material	1693
				Apr.	846.00	Material	1748
		\$8496.62			<hr/>		
						\$5285.41	

Feb. 25th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3

SCOWS AND BOATS — C-7 — \$1,246.25

Labour — \$1,142.38

Material — \$103.87

1929				1929			
Mar.	16-31	\$256.00	Vr. 467	Mar.	\$6.23	Mat.	Vr. 465
Apr.	1-15	75.12	513		67.20	Lumber	478
Aug.	16-31	126.40	1038	Apr.	15.00	Miscellaneous	578
Sept.	1-15	684.86	1097		15.44	Mat.	597
		<hr/>			<hr/>		
		\$1142.38				\$103.87	

Feb. 26th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 3,

DRIVE BOATS — C-10 — \$224.35

	Labour	- \$210.05		Material	— \$14.30
1929					
June	1-15	\$178.80	Vr. 754	June	\$14.30 Mat. Vr. 802
	16-30	31.25	811		
		<u> </u>			
		\$210.05			

Mar. 11th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM No. 4.
ITEM 2-A-2

Deduct labour after June 15th?
See when removing charge—

REVISED

2-A-2 = \$913.06

	Labor	— \$679.39		Material	— \$233.67
Apr.	1-15	\$287.11	Vr. 513	Apr. \$	44.74 Material Vr. #597
	16-30	125.15	593	May	145.18 Lumber 615
May	1-15	267.13	633		10.85 Material 688
		<u> </u>		June	32.90 Material 802
		\$679.39			<u> </u>
					\$233.67

Mar. 11th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM No. 4,

REMOVE BY-PASS COFFERDAM — 2-A-4 — \$117.22

	Labour	— \$117.22
June	1-15	117.22 Voucher 754
		\$679.39
		233.67
		117.22
		<u> </u>
		\$1,030.28
	+ 37%	388.20
		<u> </u>
		\$4,418.48

Feb. 26th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 5,

ROCK EXCAVATION — 1-A — \$89,443.15

Labour — \$72,409.10

Material — \$17,034.05

1928							
Dec.	1-15	\$122.10	Vr. 58	Jan.	\$15.23	Material	Vr. 199
	16-31	117.89	78	Feb.	703.22	"	324
1929					.80	Expr.	329
Jan.	1-15	37.44	134		91.33	Material H.F.	331
	16-31	55.64	194		246.00	" F.H.H.	334
Feb.	1-15	2120.65	239	Mar.	5.52	" C.I.R.	362
	16-28	1959.66	326		.50	Expr.	433
Mar.	1-15	2390.31	392		2.70	Frts.	451
	16-31	4429.57	467		.50	Miscellaneous	453
Apr.	1-15	5520.05	513		1066.64	Material	465
	16-30	7924.72	593		153.00	Coal	477
May	1-15	8795.51	633	Apr.	.90	Exp. Ch.	480
	16 31	7139.37	683		2.29	Frts. "	512
June	1-15	3043.63	754		.60	Exp. "	526
	16-30	643.56	811		87.18	Drills	537
July	1-15	243.70	864		1.00	Transp.	563
	16-31	4518.48	940		76.72	Lumber	596
Aug.	1-15	1963.06	972		2113.16	Material	597
	16-31	2811.97	1038	May	9.76	Material	
Sept.	1-15	1075.10	1097			C.I.R.	649
	16-30	170.15	1138		13.44	Lumber	686
Oct.	1-15	502.54	1177		418.20	Coal	598
	16-30	345.39	1223		86.35	Blacksmith	
Nov.	1-15	784.96	1267			Coal	599
	16-31	5377.77	1311		231.12	Coal	687

\$62093.22

	June	1520.08	Material	688
		439.34	Coal	805
	July	1292.97	Material	944
		141.51	Steam Coal	945
		4.03	Blacksmith	
			Coal	946
	Aug.	892.50	Material	1042
		6.72	Lumber	1043
X		290.30	Coal	1044
	Oct.	129.95	Material	1228
		108.00	Coal	1229
	Nov.	981.86	Material	1315
		291.60	Steam Coal	1317
		5.72	Blacksmith	
			Coal	1318

\$13,250.52

X See next sheet for September Material Account.

MACLAREN'S CEDARS ACTION

ROCK EXCAVATION — 1-A — \$89,443.15

Labour — \$72,409.10

Material — \$17,034.05

Forward — \$62,093.22				Forward — \$13,250.52			
1929				1929			
Dec.	1-15	4,243.80	Vr. 1419	Sept.	652.22	Material	Vr. 1142
	16-31	5,884.56	1420		101.85	Coal	1144
1930				Dec.	885.51	Material	1427
Jan.	1-15	100.25	1488		1,764.00	Steam Coal	1428
Mar.	16 31	26.92	1677		4.39	B'smith Coal	1429
May	16-31	60.35	1770	Jan.	262.82	Material	1500
		\$72,409.10		Feb.	20.00	Material H.F.	1593
					64.49	Material	1613
				Apr.	20.00	"	1758
					8.25	"	1815
				\$17,034.05			

Feb. 26th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 5,

STONE BOATS AND SKIPS — 1-A-1 — \$3,270.15

Labour — \$2,395.22

Material — 874.93

1928				1929			
Dec.	16-31	\$18.90	Vr. 78	Feb.	\$44.28	Material	Vr. 324
Feb.	16-28	82.45	326		92.74	Lumber	325
Mar.	1-15	85.11	392		6.57	Misc. H.F.	331
	16-31	163.89	467	Mar.	65.13	Material	465
Apr.	1-15	240.60	513		12.99	Lumber	466
	16-31	624.18	593		8.40	"	478
May	1-15	88.75	633	Apr.	23,81	"	596
	16-31	345.78	683		301.57	Material	597
June	1-15	94.53	754		10.50	Blacksmith	
	16-31	16.30	811			Coal	599
July	1-15	16.00	864	May	159.60	Lumber	686
	16-31	26.95	940		62.10	Material	688
Aug.	1-15	150.41	972	June	14.56	"	802
	16-31	154.12	1038		1.12	Lumber	804
Sept	1-15	79.55	1097	Aug.	1.46	Material	1042
	16-30	65.10	1138	1930			
Oct.	16-31	18.00	1223	May	21.50	Blacksmith	
Nov.	16-30	26.75	1311			Coal	1815
Dec.	1-15	21.75	1419		48.60	Blacksmith	
	16-31	63.00	1420			Ind. Coal Co. ..	1827
Jan.	1-15	13.10	1488	\$874.93			
		\$2,395.22					

Mar. 12th, 1933.

CEDARS
CLAIM NO. 5
ROCK EXCAVATION
ACCOUNTS 1-A and 1-A-1
SUMMARY

Total quantity excavated 22,375 cu.yds.

May 1930 Summary of Costs

Account	Labor	Material	Total	
1-A	\$72,409.10	\$17,034.05	\$89,443.15	
1-A-1	2,395.22	874.93	3,270.15	
	<u>\$74,804.32</u>	<u>\$17,908.98</u>	<u>\$92,713.30</u>	\$92,713.30

$\$92,713.30 \div 22,375 \text{ cu. yds} = \4.14 per cu. yd.

Deduct 811 cu. yds. entered under Claim No. 7

811 cu.yds. @ \$4.14	3,357.54
	<u>\$89,355.76</u>
Plus 37%	33,061.63
	<u>\$122,417.39</u>
Payment Received	87,316.65
	<u>\$35,100.74</u>

Mar. 11th, 1933.

MACLAREN'S CEDARS ACTION

CLAIM NO. 6

HANDLING & TRIMMING EXCAVATED ROCK — 1-N — \$1,959.18

Labour — \$845.26

Material — \$522.39

1930		Vr.	225 Gals. Gasoline @ 26¢	\$58.50
May, 1-15	\$845.26	1769	5 Lbs. Artic Cup Grease	.40
			1 — 3" M.I. Tee	1.45
			2 — 1/2 x 3" Nipples	.12
			2 — 1 1/2" Tees	.30
			1 — 1 1/2" Gate Valve	4.05
			3 — 3" Close Nipples	.69
			2 — 1/4" " "	.04
			2 — 3" x 2" Bushings	.30
			2 — 2 x 1 1/2" " "	.16
			2 — 3 x 45° Elbows	1.08
			1 — 3 x 90° " "	.95
			4 — 3/8 x 3" Machine Bolts	.12
			12 — 1/4 x 1 1/2" " "	.24
			12 — 1/2 x 2 1/2" " "	.24
			1 — 1" Globe Valve	1.00
			1 — 3/4" Plug	.06
			1 — 1" Plug	.10
			1 — 1 1/2" Plug	.15
			7 Cases Dynamite @ \$8.78	79.02
			148 Elec. Exploders @ .09	13.32
			60 #8 Detonators @ .03	1.80
			400 Ft. 1 1/2" Hose @ .25	100.00
			8 Gals. Mobile A	5.84
			2 — 3 x 4" B.I. Nipples	.46
			18 Tons Coal @ \$14.00	252.00

\$522.39

Labor \$845.26
 Material 522.39

\$1,367.65

Plus 37% 506.03

\$1,873.68

PLANT RENTAL:

15 Days Rental Clyde Hoist
 @ \$4.70 per day 70.50
 15 Days Rental Gas Unit @ \$1. " 15.00

\$1,959.18

MACLAREN — CEDARS ACTION

Work under winter conditions.

CLAIM No. 8.

10	14,396 cu. yds. Class 1 Concrete @ \$3.21.....	\$46,211.16
	951 cu. yds. Class 2 Concrete @ \$6.61.....	6,286.11
	470.36 Tons Structural Steel @ \$7.56.....	3,555.92
		<hr/>
		\$56,053.19

Camps, etc.

	Fuel	\$5722.40
	Protecting water lines	1529.50
20	Protecting steam lines	3827.86
	Protecting camps	1283.31
	Extra Lighting	2264.36
		<hr/>
		14,627.43

70,680.62

PLUS 37%..... 26,151.83

CLAIM \$96,832.45

30

PLUS INTEREST FROM JANUARY 15th, 1930.

Mar. 4th, 1933.

CEDARS

FUEL FOR CAMPS

40

CLAIM No. 8.

Cost of labor and material for fuel in winter months, for 4 months—January, February, March, AprilTotal \$8,583.68

Cost per day, labour and material — \$8,583.68 ÷ 120 = \$71.53

Made up as follows:

LABOR

Team and teamster and extra man hauling
wood from yard and distributing same.

10	Man and team— day.....	\$ 6.00
	1 Laborer — day.....	3.50
	3 Laborers — day.....	10.50
	3 Laborers —night.....	10.50
		<hr/>
		\$30.50

MATERIAL

20	Heating cordwood \$7.00 per 128 cu. ft. cord.	
	Main Office	1/3 Cord
	Hospital	
	Timekeepers Office	1/3 “
	Staff House	1/3 “
	Bungalow	
30	Watchmen's Shack	1/3 “
	Stores	
	Machine Shop	1/3 “
	Dining Room	1/3 “
	Bunkhouses 1-2-3	3 “
		<hr/>
		5 cords @ \$7.00 = \$35.00
40	Kitchen Stovewood	
	Main Cook House	1/3 Cord
	Bungalow	
	& Staff House	1/3 “
		<hr/>
		2/3 “
	2/3 Cords @ \$9.00 per Cord =	6.00
	Miscellaneous, Coal oil, matches.....	.03
		<hr/>
		\$71.53

\$71.53

Summer Wood Costs — CLAIM #13

LABOR

10	Man and team day $\frac{1}{2}$ time		
	Laborer " " "	\$5.00	
	2 Laborers, day	7.00	12.00
		<u> </u>	

MATERIAL

	$\frac{3}{4}$ Cord Kitchen Wood for main		
	Cook House & Staff House		
20	@ \$9.00 =	\$6.75	
	$\frac{2}{3}$ Cord heating wood for		
	buildings @ \$7.00 =	5.00	
	Miscellaneous, coal oil, matches .....	.09	11.84
		<u> </u>	<u> </u>
	Charged as summer cost	\$23.84	23.84
			<u> </u>
			\$47.69
			<u> </u>

30 \$47.69 x 30 x 4 = \$5,722.80

Amount of claim \$5,722.40

March 5th, 1933.

CEDARS

CLAIM No. 8

PROTECTING WATER LINES — D-5-L

10 From Daily Labor Reports.

	Nov. 1929	Dec.1929	Jan.1930	Feb.1930	Mar.1930
1.		\$60.92	\$29.28		
2.		35.00	5.40	\$12.10	\$26.60
3.	\$181.85	52.85			22.90
4.	124.01	61.58	5.00	20.60	
5.	10.50	19.50			
20 6.	27.50	35.70		26.90	
7.	7.20	34.40			
8.	15.10				
9.	12.90	26.25	17.05		
10.	12.60	21.50			
11.		21.75			
12.		12.50			
13.		30.75			
14.					6.80
15.					13.95
30 16.					
17.		1.55			
18.		15.98			
19.		20.75		20.00	
20.	18.25		5.00	5.20	
21.	31.83				
22.	25.50				
23.	30.75				
24.	32.45		26.15		
25.	45.25		23.10		
40 26.	50.75				
27.	42.15	15.75			
28.	79.15				
29.					
30.	47.65				
31.		4.05			
	<u>\$795.39</u>	<u>\$470.78</u>	<u>\$110.98</u>	<u>\$82.10</u>	<u>\$70.25</u>

TOTAL:—\$1,529.50

March 5th, 1933.

CEDARS CLAIM No. 8

PROTECTING STEAM LINES, D-5-M

		Nov. 1929	Dec. 1929	Jan. 1930	Feb. 1930	Mar. 1930	Apr. 1930
10							
	1.	\$ 43.68	\$52.10	\$19.10	\$34.50	\$5.40	
	2.	104.64	48.40	31.40	19.30	2.70	
	3.	68.55	37.50	19.10	24.50	5.40	
	4.	43.82	40.92	18.25	19.30	5.40	
	5.	55.72	41.35	19.10	11.60	5.70	
20	6.	45.90	27.20	19.10	30.83		
	7. 6.70	35.75	27.20	18.70	9.70		
	8.	47.70	23.85	19.40	6.20	2.70	
	9. 7.30	54.30	24.45	18.25	12.25	5.40	
	10.	46.10	21.90	21.30	17.65	5.40	
	11.	43.80	24.00	19.10	18.70		
	12.	34.90	39.52	17.90	12.25		
	13.	86.27	26.75	13.70	7.10		
	14.	75.00	19.10	13.70	15.20		
	15.	48.45	33.95	12.85	19.80		
30	16.	57.55	19.10	20.60	13.10		
	17.	36.85	24.50	30.10	24.70		
	18.	56.63	22.70	32.50	17.50		
	19.	47.80	33.12	19.10	10.63		
	20.	39.45	19.10	52.80	13.95		
	21.	36.13	24.50	25.07	6.10		
	22. 49.80	25.40	24.50	39.95	3.30		
	23. 57.33	55.65	19.10	19.10	3.50		
	24. 12.70	78.95	18.25	19.10	16.40		
	25.	53.05	12.25	24.62	8.70		
40	26. 23.90	94.50	18.25	39.93	11.40		
	27. 33.28	46.75	24.50	13.70	9.10		
	28. 58.40	28.70	18.25	18.40	5.40		
	29.	34.10	18.87		5.40		
	30. 97.85	27.35	19.10				
	31.	21.80	19.10				
		<u>\$347.26</u>	<u>\$1,575.24</u>	<u>\$823.38</u>	<u>\$635.92</u>	<u>\$408.06</u>	<u>\$38.10</u>
						TOTAL —	\$3,827.96

Mar. 8th, 1933.

CLAIM No. 8
 CEDARS
 PREPARE CAMPS FOR WINTER
 (*Protecting Camps*)

10

	Nov. 1929	Dec. 1929	Jan. 1930	Feb. 1930	Mar. 1930
1.					
2.		\$20.00			
3.					
4.		16.80		\$10.75	
5.		34.00			
20 6.		10.00			
7.					
8.					
9.	\$5.50	17.75	\$11.75		
10.		36.05			
11.		14.75	11.75		
12.		20.40			
13.		8.50			\$5.75
14.		2.55			
15.		11.13			5.70
30 16.		154.80			
17.		178.95			
18.	12.25	96.50	40.65		
19.	52.25	28.75			
20.	20.08	10.75	21.50		
21.	9.80	29.50	16.75		
22.	38.50		10.75		
23.	48.75				
24.	5.75				
25.	16.50				
40 26.	10.40				
27.					
28.			22.75		
29.	131.60				
30.	11.50				
31.					
	<u>\$362.88</u>	<u>\$691.18</u>	<u>\$135.90</u>	<u>\$10.75</u>	<u>\$11.45</u>
				TOTAL — \$1,212.16	

Oct. 31st, 1930.

CEDARS

CLAIM No. 8,

10

INCREASED COST OF LIGHTING — D-7

May	1929	— \$ 813.11	Summary D-7
June		— 896.97	“ “
July		— 709.21	“ “
Aug.		— 1094.86	“ “

4 mos.) 3514.15 (\$878.54 per month average

20	Jan.	1930	— \$1816.00	Labor & Material Summary D-7
	Feb		— 1594.19	“ “
	Mar.		— 1393.59	“ “
	Apr.		— 974.74	“ “

4 mos.) 5778.52 (\$1,444.63 per month average

Winter — \$1,444.63 per month

Summer — 878.54 “ “

30

\$566.09

4 Months Jan., Feb., Mar., Apr.

\$2,264.36

40

Mar. 8th, 1933.

CEDARS

CLAIM NO. 8

INCREASED COST OF LIGHTING — D-7

Materials				Labour	
1929					
May	Coal	— \$46.87	J.Vo. 687	May 1-15	\$286.23 Vo. 633
	Material	— 68.19	“ 688	16-31	411.82 683
June	Carbon Brushes	— 3.38	Vo. 717	June 1-15	407.62 754
	“ “	— 6.73	765	16-30	383.40 811
	Materials	— 44.04	J.Vo. 802	July 1-15	297.60 864
	Coal	— 51.80	J.Vo. 805	16-31	371.92 940
July	Materials	— 39.69	J.Vo. 944	Aug. 1-15	417.60 972
Aug.	“	— 226.41	J.Vo. 1042	16-31	433.57 1038
	Lumber	— 17.28	“ 1043		
		<u>\$504.39</u>		Labour	\$3009.76
				Materials	504.39
					<u>\$3514.15</u>
1930					
Jan.	Montreal Mat'l	— \$20.00	Vo. 1470	Jan. 1-15	\$449.84 Vo. 1488
	Materials	— 871.78	J.Vo. 1500	15-30	474.38 1489
Feb.	Montreal Mat'l	— 54.00	Vo. 1593	Feb. 1-15	406.58 1611
	Dynamo Rental	— 30.00	1598	16-28	299.40 1612
	Materials	— 752.71	J.Vo. 1613	Mar. 1-15	344.25 1676
	S.Coal L.	— 2.00	1615	16-31	290.60 1677
	M.	— 49.50	1615	Apr. 1-15	163.00 1739
Mar.	Materials	— 758.74	1693	16-30	121.75 1740
Apr.	Materials	— 689.99	1748		
		<u>\$3,228.72</u>		Labour	\$2,549.80
				Materials	3,228.72
					<u>\$5778.52</u>

Feb. 23rd, 1933.

CEDAR RAPIDS

10 LOGS FROM MACLARENS

CLAIM No. 9.

Total amount of lumber sawn and paid for to McCabe by us	1,028,838
Same sawn lumber reduced to log measure Quebec scale (.7752)	797,555
20 Logs taken from river as per Vouchers Nos. 926, 1079, 1133, 1221, and paid Maclaren as sawn lum- ber—	186,480
Same sawn lumber reduced to log measure Quebec scale (.7752)	144,559
	<hr/>
	942,114
	<hr/>
30 Logs delivered to McCabe's Mill for sawing and bil- led for and paid to Maclaren as sawn lumber 1,100,318 @ \$20.00	\$22,006.36
Logs taken from river and billed for and paid to Mac- laren presumably as sawn lumber — 186,480 @ \$20.00 =	3,729.60
	<hr/>
	\$25,735.06
40 Both above items, 1,100,318 and 186,480, should have been filled as log measure 797,555 + 144,559 = 942,114 @ \$20.00 =	18,842.28
	<hr/>
	\$ 6,893.68
	<hr/>

Of the above mentioned quantities of logs or lumber the quantity, 1,028,838 ft. is established by McCabe's bills against us and vouchered under Vouchers Nos. 159, 442, 681, 929, 1027, 1226, 1336 and 1605, and covers the amount of lumber actually paid for as sawn and of course is figured on the actual board measure and not log mesuré.

10

The amount of 186,480 ft. is taken from details attached to Vouchers 926, 1079, 1133 and 1221.

The amount of 1,100,318 ft. is taken from Vouchers Nos. 158, 562, 682, 1133, 1221 and 1807, as well as James Maclaren Company's statement of logs delivered to McCabe's Mill for the Contractor as per copy attached hereto.

20

The figures of 797,555 ft. and 144,559 ft. and the total thereof are established by using .7752 as the factor.

The amount of lumber claimed to have been paid for but never received is established by the difference between the above mentioned figures of 1,100,318 and 1,028,838 ft.

30

The majority of these accounts were collected by the unauthorized deduction of the different amounts from our monthly estimates which does not appear to be provided for in any way by the terms of the contract.

ERS/HB

40

THE JAMES MACLAREN COMPANY, LIMITED.

LOGS DELIVERED TO McCABE'S MILL FOR WM. I. BISHOP LIMITED — CEDARS RAPIDS DAM.

DATE	QUANTITY	PRICE	AMOUNT	VOUCHER NUMBER	DATE PAID	HOW PAID
— MEASURED AS SAWN LUMBER —						
1928 Nov. 30—	157,481 ft.	20.00	3,149.62	Letter McCabe d/ 1/12/28.	15/1/29	Collected.
1929 Jan. 4	245,747 ft.	20.00	4,914.94	Letter McCabe d/ 31/12/28.	28/2/29	Cash.
— MEASURED AS LOGS —						
Apr. 17—Logs, Jan. 1/29 to Apr. 3/29.	194,565 ft.	20.00	3,891.30	605	14/6/29	Collected.
May 20—1,113 Saw Logs, measured Apr. 15, 16 & 27, May 1.	91,573 ft.	20.00	1,831.46	832	14/6/29	Collected.
Aug. 26—1,123 Spruce & Balsam Logs	74,178 ft.	20.00	1,483.56	1562	26/9/29	Cash.
Oct. 4—958 Spruce, Balsam & Birch logs, Aug 26 to Sept. 14/29.	58,073 ft.	20.00	1,161.46	1850	15/11/29	Collected.
Oct. 14—845 Logs, measured Oct. 10/29	46,417, ft.	20.00	928.34	1970	15/11/29	Collected.
1930 May 28—4,899 Logs, Jan. 24 to Mar. 29/30.	232,284 ft.	20.00	4,645.68	5031	15/7/30	Collected.
TOTALS :—	1,100,318 ft.		\$22,006.36			

Mar. 12th, 1933.

CEDARS

CLAIM NO. 10

COST OF HAULING EXTRA CEMENT

April 1930 Payroll 16-30 Voucher 1740 \$267.54
 Plus hauling from Gracefield by Tractor —
 Average cost per month of April 1930 = \$22.90 per ton
 made up as follows —

ACCOUNT D-3

		LABOR		MATERIAL	
1930					
Apr. Payroll	1-15	\$359.95	Vr. 1739	Misc. Material	\$5.90 Vr. 1703
	16-30	415.00	1740	Gas and Oil	240.98 1726
Salary		350.00	“	Material	196.17 1748
		<u> </u>			<u> </u>
		\$1124.95			\$443.05
D-3-B				Timber	7.30 1733
D-3-C		62.50	Vr. 1740	Miscellaneous	2.45 1756
D-3-D		33.10	“ “		
D-3-E				Freight	2.28 1706
				Repairs	7.26 1719
				Oxygen & Acetylene	20.05 1737
D-3-M				Wood	15.00 1756
		<u> </u>			<u> </u>
		\$1,220.55			\$54.34

Labor — \$1,220.55
 Material — 497.39

\$1,717.94 ÷ 75 tons = \$22.90 per ton.
 1,260 Bags Cement @ 87.5 lbs. = 55.125 tons @ \$22.90 \$1,262.36

 \$1,529.90

If hauled earlier by sleigh, cost would have been \$8.50 per ton — 55.125 tons @ \$8.50 per ton 468.56

NOTE:—Price paid to teamsters for hauling from storage at Gracefield to Cedars was \$8.00 per ton.
 Hauling from Railway Siding to Storage 50¢ per ton

CLAIM \$1,061.34
 Plus 37% Profit, etc. 392.69

 \$1,454.03

Mar. 12th, 1933.

CEDARS

10

CLAIM No. 12

ADDITIONAL COST OF PLANT REMOVAL

Additional rental of garage — lease
 expired April 13th, 1930. Necessary for us
 to lease for additional year in order to store
 tractor and equipment Voucher 1708 \$425.00

20 Additional work on tractor prepar-
 ing it for 3 trips which would have been
 unnecessary if we had been able to take
 equipment out in February 1930

May 1930 Payroll #41 Voucher #1823

Carr 1 Week \$87.50
 Mechanic 2 Weeks 78.00
 Helper 2 Weeks \$54.00

30

Moving equipment to temporary storage
 Voucher #1770 Payroll #40

219.50

40

Gasoline tractor 8 days \$ 63.60
 2 Teams 8 days each=16 days @ \$6.00 96.00
 Foreman 103 hours @ 60¢ 61.80
 2 Riggers 103 hrs. each@50¢=206@50¢ 103.00
 4 Laborers 103 “ “ @35¢=412@35¢ 144.20
 General Foreman 1 week @ \$87.50 87.50

\$556.10

Rental of Lot to store equipment:

This is the value placed on the bungalow
 which was turned over to Valière in pay-
 ment of rental of lot..... 125.00

681.10

Extra cost of hauling			
	Hauling in March cost.....	\$14.96	
	“ “ January cost.....	8.41	
		<u> </u>	
		\$6.55	
	Equipment hauled out in March	58.45	
10	tons @ \$6.55		\$382.84
	Hauling in April cost.....	\$22.90	
	“ “ January cost.....	8.41	
		<u> </u>	
		\$14.49	
	Equipment hauled out in April	20	
	tons @ \$14.49.....		289.80
			<u> </u>
			672.64
			SHEET No. 2.
20	Cost of hauling out boiler, cable and crusher Feb. 1931		
	See W. H. Meighen Voucher	\$1,032.08	
	If hauled in January 1930		
	Boiler 9 tons		
	Cable 11 “		
	Crusher 9 “		
		<u> </u>	
	29 tons @ \$8.41	243.89	
		<u> </u>	788.19
30	Added Insurance		
	Buildings and Material \$5,000.00 @ \$1.70	\$85.00	
	Tractor	50.00	135.00
		<u> </u>	<u> </u>
			\$2,921.43
	Plus 15%.....		438.21
			<u> </u>
			\$3,359.64
	Plus allowance for tractor and equipment tied up and not available for one year, say 15%		
40	on \$12,582.51		1,887.42
			<u> </u>
			\$5,247.06
	Boiler	\$1,200.00	
	Crusher	4,000.00	
	Tractor	5,000.00	
	Cable	2,382.51	
		<u> </u>	
		\$12,582.51	

Nov. 4th, 1930.

MACLAREN'S CEDARS ACTION

CLAIM No. 13

10 AVERAGE COSTS JULY AND AUGUST, 1929.

	Lighting average July & August		
	\$669.52	\$851.17	
	39.69	243.69	
	<hr/>	<hr/>	
	Maintenance	= \$1,804.07 ÷ 2 =	\$902.04
	Fuel Camps	\$715.32	
	General Maintenance Coal		
	7 ton @ \$16.29 x 30 days =	3420.90	
20		<hr/>	4,136.22
	Watchmen		
	(July 1929 \$822.21		
	Aug. 1929 834.27		
	<hr/>	= \$1,656.48 ÷ 2	828.24
	Water Supply		717.90
	General Standby Payroll \$108.53 x 30		3,255.90
	Day Shift 299.00 x 30		8,970.00
	Night Shift 74.00 x 30		2,220.00
30		<hr/>	\$21,030.30

MACLAREN — CEDARS ACTION

WATER SUPPLY

CLAIM No. 13

40 PUMPING WATER SUPPLY

2 Men,	12 hrs. ea. @ 45¢	\$10.80
2 Firemen,	12 hrs. ea. @ 45¢	10.80
Waste	30¢ .....	.30
Cylinder Oil,	2¼ Gals @ 70¢	1.58
Machine Oil,	1 Gal. @ 45¢ .....	.45
	\$23.93 x 30 days =	<hr/>
		\$23.93

CLAIM No. 13

GENERAL STANDBY PAYROLL
OVERHEAD

	Superintendent	\$16.66
10	General Carpenter Foreman	10.00
	Master Mechanic	8.33
	Doctor	10.00
	Hospital Orderly	2.58
	Accountant	6.66
20	Stenographer	3.83
	Engineer	7.50
	Rodman	3.22
	Storekeeper	5.00
	Stores Clerk	3.83
30	Day Tool Man	4.37
	Night Tool Man	4.37
	Yard Checker	4.16
	Timekeeper	5.50
	Day Checker	4.20
40	Night Checker	4.16
	Time Clerk	4.16
		<hr/>
		\$108.53
		<hr/>

CLAIM NO. 13
GENERAL STANDBY PAYROLL
DAY SHIFT

NO.	OCCUPATION	RATE			
2411	Day Superintendent	10 hours @ 90¢	hour	—	\$9.00
2446	General Foreman	75¢	“	—	7.50
2413	Rock Foreman	70¢	“	—	7.00
2426	Concrete Foreman	65¢	“	—	6.50
2418	Labour Sub-Foreman	55¢	“	—	5.50
2438	Mixer Foreman	55¢	“	—	5.50
2154	Labour Sub-Foreman	50¢	“	—	5.00
2428	Rigger Foreman	65¢	“	—	6.50
2	Powdermen	2x	“	“	40¢
1	Driller	“	“	“	40¢
1	Cement Finisher	“	“	“	45¢
5	Concrete Men	5x	“	“	40¢
4	Crusher Men	4x	“	“	40¢
3	Teams	3x	“	“	60¢
1	Rigger	“	“	“	50¢
2	Riggers	2x	“	“	45¢
2	Riggers	2x	“	“	40¢
1	Rigger	“	“	“	35¢
2	Carpenter Foremen	2x	“	“	75¢
2	Carpenter Pushers	2x	“	“	60¢
1	Carpenter Pusher	“	“	“	55¢
1	Saw Filer	“	“	“	55¢
1	Mechanic Foreman	“	“	“	70¢
1	Cableway Runner	“	“	“	90¢
1	Derrick Runner	“	“	“	85¢
3	Derrick Runners	3x	“	“	80¢
1	Blacksmith	“	“	“	75¢
2	Millwrights	2x	“	“	60¢
1	Machinist	“	“	“	60¢
1	Gas Mechanic	“	“	“	60¢
1	Hoist Runner	“	“	“	55¢
1	Pump Tender	“	“	“	45¢
5	Firemen	5x	“	“	45¢
					\$299.00

CLAIM No. 13

GENERAL STANDBY PAYROLL
NIGHT SHIFT.

NO.	OCCUPATION	RATE
10 1	Night Superintendent, 10 hours @	80¢ = \$ 8.00
1	General Foreman 10 "	65¢ = 6.50
1	Labour Sub-Foreman 10 "	45¢ = 4.50
1	Mechanical Foreman 10 "	85¢ = 8.50
1	Cableway Runner 10 "	70¢ = 7.00
1	Blacksmith 10 "	75¢ = 7.50
1	Engineer 10 "	50¢ = 5.00
5	Firemen 5 x 10 "	45¢ = 22.50
1	Pump Tender 10 "	45¢ = 4.50
		<hr/>
20		\$74.00

PLAINTIFF'S EXHIBIT P-13 WITH RETURN

Copy of letter from Plaintiff's Attorneys to Defendant's Attorneys

30 BROWN, MONTGOMERY & McMICHAEL
Advocates, Barristers
The Royal Bank Building

Montreal, 6th January, 1930.

(COPY)

Messrs Aylen & Aylen,
Queen Street
Ottawa, Ont.

40 Dear Sirs:—

RE: BISHOP Co. AND MACLAREN

Will you please let us know what progress is being made with respect to the submission to arbitration of the difference between the above Companies, outline of which we sent to you some time ago.

Yours very truly,

(Sgd) Brown, Montgomery & McMichael.

TRK-DF

PLAINTIFF'S EXHIBIT P-14 WITH RETURN

Original letter from Defendant's Attorneys.

10

AYLEN & AYLEN
Barristers, Etc.
53 Queen Street
Ottawa, Ont.

January, 7th, 1930.

Messrs. Brown, Montgomery & McMichael,
Advocates,
Royal Bank Building,
20 Montreal, Quebec.

Attention Mr. Ker, K. C.

Dear Sirs:—

Re: BISHOP VS MACLAREN COMPANY

30 We have received your letter of the 6th instant. The submission prepared by you was forwarded to the James Maclaren Company Limited and we understand they still have it under consideration with their engineering advisers. Our Mr. Henry Aylen, K.C. who was looking after this matter, suffered a stroke about three weeks ago which of course will incapacitate him at least for a considerable time and the writer is not very familiar with the details of this matter. We are forwarding your letter today to the Company and we will communicate with you on the matter as soon as possible.

40 In the meantime, we remain.

Yours very truly,

Aylen & Aylen.

Received. Jan 8 - 1930
B. M. & M.

PLAINTIFF'S EXHIBIT P-15 WITH RETURN

Copy of letter from Plaintiff's Attorneys to Defendant's Attorneys.

10

BROWN, MONTGOMERY & McMICHAEL
Advocates, Barristers, Etc.
The Royal Bank Building

Montreal, 21st February, 1930.

(COPY)

Messrs Ayleen & Ayleen,
20 Solicitors,
Queen Street,
Ottawa, Ont.

RE: BISHOP Co. AND MACLAREN

Dear Sirs:—

30 A very considerable time has now elapsed since we submitted to you various points in dispute arising out of the contract between the above parties, and which under the terms of that contract are subjects for arbitration between them.

40 Our client, W. I. Bishop Co. Ltd., has proceeded in good faith to outline these matters and to submit these to you, and there seems nothing to justify so long a delay on the part of your clients in giving them attention. We therefore ask that you will deal promptly with the draft submission to arbitration which we forwarded to you and advise us of the name of your arbitrator so that we may get the matters in dispute decided in the manner provided by the written contract between the parties.

Yours very truly,

(Sgd) Brown, Montgomery & McMichael.

TRK-DF

PLAINTIFF'S EXHIBIT P-16 WITH RETURN

Original letter from Defendant's Attorneys to Plaintiff's Attorneys.

10

AYLEN & AYLEN
Advocates, Barristers, Etc.
53 Queen Street
Ottawa, Ont.

February, 28th, 1930.

Messrs. Brown, Montgomery & McMichael,
Advocates,
20 Royal Bank Building,
Montreal, Que.

Attention Mr. Ker K. C.

RE: Wm. I. BISHOP vs MACLAREN CO.

Dear Sirs:—

Your letter of the 21st instant was duly received and
30 would have been answered sooner only the writer has been in
Quebec for most of this week.

While it is quite true as you say that some little time has
elapsed since you forwarded us the draft deed of submission,
still we regret to say that we are not yet able to advise you de-
finitely as to our client's intentions respecting this matter.

Yours very truly,

40

Aylen & Aylen.

Received Mar. 1 - 1930
B. M. & M.

PLAINTIFF'S EXHIBIT P-118 AT ENQUETE

Certificate No. 17 for February 1930 with respects to unwatering and showing amount of work done to that date appears to be credited at \$60,000.00 and in by-pass at \$15,000.00.

**.THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM**

Monthly Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Date: 3-7-30

— MAIN CONTRACT —

Section	Description of Section	Work done Dur. Month	Previous Total	Total to Date	Contract Sum	% Comp'd.
101	Roads, Camps, etc.		138875.20	138875.20	138875.20	100.
102	Coffer-Dams	10000.00	50000.00	60000.00	64050.20	94.
103	Transportation		66444.60	66444.60	66444.60	100.
104	East Abutment		12713.81	12713.81	5079.97	99.C
105	Non-spilling Dam		123612.67	123612.67	33146.78	100.C
106	Stoney Gate Section ..	10916.59	161728.38	172644.97	124629.04	96.C
107	Log-sluices	5120.77	36368.89	41489.66	32047.62	94.C
108	Sluice Gates	24290.01	72162.51	96452.52	70149.10	98.C
109	Stop-Log Section	—21998.34	121084.92	99086.58	49713.04	94.C
110	West Abutment	878.78	5199.72	6078.50	4050.76	82.C
111	Gate House				7422.64	
112	See Section 106					
113	Removal of Plant, etc.	1000.00	1000.00	2000.00	9338.16	22.C
114	Sundries					
115	Stock Account	—18505.00	52509.00	34004.00		
TOTAL		11702.81	841699.70	853402.51	604947.11	93 On Con.

Payment due for February \$11702.81

— EXTRA WORK —

Order No.	Description of work	Charge To Section	Work done Dur. Month	Previous Total	Total To date
1 to 6				15711.05	15711.05
7	Ladders & Gauges	108	78.09		78.09
	TOTAL		78.09	15711.05	15789.14
	Payment due for February	\$78.09			

COPIES TO

Contractors	2	Payment due on Main Contract	11702.81
James Maclaren Co. Ltd.	2	“ “ “ Extra Work ..	78.09
H. S. Ferguson	1		
Resident Engineer	1	TOTAL	11780.90

SUMMARY

(Signed) D. W. O'Shea

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 102 Description of Section Cofferdams.
Date 3-7-30 Contract Sum 64050.20

Item	Description	This Month	Previous	To date	%Com'd.
102-4	Exc. for By-Pass Channel		15000.00	15000.00	
-2	Main Channel Cofferdams.	10000.00	35000.00	45000.00	
		10000.00	50000.00	60000.00	94.

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 106 Description of Section Stoney Gates
Date 3-7-30 Contract Sum 124629.04

Item	Description	This Month	Previous	To date	%Com'd.
106-2	EXCAVATION				
	Earth,		12315.00	12315.00	
	Rock,				
	Above El. 85 (Cont. Quan.)		17500.00	17500.00	
	" " "				
	3206 c.y. @ 4.35		13946.10	13946.10	
	Below El. 85		1906.60	1906.60	
	CONCRETE				
	Class 1. with plums	5958.40	22800.19	28758.59	
	Difference because placed without plums.				
	640 c.y. @ 1.76	1126.40		1126.40	
	Class 1. No plums				
	3300 c.y. (Cont. Quant.)		34873.00	34873.00	
	1195 c.y. @ 18.92		22609.40	22609.40	

Class 2.			
110 c.y. (Cont. Quan.)		2400.00	2400.00
216 c.y. @ 27.55		5950.80	5950.80
FORMS			
Plain (40000 Sq. Ft.			
(Cont. Qu.)		11200.00	11200.00
19548 Sq Ft. @ 0.35	254.45	6587.35	6841.80
Curved,	560.00	1448.49	2008.49
REINFORCING STEEL	17.34	2991.45	3008.79
STRUCTURAL STEEL &	3000.00	5200.00	8200.00
		<hr/>	
		10916.59	161728.38
		172644.97	96. On
			Contr.

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 107 Description of Section Log-Sluices.
Date 3-7-30 Contract Sum 32047.62

Item	Description	This Month	Previous	To date	% Com'd.
107-2 EXCAVATION					
	Rock, 900 c.y. (Cont. Quan.)		3150.00	3150.00	
	1404 c.y. @ 4.35		6107.40	6107.40	
CONCRETE					
	Class 1, No plums				
	2200 c.y. (Cont. Quan.) ..	931.95	20650.05	21582.00	
	140 c.y. @ 18.92	2648.80		2648.80	
	Class 2.		360.00	360.00	
FORMS					
	Plain, (20000 Sq. Ft.				
	Con. Qu.)	924.50	4075.50	5000.00	
	661 Sq.Ft. @ 0.35	231.35		231.35	
	Curved, 2714 Sq. Ft. @ 0.66	236.28	1554.96	1791.24	
REINFORCING STEEL					
	2000 lbs (Cont. Quan.)		100.00	100.00	
	6568 lbs. @ 0.079	147.89	370.98	518.87	
		<hr/>			
		5120.77	36368.89	41489.66	94. On
					Contr.

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 108 Description of Section Sluice Gates
Date 3-7-30 Contract Sum 70541.10

Item	Description	This Month	Previous	To date	% Com'd.
	Original Contract Sum		70541.10		
	Deduct 98 c.y. Rock @ 4.00		392.00		
	New Contract Sum.		70149.10		
108-2	EXCAVATION				
	Earth, 811 c.y. @ 1.25		997.53	997.53	
	Rock, Above El. 78, 602 c.y. Below El. 78, 273 c.y. @ 4.60		2107.00	2107.00	
			1255.80	1255.80	
	CONCRETE				
	Class 1. with plums				
	2400 c.y. (Cont. Quan.)	22344.00		22344.00	
	Difference because placed without plums.				
	2400 c.y. @ 1.76	4224.00		4224.00	
	Class 1. No Plums				
	2700 c.y. (Cont. Quan.)	1887.00	24600.00	26487.00	
	884 c.y. @ 18.92	19657.88	36383.16	16725.28	
	Class 2.	8702.00		8702.00	
	FORMS				
	Plain, 30000 Sq. Ft. (Con. Qu.)	2230.00	5270.00	7500.00	
	7012 Sq. Ft. @ 0.35	2454.20		2454.20	
	Curved 500 Sq. Ft. (Cont. Qu.)		250.00	250.00	
	389 Sq. Ft. @ 0.66	—51.48	308.22	256.74	
	REINFORCING STEEL				
	26000 lbs. (Cont. Quan.)	465.20	990.80	1456.00	
	21430 lbs. @ 0.079	1692.97		1692.97	
		24290.01	72162.51	96452.52	98. On Contr.

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 109 Description of Section Stop-Logs.
Date 3-7-30 Contract Sum 50027.44

Item	Description	This Month	Previous	To date	%Com'd.
	Original Contract Sum		50027.44		
	Deduct 262 c.y. Earth @ 1.20		314.40		
	New Contract Sum.		<u>49713.04</u>		
<hr/>					
109-2	EXCAVATION		12820.00	12820.00	
	CONCRETE				
	Class 1. with plums				
	2800 c.y. (Con. Quan.) ..	24094.60	1973.40	26068.00	
	Difference because placed without plums				
	2685 c.y. @ 1.76	4725.60		4725.60	
	Class 1. No plums				
	1000 c.y. (Con. Quan.) ..		9810.00	9810.00	
	1773 c.y. @ 18.92	52976.00	86521.16	33545.16	
	Class 2.	183.20		183.20	
	FORMS				
	Plain, 2100 Sq. Ft.				
	(Con. Qu.)	805.28	4444.72	5250.00	
	9118 Sq. Ft. @ 0.35 ...	214.20	2977.10	3191.30	
	Curved, 2500 Sq. Ft.				
	(Con. Qu.)	531.20	968.80	1500.00	
	1702 Sq. Ft. @ 0.66 ...		1123.32	1123.32	
	REINFORCING STEEL ...	423.58	446.42	870.00	
		<u>-21998.34</u>	121084.92	99086.58	94. On Contr.

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 110 Description of Section West Abutment
Date 3-7-30 Contract Sum 4050.76

Item	Description	This Month	Previous	To date	%Com'd.
110-2 EXCAVATION					
	Rock, 100 c.y. (Cont. Quan.)		350.00	350.00	
	258 c.y. @ 4.35	130.50	991.80	1122.30	
	CONCRETE				
	Class 1. No plums				
	230 c.y. (Cont. Quan.) ..		2356.30	2356.30	
	80 c.y. @ 18.92	605.48	908.12	1513.60	
	FORMS				
	2500 Sq. Ft. (Cont. Quan.)	31.50	593.50	625.00	
	318 Sq. Ft. @ 0.35	111.30		111.30	
		878.78	5199.72	6078.50	82. On Contr.

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of Certificate No. 17 for work performed
by Wm. I. Bishop Ltd. during the month of February 1930
Section No. 113 Description of Section Removal of Plant
Date 3-7-30 Contract Sum 9338.16

Item	Description	This Month	Previous	To date	%Com'd.
	Removal of Plant	1000.00	1000.00	2000.00	

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of STOCK ACCOUNT performed during the
Month of February 1930

By: Wm. I. Bishop Ltd. To Accompany Certificate No. 17
Date March, 6, 1930

Item	Description	This Month	Previous	To date
	Cement,	5488.00		
	Lumber,	169.00		
	Firewood,	152.00		
	Coal,	7783.00		
	Sand,	516.00		
	Reinforcing steel,	957.00		
	Gas, & Oil,	9896.00		
	Lime,	512.00		
	B. C. Fir,	1296.00		
	Dynamite,	2235.00		
	Pipe & Fittings,	1500.00		
	Bar Iron, etc.	500.00		
	Material in Stores.	3000.00		
		<u>34004.00</u>		

**THE JAMES MACLAREN COMPANY LIMITED
CEDARS RAPIDS STORAGE DAM
MAIN CONTRACT**

Detailed Distribution of EXTRA WORK performed during the
Month of February 1930

By: Wm. I. Bishop Ltd. To Accompany Certificate No. 17
Date 3-6-30

Order No.	Description	Charge To Section	This Month	Total To date
7	Ladders & Gauges	108		
	Labor,		55.55	
	Materials.		1.45	
			<u>57.00</u>	
	37%		21.09	
			<u>78.09</u>	<u>78.09</u>

H. S. FERGUSON & CO., ENGINEERS
For The James MacLaren Co. Ltd.

CEDARS RAPIDS STORAGE DAM

DATE 3-4 '30 Sheet 1

ESTIMATE OF QUANTITIES TO ACCOMPANY
CERTIFICATE NO. 17

	This month,	Previous	Total to date
ELEVATION			
Section 110—West Abutment			
Rock,	30	328	358
All other Sections		46072	46072
	30	46400 C.Y.	46430 C.Y.
CONCRETE			
Section 104—East Abutment			
Class 1. with plums,		111	111
Class 1. without plums		384	384
Section 105—Non-Spilling Dam			
Class 1. with plums,		4106	4106
Class 1. without plums		1780	1780
Class 2.		43	43
Section 106—Stoney Gates			
Class 1. with plums,		2449	2449
Class 1. without plums	640	4495	5135
Class 2.		326	326
Section 107—Log Sluices			
Class 1. without plums	235	2105	2340
Class 2.		19	19
Section 108—Sluice Gates			
Class 1. without plums	1361	4623	5984
Class 2.	475	—	475
Section 109—Stop-Log Section			
Class 1. with plums,		115	115
Class 1. without plums		5573	5573
Class 2.	10	—	10
Section 110—West Abutment			
Class 1. without plums	32	278	310
	2755 c.y.	26407 c.y.	29160 c.y.

REINFORCING STEEL

Section 105—Non-spilling Dam ..		7789	7789
“ 106—Stoney Gates	289	54390	54679
“ 107—Log-Sluices	1872	6696	8568
“ 108—Sluice Gates	30750	16680	47430
“ 109—Stop Logs	2437	11949	14386
“ 110			
		<hr/>	<hr/>
		35438 lbs. 97504 lbs.	132852 lbs.

H. S. FERGUSON & CO., ENGINEERS

For The James MacLaren Co. Ltd.

CEDARS RAPIDS STORAGE DAM

Date 3-4-'30 Sheet 2

**ESTIMATE OF QUANTITIES TO ACCOMPANY
CERTIFICATE NO. 17**

	This month	Previous	Total to date
FORMS			
Section 104—East Abutment			
Plain,		2537	2537
Section 105—Non-spilling dam			
Plain,		21507	21507
Section 106—Stoney Gates			
Plain,	727	58821	59548
Curved,	1000	2733	3733
Section 107—Log-Sluices			
Plain,	4359	16302	20661
Curved,	358	2356	2714
Section 108—Sluice gates.			
Plain,	13933	23079	37012
Curved,	-78	967	889
Section 109—Stop-logs			
Plain,	612	29506	30118
Curved,		4202	4202
Section 110—West Abutment			
Plain,	444	2374	2818
		<hr/>	<hr/>
	21355 sq.ft.	164384 sq.ft.	185730 sq.ft.
HANDRAILING			
Section 104—East Abutment			
2½ in.		75	75
Section 105—Non-spilling			
dam 2½ in.		436	436
		<hr/>	<hr/>
Backfill		511 lin.ft.	511 lin.ft.
Section 104—East Abutment ..		901	901
Section 105—Non-spilling			
dam		2487	2487
		<hr/>	<hr/>
		3388 c.y.	3388 c.y.

PLAINTIFF'S EXHIBIT P-17 WITH RETURN

Copy of letter from Plaintiff's Attorneys to Defendant's Attorneys.

10

BROWN, MONTGOMERY & McMICHAEL
Advocates, Barristers
The Royal Bank Building

Montreal, 1st March, 1930.

(COPY)

20 Messrs Ayles & Ayles,
Barristers,
53 Queen Street,
Ottawa, Ont.

RE: W. I. BISHOP vs MACLAREN Co.

Dear Sirs:—

We acknowledge receipt of your letter of February 28th.

30

Our clients are reluctant to believe that the unjustifiable delay on the part of the MacLaren Company in dealing with the submission to arbitration results from an intention on the part of your clients to refuse arbitration without definitely saying so.

40

Ample time has now been given for the consideration of the questions submitted to you and for the naming of an arbitrator, and unless we receive word from you within one week from this date that your clients are prepared to get on with this matter we shall take it for granted that they desire to evade arbitration and we shall govern ourselves accordingly.

Yours very truly,

(Sgd) Brown, Montgomery & McMichael.

TRK-DF

DEFENDANT'S EXHIBIT D-30 AT ENQUETE

*Copy of letter from Mr. O'Shea to Bishop Company, in
connection with pouring of concrete without
plums instead of concrete with plums.*

10

McLaren Dam, March 9, 1930.

Wm. I. Bishop Ltd.,
Notre Dame du Laus, P. Q.

Gentlemen:—

THE JAS. MACLAREN CO. LTD.
CEDAR RAPIDS STORAGE DAM.
CERTIFICATE FOR FEBRUARY

20

I am sending you one copy of Certificate No. 17 with its
distribution and one copy of the estimate of the quantities.

30

I have been instructed by Mr. Ferguson that in the cases
where concrete without plums was substituted for concrete with
plums, at the order of Mr. Dubreuil, Resident Engineer for The
Quebec Streams Commission, as specified in the contract, that
the additional compensation should be the difference between
the unit price for concrete with plums and concrete without
plums. That this was not a reduction in quantities but a substitu-
tion of one class of concrete for another, and therefore the previ-
ous method of computing the cost of this concrete was incorrect.
This difference is \$1.76 per cubic yard.

Complying with these instructions, I have deducted from
the February estimate, the over payments made previously.

40

Yours truly,

Resident Engineer.

Copy to H. S. Ferguson & Co.

The Jas. Maclaren Co. Ltd., Wm. I. Bishop Ltd., High Falls.

PLAINTIFF'S EXHIBIT P-10 WITH RETURN

Copy of letter from Plaintiff's to Defendant's Engineer.

10

(COPY)

New Birks Building,
Montreal, P. Q., March 17th, 1930.

H. S. Ferguson & Co.,
Maclaren Dam,
Via Buckingham, P. Q.

Attention—Mr. D. W. O'Shea, Resident Engineer.

20

Gentlemen:—

RE: THE JAMES MACLAREN Co. LIMITED,
CEDAR RAPIDS STORAGE DAM
CERTIFICATE FOR FEBRUARY

30 Replying to yours of March 9th, we emphatically protest
against this entirely unwarranted deduction from February
estimates of the sum of over \$45,000., through change in your
method of computing the amount owing for concrete.

We are at a complete loss to understand the circumstances
under which, after correct computation has been made by your
Engineer Mr. O'Shea, and payment on the basis of such comput-
ation made to us, you now see fit to make this deduction against
us.

40 We must call upon you to make this amount good imme-
diately, as we certainly do not intend to submit to any action of
this kind.

Yours very truly,

WILLIAM I. BISHOP LIMITED,
(Signed) W. I. Bishop,
President.

WIB/HB

PLAINTIFF'S EXHIBIT P-51 AT ENQUETE

Letter from D. W. O'Shea to William I. Bishop Ltd

10

HARDY S. FERGUSON AND COMPANY
Consulting Engineers
New York

McLaren Dam, March 27, 1930.

William I. Bishop Ltd.,
Notre Dame du Laus, P. Q.

20 Gentlemen:—

CEDAR RAPIDS STORAGE DAM
CLEANING UP, ETC.

We have already asked you verbally to remove the loose rock and remains of your downstream cofferdam, at the foot of the log-sluices, and now wish to repeat this in writing.

30 As you near the completion of your contract, we wish to call your attention to the clause on "Cleaning up" on page 6 of Section 1 of the Specifications. We already wrote you on July 7th. last, referring especially at the time to the excavated material from the non-spilling dam.

It is doubtful if the Owners will be willing to accept the structure until these mounds of earth and rock in the neighborhood of the dam, are levelled off.

40

Yours truly,

D. W. O'Shea,
Resident Engineer.

Copy to The Jas. Maclaren Co. Ltd.
H. S. Ferguson & Co.
J. C. McIntosh
Wm. I. Bishop Ltd. High Falls.

PLAINTIFF'S EXHIBIT P-19 WITH RETURN

*Original of Statement made by Plaintiff registered
under date 26th June 1930.*

10

PROVINCE OF QUEBEC
DISTRICT OF

I, EDWIN RUSSELL SCOTT of the City of Montreal,
Secretary-Treasurer, having been duly sworn depose and say:

10. That I am the Secretary-Treasurer of William I. Bishop Limited a corporation organized under the laws of the Dominion of Canada having its principal place of business and head office at the City of Montreal (Address No. 620 Cathcart Street, Montreal, P. Q.) and in consequence having a knowledge of the facts herein deposed to.
20. That by contract entered into on the twenty-third day of May Nineteen hundred and twenty-nine the said William I. Bishop, Limited (hereinafter referred to as "the Contractor") promised and agreed to build for The James Maclaren Company, Limited a corporation organized under the laws of the Dominion of Canada having its principal place of business and head office at the Town of Buckingham in the Province of Quebec (Address: Buckingham, P. Q.) (hereinafter referred to as "the Proprietor") a dam to be known as "the Cedar Rapids Storage Dam" across the Lievre River on Lots A in Range Four, Bigelow Township and One in Range One, Township of McGill, Labelle County, Quebec.
30. That by the said contract the Contractor further promised and agreed to furnish all materials, tools and appliances, labour and work of every description required for the complete construction of the said dam excepting only certain materials and equipment which were to be supplied by the Proprietor and which were specifically enumerated in the said contract.
40. That in the said contract the work to be performed was further described as consisting of "the complete construction of the Cedar Rapids Storage Dam as shown and

indicated on the drawings indicated above and such supplementary plans and details as may be issued by the engineer from time to time, the dam to be located as previously described.”

10 50. That certain equipment and metal work was to be furnished by the Proprietor but to be transported by the Contractor and completely erected in their intended locations.

20 60. That the Contractor has faithfully performed all the covenants and agreements contained in the said Contract and in particular has built the said dam above referred to and furnished all materials, tools and appliances, labour and work of every description required for the complete construction of the said dam, performed the work above described, transported and erected the equipment and metal work furnished by the Proprietor.

70. That the amount to which the Contractor has become entitled by reason of the completion of the work contemplated by the said Contract is the sum of One million four hundred and sixty-five thousand five hundred and thirty-seven dollars and six cents which amount comprises:

30 (a) The principal amount owing under the said contract;

(b) The amount owing for authorized extras ; and

(c) The amount owing on account of the quantities of certain classes of work required to build the dam being in some instances more than the corresponding quantities given in the Contract, and for other work made necessary by reason of changes of design, variation of specifications and other causes.

40 deduction being made of the amount to be deducted on account of the quantities of certain classes of work required to build the dam being in some instances less than the corresponding quantities given in the said contract, on account of which sum of One million four hundred and sixty-five thousand five hundred and thirty-seven dollars and six cents the Contractor acknowledges to have received from The James MacLaren Company, Limited the sum of Eight hundred and five thousand three hundred

and nine dollars and three cents leaving a balance now owing of the sum of Six hundred and sixty thousand two hundred and twenty-eight dollars and three cents the whole as set forth in the statement of claim hereinafter set forth as Schedule "A".

10 80. That the building of the said dam, consisting of its complete construction as shown and indicated in the drawings referred to in the said contract and such supplementary plans and details as were issued by the engineer from time to time has been done upon the following immoveable property owned by the Proprietor namely:

1. Lot A in the Fourth Range of the Township of Bigelow, County of Labelle.
- 20 2. Lots One and Two (1 and 2) in the First Range of the Township of McGill in the County of Labelle.
3. The bed of the Rivière du Lièvre lying between the said Lot A, Range Four, Township of Bigelow and the said Lot One in the First Range of the Township of McGill;

30 which immoveable property by reason of the performance of the covenants and agreements of the said contract and of the work done by the Contractor to complete the said construction has received an additional value of the sum of One million four hundred and sixty-five thousand five hundred and thirty-seven dollars and six cents.

40 90. That for the performance of the covenants and agreements of the said contract and for the work done and materials and labour furnished by it thereunder the Contractor, the said William I. Bishop, Limited, hereby claims a privilege for the said sum of Six hundred and sixty thousand two hundred and twenty-eight dollars and three cents, upon the immoveable property above referred to and upon the additional value given thereto by the performance of the said contract and the Contractor, the said William I. Bishop, Limited, hereby requires the Registrar to affect by the registration of these presents:

1. The immoveable above described; and

2. In so far as may be necessary the title of the said The James MacLaren Company Limited to the said immoveable property and particularly to the bed of the Rivière du Lièvre.

10o. That the Contractor reserves the right to its recourse for any further sum owing to it in view of the completion of the said construction.

10 11o. That the following is Schedule "A" above referred to:

SCHEDULE "A"

	Principal sum under the contract.....	\$609,100.00
	Amount of authorized extras.....	18,714.67
	Amount to be added on account of the quantities of certain classes of work being more than was estimated in the Contract; and for other work made necessary by changes of design, variation of specifications and other causes	839,736.77
20		<hr/>
	TOTAL	1,467,551.44

Deduct. Amount to be deducted on account of the quantities of certain classes of work being less than was estimated in the contract

	2,014.38
	<hr/>

	1,465,537.06	
30	Deduct: Payments on account made.....	805,309.03
		<hr/>
		\$ 660,228.03
		<hr/>

And I have signed:

E. R. Scott.

Sworn to before me at the City of Montreal this twenty-fourth day of June Nineteen hundred and thirty.

40 Geo. C. Marler,
A Notary Public in and for the Province of Quebec.

(SEAL)

Registry Office for the County of Labelle, Que., Canada.

I, the undersigned, certify that the present document is alike to the one which has been duly registered by deposit in this office at nine o'clock A.M. this twenty-sixth day of the month of June A.D. one thousand nine hundred and thirty, under number two.

(Deux renvois bons).

A. Dubreuil, Registrar.

PLAINTIFF'S EXHIBIT P-20 WITH RETURN

Copy of Notification of registration of Statement as to privilege

10 ON THIS twenty-eighth day of June, in the year A. D. one thousand nine hundred and thirty.

AT THE REQUEST OF:—WILLIAM I. BISHOP, LIMITED, a body corporate having its chief place of business in the City of Montreal,

I, EDWARD J. LEBLANC, the undersigned Notary Public for the Province of Quebec, residing and practising at the Town of Buckingham, District of Hull, said Province.

20 PROCEEDED to the usual place of business in the said Town of Buckingham of The James Maclaren Company, Limited, a body corporate, where being and speaking to its General Manager, Mr. Robert M. Kenny,

I made known to the said The James Maclaren Company, Limited, that two privileges have been registered by William I. Bishop, Limited against the property of The James Maclaren Company, Limited ; One of these privileges having been registered in the Registry Office for the County of Papineau, at Papineauville, Que., under No. 42722 against the property known as the High Falls Power Development ; The other privilege having been registered in the Registry Office for the County of Labelle, at Mont-Laurier, Que, under No. 2 against the Cedars Rapids Dam property.

And I requested the said The James Maclaren Company, Limited to take notice of the registration of said privileges and to conform and submit thereto.

40 THUS DONE AND NOTIFIED at the said Town of Buckingham, on the date first above written, and I have signed these presents which are of record in my office under the number nine thousand four hundred and thirty-one.

And I have signed.

(Signed) E. J. Leblanc, N.P.

True copy of the original hereof remaining of record in my office.

E. J. Leblanc, N. P.

(SEAL)

PLAINTIFF'S EXHIBIT P-119 AT ENQUETE

List of amounts extracted from various estimates.

10

WILLIAM I. BISHOP LIMITED
Montreal.

Project CEDARS

Subject ROCK EXCAVATION #5

	Sheet No. 3	Job No. 28-147	Date 29/9/30
	584 @ 4.35	60 @ 3.00	
20	N. A. 2540.40	180.00	2720.40
	5303 @ 4.35	400 @ 3.50	
	N. S. S. 23068.05	1400.00	24468.05
	3206 @ 4.35	5000 @ 3.50	
	S. G. Sec. 13946.10	17500.00	31446.10
	276 @ 4.60		
	85-77 1269.60		1269.60
	98 @ 6.50		
	77-71 637.00		637.00
	1404 @ 4.35	900 @ 3.50	
30	L. S. S. 6107.40	3150.00	9257.40
		2058.00	
	S. G. Sec. Cont. qty 700	Actual 602	2058.00
	273 @ 4.60		
	78-70 1255.80		1255.80
	2152 @ 4.35	900 @ 3.50	
	S. L. Sec. 9361.20	3150.00	12511.20
	48 @ 4.60		
	78-70 220.80		220.80
	258 @ 4.35	100 @ 3.50	
40	S.A. 1122.30	350.00	1472.30
	<hr/>	<hr/>	<hr/>
	59528.65	27788.00	87316.65
	59102.35	28131.00	
	426.30	343.00	

PLAINTIFF'S EXHIBIT P-18 WITH RETURN

Copy of Notification from Plaintiff to Defendant.

ON THIS sixth day of November, in the year Nineteen hundred and thirty.

AT THE REQUEST OF:

10 WILLIAM I. BISHOP LIMITED a corporation having its head office at the City of Montreal (Address No. 620 Cathcart Street) (Hereinafter called "the Company") and of BANK OF MONTREAL a banking corporation having its head office at the City of Montreal (Hereinafter called "the Bank"),

I, EDWARD J. LEBLANC, the undersigned Public Notary for the Province of Quebec, practising at the Town of Buckingham, County of Papineau,

20 PROCEEDED to the place of business in the Town of Buckingham in the Province of Quebec, of THE JAMES MACLAREN COMPANY LIMITED and there being and speaking to Mr. Robert M. Kenny, did declare as follows:—

That William I. Bishop Limited entered into a contract dated the twenty-third day of May Nineteen hundred and twenty-nine with The James MacLaren Company Limited whereunder the Company promised and agreed to build for The James MacLaren Company Limited a dam to be known as "The Cedar Rapids Storage Dam" reference being hereby made to the said contract
30 for its terms conditions and stipulations.

That it was provided in the said contract that should any dispute arise as to the interpretation of the terms of the contract as to cost of changes and extra work performed or in regard to any other matter regarding the execution and final settlement of the contract it should be referred to a board of three arbitrators one to be selected by The James MacLaren Company Limited, one to be selected by the Company and the third to be selected by the two thus chosen.

40 That disputes have arisen between the Company and The James MacLaren Company Limited concerning the cost of changes and extra work performed, the interpretation of the terms of the said contract, and the manner of execution of the said contract, and it is desired by the Company to refer these disputes to a board of three arbitrators as provided in the said contract.

That the Company has selected as one of the three arbitrators to be selected under the terms of the said contract Henry G. Acres of Niagara Falls in the Province of Ontario, Civil Engineer, whose address is: Niagara Falls, Ontario.

That the Company has transferred to the Bank all sums to become payable to it in virtue of the said contract.

That the Bank has therefore concurred in the selection of the said Henry G. Acres as one of the three arbitrators.

10 That on many occasions the Company has requested The James MacLaren Company Limited to proceed to arbitration, has furnished the said Company with details of certain matter in dispute, and the said Company has neglected and refused to proceed to such arbitration and to abide by the terms of the said contract in respect thereof.

20 That the Requerants do now again call upon the said The James MacLaren Company Limited to proceed to arbitration, to select another arbitrator, to make known its selection within five days from this date to the Requerants and to cause the arbitrator selected by it (The James MacLaren Company Limited) forthwith to join with the arbitrator named by the Company, in the selection of a third arbitrator, the whole in the manner and form provided by said contract.

The whole under the reserve of all the rights of the Requerants.

30 AND in order that the said The James MacLaren Company Limited may have no cause to plead ignorance I have served upon its General Manager, Mr. Robert M. Kenny, an authentic copy of these presents speaking as aforesaid.

IN TESTIMONY WHEREOF I have hereunto set my hand and seal at the Town of Buckingham on the date hereinabove firstly mentioned these presents remaining of record in my office under the Number nine thousand seven hundred and forty-nine.

40 (Signed) E. J. LeBlanc, N.P.

True copy of the original hereof remaining of record in my office.

(SEAL).
E. J. LeBlanc, N.P.

PLAINTIFF'S EXHIBIT P-25 AT ENQUETE

List of equipment on Job.

10

CEDARS STORAGE DAM

LIST OF PLANT AND EQUIPMENT.

Prepared by H. E. Lindskog, Gen. Supt.

Feb. 8th, 1933.

BOILERS

MAIN PLANT

	1	100	H. P. Locomotive Type	.....	100
20	1	80	“ “ “	.....	80
	1	50	“ “ “	.....	50

H. P. in Main Plant..... 230 H.P.

This main plant provided steam for operation of concrete plant, cableway, machine shop, carpenter shop, lighting plant, crusher and tower hoists and heating of concrete aggregates and protection of concrete. Was also interlocked with pumping boilers to give reserve steam to pump boilers. Also provided steam for water supply for concrete plant, camp supply and sand washing.

30

PUMP BOILERS

	1	45	H. P. Locomotive Type	.....	45
	2	30	H. P. Upright Type	.....	60
	3	25	H. P. Locomotive Type	.....	75
	1	30	H. P. “ “	.....	30

40

H. P. Boilers in place at site of pumps..... 210 H.P.

DERRICK BOILERS

	1	Clyde Upright Boiler travelling derrick	.....	30
	1	Mundy “ “ stiff-leg derrick	.....	30
	1	Portable mixer boiler	.....	15

13

Total H. P. boilers on job 515 H.P.

PUMPS — UNWATERING

					Approximate Capacity.	
	6	8"	Discharge Centrifugal	Steam	12,000	G. P. M.
	2	10"	"	"	6,000	"
	1	12"	"	"	3,500	"
	1	6"	"	"	1,000	"
10	1	6"	"	Gasoline	1,000	"
	1	8"	"	"	2,000	"
<hr/>					<hr/>	
	12				25,500	G. P. M.

PUMPS — UNWATERING

	1	100	H. P. Gasoline Motor	
	1	60	"	"
	1	30	"	"
20	1	15	"	"

WATER SUPPLY PUMPS.

	4	Duplex Pumps, 1½" Discharge
	1	" Pump 2" "
	1	" " 4" "

30 This equipment used for camp supply, sand washing, mixing operations, boiler feeds and cleaning operations on job.

MISCELLANEOUS UNWATERING EQUIPMENT

	2	Pulsometers 4" Discharge
	3	Hand Diaphragms.

EXCAVATING EQUIPMENT.

40	1	65'	Boom S. L. Derrick complete with 3 drum hoist and swinger.
	1	100'	Boom S. L. Derrick " " " " " "
	1	65'	Boom travelling derrick complete with 3 drum hoist and swinger.
	3	1 Yd.	Orange-peels, heavy duty Hayward,
	1	1¼ Yd.	" peel " " "
	1	1¼ Yd.	Clam-shell " "
	1	¾ Yd.	" "
	6	1 Yd.	V Dump Cars

- 2 1½ Yd. Grasshopper Cars
- 2 4 Yd. Side Dump Cars
- 2 2 Yd. “ “ “
- 4 1 Yd. Carts
- 8 ¾ Yd. “

10

ROCK DRILLS

- 1 Tripod Drill complete
- 12 Jack Hammers.

COMPRESSORS

- 3 I. R. C. Gas, 310 cu. ft. each, 930 cu. ft. total

20

CONCRETE PLANT

- 1 1 Yd. Mixer, complete (Smith).
- 1 ¾ Yd. “ “ “
- 1 ½ Yd. “ “ (Ransome) used on sand treating plant.
- 1 2 Drum hoisting engine at tower
- 1 1 “ “ “ rock hoist
- 1 1¼ Yd. Centre dump bucket
- 30 1 Complete tower equipment, 1 yd. capacity.
- 1 1 Yd. Side dump bucket
- 1 Complete plant for lime treatment and washing of sand.

MACHINE SHOP EQUIPMENT.

- 1 Horizontal Steam Engine, 20 H. P.
- 1 10-20 Gas engine
- 1 Screw Cutter
- 40 1 Drilling Machine
- 1 Lathe, 18" x 8'
- 1 Hacksaw, Power driven
- 1 Bolt Cutting Machine
- 3 15 Ton Jacks
- 2 Blacksmith Outfits complete
- 1 Drill sharpening outfit complete
- All necessary small tools.

CARPENTER SHOP EQUIPMENT

- 2 Wood Borers
- 1 Band Saw
- 1 Table Saw
- 1 Stat, Wood Borer
- 10 1 Planer
- 1 Planer and Matcher
- 1 Drag saw, gas, complete with gas engine
- 1 Wood splitting machine complete with gas engine
- 1 Horizontal steam engine
- 1 10-20 Gas Engine

PIPE FITTERS SHOP.

- 20 All necessary pipe cutting and pipe threading tools up to 8" pipe.

CRUSHER PLANT.

- 1 12 x 24 Reliance Jaw Crusher, Elevator and Screens, 100 H. P. Gasoline Engine.
- 1 9 x 16 Crusher and Elevator, 100 H. P. Gasoline Engine.
- 1 Single Drum Hoist
- 2 1 Yd. V Dump Cars.

30 CABLEWAY.

- 1 10 Ton Jencks 1000 ft. Cableway, complete with hoist.

LIGHTING PLANT.

- 3 Dynamos, gasoline powered and steam.
- 1 Chlorinator plant complete.

40 HAULING EQUIPMENT.

- 3 100 H. P. Lion Tractors,
- 20 Logging Sleighs,
- 1 Telephone Outfit Complete
- 1 Snow Plow
- 1 Garage (Gracefield) complete with necessary equipment for repairs.
Enough repairs parts to build 1 Linn Tractor.

Feb. 8th, 1933.

**ESTIMATED CAPACITY OF CONSTRUCTION PLANT,
WORKS LIGHTED TO PERMIT 24 HRS. OPERATION.**

BOILERS	
	H. P.
10	
Main Plant	230
Pump boilers (also connection to above)	210
	<hr/> 440 H. P.

PLUS BOILERS ON HOISTING ENGINES

20 Pumps Capacity per minute, 25' head ... 25,500 G. P. M

EXCAVATING EQUIPMENT.

Travelling derrick and orange peel
with dump carts on by-pass excavation if in
earth 300 cu. yds per shift-per 24 hours..... 600 cu. yds.

ON ROCK EXCAVATION.

30 2 Derricks working 75 cu. yds. each
per shift, 150 cu. yds. per 24 hours..... 300 cu. yds.

ON ROCK QUARRYING CRUSHING.

2 Crushers

Average 150 cu. yds. per 10 hrs.—per
24 hours 300 cu. yds.

40 **CONCRETE MIXING.**

Average 150 cu. yds. per 10 hours—per
24 hours 300 cu. yds.

CABLEWAY.

Actual delivery from mixer 15 trips
per hour to extreme end of work.

PLAINTIFF'S EXHIBIT P-49 AT ENQUETE

Statement additional cost of work under winter conditions.

MACLAREN'S CEDARS ACTION.

10 ADDITIONAL COST ON WINTER WORK.

14th February, 1933.

Coal charged to concrete Nov. 1st to April 1st,
 1122 tons = 2,244,000 lbs.
 Total concrete poured 15.046 c. y. = 150 lbs. per c. y.
 Plus wood fuel on salamanders used in Class 2,

Estimated.

20 DISTRIBUTION OF ADDITIONAL COSTS.

	Class 1	Class 2
Extra labor cost quarrying & crushing stone	.40	.40
Extra labor cost handling & storing sand	.20	.20
Extra cost mixing and placing concrete		
+ 25%	.25	.50
Fuel cost heating materials and protecting concrete 150# per c. y. @ \$20. per ton in boilers	1.50	3.00
30 Enclosing and covering, labor and material	.30	1.50
Men attending salamanders &c.....	.20	.65
Extra fuel for boilers &c.....	.25	.25
Extra cost plant maintenance.....	.10	.10
	\$3.20	\$6.60

Forms

	Per square foot.	Plain	Curved
20% on labor	.03		.06
On material			
40 tied up 3 weeks			
instead of 1"			
add 200% to			
material cost	.10		.16
Total extra cost			
per sq. foot	.13		.22

Structural Steel

30% additional on \$25.00 = \$7.50.

DEFENDANT'S EXHIBIT D-6 AT ENQUETE.

Explanatory Statement.

Feb. 20, 1933.

MACLARENS CEDAR RAPIDS ACTION.

SHOWING QUANTITIES DAILY ROCK EXCAVATION AND CONCRETE OUTPUT REQUIRED ON WM. I. BISHOP'S ESTIMATED PROGRESS SCHEDULE DATED FEBRUARY 21st, 1933.

— 1929 —

UNIT LOCATION		JAN.	FEB	MAR.	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.		
Rock	Stoney Gates	Yards per day													
	Non Spilling	180	180	180											
	East Abutment			60	60	60	60								
	Log Sluice					60	60			60					
	Sluice Gates								80	80					
	Stop Log	40	40	40	40	40					40	40			
	West Abutment						35								
		180	220	220	280	100	160	155	35	NONE	NONE	80	140	40	40
Concrete	Stoney Gates				170	170	170						170		
	Non-Spilling					120	120	120							
	East Abuttment					50									
	Log Sluice					40	40	40	40	0	40	40			
	Sluice Gates									160	160				
	Stop Logs					95	95	95	95	95'0	0'95	95			
	West Abutment								30						
	Gate House											15	15		
	170	290		290	305	135	165	165	255	160	200	295	305	15	15

Quantities figured on 20 days per month
 Figures given are amounts per day.

Wm. I. Bishop.

PLAINTIFF'S EXHIBIT P-117 AT ENQUETE

Statement showing charge of \$8,811.15; standby and over-head expenses plant rental on equipment for cofferdams and unwatering.

10

March 5th. 1933.

CEDARS
PLANT RENTAL ON
COFFERDAMS AND UNWATERING.

SUMMARY

Pumping equipment as per details attached	\$4345.35
20 Derrick &c.	4465.80
	<hr/>
TOTAL.....	\$8,811.15
	<hr/>

Mar. 4th, 1933.

CEDARS
PLANT RENTAL
OF PUMPING EQUIPMENT FOR UNWATERING

30 Allow 1 week of 7 days for installation of pumps.

Pumping started Sept. 23rd, 1929.

At start of pumping there were:—

1— 6" Centrifugal Direct Connected, Rental \$1.50 per day	
	per pump
3— 8" " " " " 2.00 " " " "	
40 1—10" " " " " 3.50 " " " "	
1—12" " " " " 4.00 " " " "	

Total rental per day:—

1— 6" @ \$1.50 = \$1.50	
3— 8" @ 2.00 = 6.00	
1—10" @ 3.50 = 3.50	
1—12" @ 4.00 = 4.00	
	<hr/>
	\$15.00
	<hr/>

Pumps continuously under head of steam and pumping or as standby or ready to pump until finished with pumping in main cofferdam Jan. 10th. Allows 1 week for removal will make Jan 17th.

Sept. 15th, 1929 to Jan. 17th, 1930 = 124 days
 10 124 days x \$15.00 \$1,860.00

Horsepower of these pumps is:—

6"—10 H.P.
 8"—20 H.P.
 10"—40 H.P.
 12"—45 H.P. — Total H.P. = 155 H.P.

Boilers necessary:—

20 100 H.P. Boiler, rental \$3.50 per day, \$3.50 x 124.... 434.00
 60 H.P. " " 2.50 " " 2.50 x 124.... 310.00

These boilers were kept steady on pumps.

When heavy pumping was done they were boosted by other boilers for which no rental is charged.

30 Carried Forward..... \$2,604.00
 Brought Forward from Sheet No. 1 \$2,604.00

3—8" Pumps, direct connected, arrived on or before Oct. 1st, 1929, and in operation until end of pumping in main cofferdam. Oct. 1st 1929 to Jan. 17th, 1930 = 109 days. Rental = \$2.00 per day per pump, 3 x 2 x 109 = \$654.00 654.00

40 Extra boilers for these pmps.

40 H.P. Loco. @ \$1.70 per day x 109 =..... 185.30
 30 H.P. Upright @ 1.25 " " x 109 =..... 136.25

These boilers were kept steady on pump etc.

Pumps direct connected to gas engines and pumps changed to gas engine drive.

1—6" Direct connected to gas engine,
 1—8" " " " " " "

These pumps arrived 6th of Dec. and were set to work immediately and pumped continuously until Feb. 1st = 56 days.

	Rental for 6" same as for 8" steam pump = \$2.00 per day	
	" " 8" " " " 10" " " = 3.50 " "	
10	56 x \$2.00 = \$112.00	112.00
	56 x 3.50 = 196.00	196.00
	1—10" Steam pump changed to belt drive with 60 H.P. gas engine.	
	60 H.P. gas engine rental from Dec. 6th to Feb. 1st	
	56 days @ \$3.50 per day rental for 60 H.P. gas engine 56 x \$3.50 = \$196.00	196.00
20	10" Pump rental from Jan. 17th to Feb. 1st — 14 days, 14 days x \$3.50 per day = \$49.00	49.00
	1—8" steam pump changed to belt drive with 30 H.P. gas engine,	
	56 days @ \$2.00 per day rental for 30 H. P. gas engine =	112.00
30	8" Pump rental for pump (water end) 14 days from Jan. 17th to Feb. 1st — 14 x \$2.00 =	28.00
	Carried forward.....	<u>\$4,272.55</u>
	Brought forward from Sheet No. 2	<u>\$4,272.55</u>
	1—10" Steam pump direct connected, from Jan. 17th to Feb. 1st, 14 days @ \$3.50 =	49.00
40	1—40 H. P. Loco. Boiler for same, from Jan 17th to Feb. 1st, 14 days @ \$1.70 per day =	23.80
		<u>\$4,345.35</u>
	Total rental Pumps = \$3,256.00	
	" " Boilers = 1,089.35	
		<u>\$4,345.35</u>

Mar. 5th, 1933.

CEDARS
PLANT RENTAL
BUILDING AND REMOVAL COFFERDAMS.

10 Plant used consisted of 1 — 65 ft. boom stiff-leg derrick,
with 3 drum hoist and boiler and swing engine:

1 — 100 ft. boom stiff-leg derrick with 3 drum hoist and boiler
and swing engine :

1 — 65 ft. boom travelling derrick with 3 drum hoist and boiler
and swing engine :

2 Orange-peels, 1 yard capacity.

20 DERRICK #2 — 100 Ft BOOM.

Plant rental \$9.20 per day.

Allow 7 days for erection.

Started loading rock into crib #1 on June 15th.

Finished work on cofferdam April 1st, 1930.

30 During this time it loaded rock into cribs, helped set and
drive wood sheeting and build cribs in place (building cribs up
to proper elevation): placing pumps: helping on steel sheeting
(light and heavy): driving steel sheeting: pulling steel sheeting:
removing of cofferdam. A period of 41 days between building
cofferdam and removal of cofferdam is deducted when derrick
was engaged in excavation of deep sluice gates.

June 7th, 1929 to April 1st, 1930 = 207 days.

40 207 days — 41 = 166 days + 7 days for
dismantling = 173 days
173 x \$9.20 = \$1591.60 \$1,591.60

Orangepeel from Feb. 1st 1930 to Apr. 1st,
59 days,

59 x \$3.00 per day rental = \$177.00 177.00

DERRICK #3

Erected and ready to work about Aug. 1st, 1929.

10 Performed practically same duties as Derrick #2 until March 15th, 1930 = 226 days. Less days at work on excavation 21 days.

226 — 21 = 205 days, 205 x \$9.20 = \$1886.00 1,886.00
Orange peel, Feb. 1st, 1930 — March 15th = 43 days,
43 x \$3.00 = \$129.00 129.00

Carried forward to Sheet #2 \$3,783.60

Brought Forward from Sheet #1 \$3,783.60

20

DERRICK #1

Plant Rental \$9.20 per day.

Started work on removal of cofferdams March 15th, 1930. Finished 10th of April, 1930 26 days,

26 x \$9.20 = \$239.20 239.20

30 Orange peel 26 x \$3.00 per day = \$78.00 78.00

PILE DRIVING

Pile driver rig charged in to cost of cofferdam.

No rental.

Rental on Arnott Hammer

Rental on Vulcan Hammer

Arnott = \$2.50 per day

Vulcan = 5.00 " "

40

Vulcan hammer from Oct. 28th to Dec. 3rd driving piles and sheet piling and redriving sheet piling 36 days

36 x \$5.00 = \$180.00 180.00

Arnott hammer driving small sheeting from Dec. 3rd to Dec. 15th and later pulling sheeting. Finished March 1st, 1930, 74 days

x \$2.50 185.00

\$4,465.80

PLAINTIFF'S EXHIBIT P-120 AT ENQUETE

Calculations of W. I. Bishop as to cost of forms, &c.

10

Mar. 7th, 1933.

MACLAREN'S CEDAR RAPIDS
FORMS FOR CONCRETE BUILT UNDER WINTER
CONDITIONS.

	Additional cost over summer conditions		
	Forms plain surfaces 91,200 square feet @ 13¢ =		\$11,856.00
	“ curved “ 8,733 “ “ @ 22¢ =		1,921.00
20			<hr/>
			\$13,777.26
	Plus 37%		5,097.58
			<hr/>
			\$18,874.84

PLAINTIFF'S EXHIBIT P-115 AT ENQUETE

Estimate of cost of digging 12,395 yards hardpan.

30

Mar. 13, 1933.

CEDARS ACTION
HARDPAN EXCAVATION,
12,935 cubic yards

Transportation and rental shovel and trucks per
Sheet 1 = \$10,540.00

40 OPERATION

	Revolving shovel on Caterpillar traction, 50 days @ \$60.00 =	3,000.00
	Trucks, 4 trucks, 50 shifts @ \$12.75	2,550.00
	Repairs and maintenance	
	Shovel, 50 shifts @ \$15. =	\$750.
	Trucks 200 “ @ 5. =	1000.
		<hr/>
		1,750.00

	Drilling and blasting hardpan and boulders	
	12,935 cu.yds. @ 55¢ =	7,114.25
	Miscellaneous hand labor, trimming &c, on	
	roads &c, 1 man 3.50 x 50 =	175.00
	Dump crew 2 men @ \$3.50 = \$7.00 x 50 =	350.00
	1 Excavation foreman, 2 months @ \$200. =	400.00
10	Plank road in cut and ramp,	
	25,000 Ft.B.M. @ \$40. =	1,000.00
		<hr/>
		\$26,879.25
	Plus 37%	9,945.32
		<hr/>
		\$36,824.57
	÷ 12,935 @	\$2.85 per cu.yd.

20

Mar. 13th, 1933.

HARDPAN EXCAVATION

OPERATION 1¾ cu.yd. Gasoline Shovel per Shift

	Shovel Runner — 11 hrs. @ \$1.25 per hour	\$13.75
	1 Cranesman — 11 “ @ .90 “ “	\$9.90
	1 Oiler — 11 “ @ .45 “ “	\$4.95
	1 Padman — 11 “ @ .35 “ “	\$3.85
30	90 Gallons Gasoline @ .25	\$22.50
	10 “ Oil	\$5.00
		<hr/>
		\$59.95

Operation trucks

	Driver, per shift	\$5.50
	25 Gallons gas	6.25
40	2 “ Oil	1.00
		<hr/>
		\$12.75

Part IV — JUDGMENT

10 CANADA,
PROVINCE OF QUEBEC,
DISTRICT OF MONTCALM.
No. 1907.

JUDGMENT IN THE SUPERIOR COURT

The first day of June, one thousand nine hundred and
thirty-four.

20 Present:—His Lordship Mr. Justice Chas. D. White.

THE Court having heard the parties through their
respective counsel on the merits of Plaintiff's demand, and having
examined the proof and proceedings of record and deliber-
ated:—

30 THIS action arises out of a contract by which the
Plaintiffs agreed to construct for Defendant a storage dam known
as the construction of the Cedar Rapids Storage Dam, under con-
tract made June 1928. The Plaintiff's claim is under twelve dif-
ferent headings, and are of such a nature that it will be necessary
to consider each heading separately.

THE Defendant claims in substance that the Plain-
tiff has been paid everything owing to it for the work done under
the contract and specifications.

40 THERE are certain things which must be remem-
bered in determining the rights of the parties under the contract
in this case, amongst the most important are:

(a) It is not a contract à forfait falling under the provisions
of art. 1690 C. C.

(b) The specifications and any and all parts thereof shall
be binding on both parties the same as if contained in the body
of said contract.

(c) It is provided in the specifications: "It is the intention of these specifications to secure thoroughly, first class construction in both material and labor for each of the classes included herein without working an undue hardship on the contractor."

10 THIS and other clauses of the contract clearly show:

THAT neither of the parties were fully aware of the magnitude of the undertaking, or of the difficulties which would be encountered in its carrying out, but that the intention of the parties was that no matter how difficult the work might prove to be the contractor was to complete the work and the owner was to pay for it.

20 (d) "It is further provided on page 14: "Should any dispute arise as to the interpretation of the terms of this contract as to the cost of changes and extra work performed or in regard to any other matter regarding the execution or final settlement of this contract, it shall be referred to a board of three arbitrators and its decision shall be final and binding on both parties."

30 WHILE there is apparently no way of enforcing this clause it does give each party the right to believe that the other is intending to carry out the agreement as made, and this must tend to destroy the argument of the defence, that the Plaintiffs' should have ceased work and brought an action to set aside the contract, not only is this clause in the agreement, but when the question of hard-pan came up for discussion between Bishop and O'Shea, arbitration was discussed as the method of settlement, although nothing definite was decided at that time.

40 THE object of the contract was the building of a storage dam "to be known as the Cedar Rapids Storage dam, at a line established on the ground."

THE work was to be done under the Engineering Supervision and to the satisfaction of the Chief Engineer of the Quebec Streams Commission.

THE principal sum is fixed by the contract and it is further provided on page 5 "the principal sum of money to be paid to the contractor as specified herein, is based on an

estimate that the quantities of excavation, concrete masonry, forms, reinforcing steel, and other classes of work required and which have been calculated from the dimensions and depths to the bottom of the dam that are shown or indicated on the drawings referred to herein..... For such extra work as the contractor shall perform by virtue of the written authorization of the
10 Engineer, the owner shall pay to the contractor, in addition to the principal sum herein specified, sums of money equal to

- (a) the actual cost of the labour and material.
- (b) 37% of said labour and material costs.

THE first item of Plaintiffs' claim is for excavating hard-pan.

20 ONLY two classes of excavation are provided for by the contract, earth and rock. The evidence shows that beyond doubt a considerable amount of hard-pan had to be excavated, at a large additional cost over earth excavation.

THE defendants' answer to this claim is in substance:

(a) There was little or none of this hard-pan, that which Plaintiffs call hard-pan was really earth which had be-
30 come frozen owing to the lateness of the season.

(b) Test pits had been opened by Defendant, and these apparently did not disclose hard-pan, in fact O'Shea informed Plaintiff before tender was made that the test pits showed first five feet of sand and loam, and next gravelly material with occasional boulders, consequently, no mention of hard-pan is contained in the contract.

40 THAT the material was hard-pan seems free from doubt. Mr. Mailhot a professor of geology proves it as does H. G. Ayers a well known contractor, and also Plaintiffs' men who worked on it. It was certainly there and had to be excavated. It is not mentioned in the contract, consequently defendant wants to pay for it as earth. Plaintiff says it cost almost as much to excavate as rock. Ferguson at page 368 says that Plaintiff protested about it and he does not remember why he (Ferguson) did not attend to the matter in the beginning. Plaintiff and O'Shea spoke of recommending arbitration.

IF Plaintiff has to meet this extra expense on account of something unforeseen, it certainly is imposing “an undue hardship on the contractor.”

10 THE amount thus excavated in that portion of the dam across the by-pass channel is 8335 cubic yards at \$2.90 per yard, (two-thirds of rock price) amounts to \$23,971.50 on account of which Plaintiff acknowledges to have received the earth price or \$10,252.05 leaving a balance of \$13,919.45 for which Plaintiff should recover.

20 AS to the 4600 cubic feet in the by-pass, the contract provides that any additional excavation “for by-passing or handling the flow of the river, shall form part of the principal sum. Plaintiff claims however, that it was represented by Defendants’ engineers that the test-pits showed sand, loam and gravelly material and some boulders. It is not shown that this was a misrepresentation all that it means is that in the exact places where these test-pits were dug, there did not happen to be any hard-pan. There not being any misrepresentation Plaintiff is not entitled to recover for the hard-pan in the by-pass which is not part of the dam.

30 THE next item for which Plaintiff claims is for handling Defendants’ logs. The contract provides that the contractor “shall so construct the cofferdams and erect and manage “the construction of the works as a whole that logs of the owner “or of others may be driven by the site of the dam during the “driving season of 1929, and shall provide such opportunities “for the passage of logs as the construction work may render necessary.”

THE decision of this item will decide the next item in so far as the damage caused to the cofferdams, and the delay which resulted therefrom is concerned.

40 UNDER all the circumstances of the case and the wording of the contract, what is the meaning of the words “may be driven.” Does it mean that during the driving season the Plaintiffs should leave sufficient space between its cofferdam as would enable the defendant using its knowledge and skill as log drivers (which is their line of business) to drive their logs through, or does it mean that the Plaintiffs who are not in the log driving business, to undertake, apart from leaving the necessary space for the logs to be driven through either to do the driv-

ing itself, which it never agreed to do, or allow each particular log to use its own judgment as to the facilities which Plaintiff had provided for its passage.

10 MR. Kenney's letter P.32 and P.34 indicate clearly the position taken by the Defendant. That is to say, not only does the defendant claim that it is under no obligation to *drive* or take care of the logs in any way, but actually wants to hold the plaintiff responsible for any additional expense in driving the logs which they might be put to by reason of the works which Plaintiff was doing for defendant under the contract in question. There is no provision in the contract that Plaintiff should bear any part of this expense, and the position taken by defendant is in my opinion untenable. The cost of handling these logs is shown to be for labor and materials \$2995.42 for which Plaintiff is entitled to judgment.

20

As to the 37% which Plaintiff asks for, the work of handling Defendants' logs is not provided for by the contract, and being work not contemplated by the contract, this cannot be allowed.

The next item is the increased cost of cofferdams and unwatering.

30 THE Plaintiff seeks to hold Defendant responsible for this item on two grounds:

(a) The damage caused by the logs.

40 (b) The fact that on the plan upon which the tender was made, "the line established on the ground" (page 1 of contract) was marked L. admittedly meaning ledge, while as a matter of fact it was not ledge at all, but had an over burden of a pervious nature, in some places as much as nine feet, so that it was only after much delay and large extra cost, that the cofferdams could be made sufficiently water-tight for the work to be proceeded with.

THE Defendant contends that Plaintiff should not have relied upon the statements on the plan, but should have verified them all, and cites several cases in support of the contention, principally the Nova Scotia Construction Co. and The Quebec Streams Commission. It must be noted however that the contract in the Nova Scotia case contains a special clause that

“the agreement is made and entered into by the contractor.....
“solely on his own knowledge, information and judgment of the
“character and topography of the country, its streams, water
“courses and rainfall and subject to the same, and upon inform-
“ation derived from other sources than the commission etc.” No
such clause is in the contract under consideration in this case.

10

THE contract calls for the building of a dam “at
“a line established on the ground, the location of which is indic-
“ated on a map attached hereto.”

20

IT is admitted by both parties that the dam was
built on the line on the ground indicated on the map, and that
the letters L on the map mean ledge. In addition to this the con-
tract provides at page 9: “It is further agreed that any core
“drilling or grouting of seams in the ledge beneath the dam which
“may be required by the engineer shall be considered as extra
“work, and be paid for as such in the manner provided herein
“for other extra work.”

THIS clause plainly shows that both parties consi-
dered that the substance beneath the dam was *ledge*.

30

IT is intimated by the defence in the examination
of witnesses and at the argument, that Plaintiff should have ve-
rified the finding of ledge, even to the extent of core boring. The
contract as we have just seen provides that if core boring is con-
sidered necessary by the engineer, (either Stream Commission’s
of Defendant’s page 2-A of contract) it shall be paid for as extra
work.

IT would seem from the evidence that core boring
might have saved much of the trouble, but there is no suggestion
that the Engineer ever considered it necessary and under the
contract it was up to him.

40

THE plan B-2444 was certainly not accurate, and
plaintiff was misled as to the difficulties which he would have
to face in the placing of cofferdams and the unwatering oper-
ations generally. Stratton was the man who obtained the inform-
ation upon which the plan B-2444 was made, and his evidence
shows that he had not had sufficient experience to be entrusted
with such an important piece of work. He selected the “line on
the ground”, the site of the dam. Surely plaintiff had the right
to suppose that when the site of the dam had been chosen by a

well known firm of hydrolic Engineers that at that particular spot the river bottom was ledge, as marked on the plan, and that that site had been chosen because it was ledge.

10 DEFENDANT argues that Plaintiff did not rely on Stratton's findings but checked it up themselves. The evidence shows that the soundings made by Reiffenstein and L'Hereux were merely for the purpose of getting the depth of the water and the shape of the river bottom so that L'Hereux who was the foreman carpenter would know how to make his cribs. The Defendant tries to show that the cribs for the cofferdams were not properly made, but the evidence on this point is not convincing. All the delay, trouble and expense are due to two things:

20 (a) The fact that instead of ledge at the line on the ground, where the dam was to be built there was pervious over burden.

(b) The damage caused by the Defendant's logs.

THE amount of loss proved by Plaintiff is \$144,457.92 being for extra crib work, sheeting and toe fill, steel sheet piling, including taking in heavy pile driver, pumping, removing of cofferdams, boats etc.,

30 THIS however cannot be considered work done under the contract but damages. This being the case plaintiff is not entitled to the 37% profit provided by the contract, but it is admitted at the argument that in this event an allowance of 15% for overhead would be fair. This amounts to \$21,667.50, making in all \$166,125.52 upon which Plaintiff acknowledges to have received \$49,050.20 leaving balance of \$117,075.22 for which Plaintiff is entitled to judgment.

40 THE next item is for a cofferdam at lower end of by pass which is reduced to \$1,418.48.

UNDER the contract the by pass was to be included in the principal sum and plaintiff has not established that it is entitled to this amount as an extra or as damages.

THE next item is for additional rock excavation, according to Plaintiffs' proof this extra work was done, and Ferguson at page 363 expected that it would have to be done. This.

with the 37% profits amounts to \$122,417.39 on account of which has been paid \$87,316.65 leaving a balance of \$35,100.74 for which the Plaintiff is entitled to judgment.

THE next item is for handling and trimming excavated rock, Plaintiff has not established this item.

10 THE next item is for excavating 811 cubic yards of frozen boulders etc., at rock price \$4.35 which was paid at earth price \$1.23, leaving a difference of \$2530.32. There is no provision in the contract except for earth and rock. This material was certainly not ordinary earth excavation and was as expensive as rock. It would obviously be imposing undue hardship on the contractor to make him accept the earth price, — consequently plaintiff is entitled to this amount.

20 THE next item is the increased cost of working under winter conditions. There can be no doubt that the work was much more expensive then it would have been under Summer conditions. The delay was caused by the porous nature of the overburden at the places marked ledges, and the delay caused by defendants logs.

UP to the time that the trouble with the cofferdams and the unwatering began the progress chart shows that the work was well up to schedule.

30 THIS is another item in the nature of damages for which Plaintiff is entitled to cost plus 15% being \$70,680.62 plus \$10,602. making in all \$81,282.62.

THE next item is the difference on logs between log measure and board measure. This matter is somewhat involved and plaintiff has not established what amount, if any, of the \$5790.59 claimed it should receive, but has established that it has been charged \$1429.60 for logs it did not receive.

40 THE next item is the increased cost of hauling concrete for the apron in the by-pass channel. This plaintiff claims and proves cost \$2103.20 and that hauling on Winter roads would have cost \$468.56 leaving a difference of \$1634.64 with 15% overhead profit instead of 37%, \$245.19 in all \$1879.83.

THE next item is for shortage in payment for the amount for class 1 concrete.

IT is admitted that some parts of the dam were to be constructed of concrete with plums and other parts of concrete without plums (class 1.) This latter is considerably more expensive than the former. It was decided during the progress of the work to put class 1. in some places where concrete with plums were originally intended to be used.

10

THE figures are not contested, Defendant argues that Plaintiff is not entitled to be paid this amount unless this change is a change in design or depth of foundation.

ORIGINALLY certain parts of the dam were designed to be built of concrete with plums, then at a certain time the design was changed to use concrete without plums, and Defendant must pay the difference provided by the contract \$31,549.15 for which Plaintiff is entitled to judgment.

20

THE NEXT item is plant removal. Plaintiff alleges that owing to the delays in unwatering etc., it was obliged to remove their plant at a season of the year when it was much more expensive than it would have been if the delays had not occurred.

IT places the extra expense at \$5823.49.

IT is true that the contract page 18, makes plant removing and cleaning up 1.56% of the principal sum, but this was when the plant was expected to be removed at the cheapest season of the year.

30

IT is urged by defendant that these damages were too remote and could not be foreseen.

IF the delay was caused by the acts of defendant, this extra expense is one of the direct results of the delay and defendant is responsible for this \$5823.49.

40

THE next claim is for Standby and overhead expenses:

IN regard to this claim I agree with the convention of defendant that is to say, this amount is included in the 15% and 37% awarded on some of previous items.

CONSIDERING that Plaintiff has established the allegations of his declaration with regard to the following items:

No. 1—Hard pan to the amount of Thirteen thousand, nine hundred and nineteen dollars and forty-five cents (\$13,919.45).

No. 2—Handling defendant's logs to the extent of twenty nine hundred and ninety-five dollars and forty-two cents
10 (\$2995.42).

No. 3—Increased cost of cofferdams and unwatering, to the extent of one hundred and seventeen thousand, and seventy-five dollars and twenty-two cents (\$117,075.22).

No. 5—Additional rock excavation to the extent of thirty-five thousand one hundred dollars and seventy-four cents (\$35,100.74).

No. 7—Excavating frozen material in river bed to the extent of twenty-five hundred and thirty dollars and thirty-two cents (\$2530.32).
20

No. 8—Work under Winter conditions to the extent of Eighty-one thousand, two hundred and eighty-two dollars and sixty-two cents (\$81,282.62).

No. 9—Overcharge on logs to the extent of fourteen hundred and twenty-nine dollars and sixty cents (\$1429.60).
30

No. 10 — Hauling cement for apron in by-pass channel to the extent of eighteen hundred and seventy-nine dollars and eighty three cents (\$1879.83).

No. 11 — Shortage on payment in class 1, concrete, to the extent of thirty-one thousand five hundred and forty-nine dollars and fifteen cents (\$31,549.15).

No. 12 — Plant removal under expensive conditions to the extent of five thousand eight hundred and twenty-three dollars and forty-nine cents (\$5823.49).
40

Making in all two hundred and ninety-three thousand, five hundred and eighty-five dollars and eighty-four cents (\$293,585.84).

DOTH CONDEMN Defendant to pay to the Bank of Montreal the said sum of Two hundred and ninety-three thou-

sand, five hundred and eighty-five dollars and eighty-four cents (\$293,585.84) for the benefit and account of the Plaintiff William I. Bishop Limited, with interest on items Nos. one (1), two (2), five (5), seven (7), nine (9), eleven (11) from the date of the service of the action ; and on items Nos. three (3), eight (8), ten (10), and twelve (12) from the date of the present judgment, and DOTH FURTHER ORDER and adjudge that the
10 immoveable property as described in the declaration to wit: "The lot "A" in the fourth Range of the Township of Biglow in the County of Labelle, and the lots Nos. 1 and 2 in the first range of the Township of McGill in the County of Labelle, be charged and affected by a privilege for the payment of the said sum of Two hundred and ninety-three thousand, five hundred and eighty-five dollars and eighty-four cents (\$293,585.84) with interest and costs, including the costs of exhibits ; and DOTH CONDEMN
20 the Defendant to pay the costs of the present action including the cost of exhibits.

Chas. D. White,
J.S.C.

TO the Prothonotary of the Superior Court,

District of Montcalm.

30 CONSIDERING my absence from the district of Montcalm and my inability to render judgment in person, the foregoing judgment certified by me is transmitted to you and you are hereby instructed to record the said judgment, and to read it, or to give communication of it on demand to the parties or to their attorneys on or before the tenth day of June instant.

SHERBROOKE, June first, 1934.

Chas. D. White,
J. S. C.

In the Privy Council.

VOL. 6

No. 72 of 1936.

ON APPEAL
FROM THE COURT OF KING'S BENCH FOR THE
PROVINCE OF QUEBEC

BETWEEN

WILLIAM I. BISHOP LIMITED and
THE BANK OF MONTREAL

(Plaintiffs and Cross-Appellants before Court of
King's Bench) *Appellants*

AND

THE JAMES MACLAREN COMPANY LIMITED

(Defendant and Cross-Respondent before Court of
King's Bench) *Respondent*

RECORD OF PROCEEDINGS.

VOLUME 6.—EXHIBITS AND JUDGMENT OF SUPERIOR COURT.

BLAKE & REDDEN,
17, Victoria Street, S.W.1,
For the Appellants.

CHARLES RUSSELL & CO.,
37, Norfolk Street,
Strand, W.C.2,
For the Respondent.